UNCLASSIFIED

# DEPARTMENT OF THE AIR FORCE

# SUPPORTING DATA FOR FISCAL YEAR 1999 AMENDED BUDGET ESTIMATES

# RESEARCH, DEVELOPMENT, TEST AND EVALUATION

# DESCRIPTIVE SUMMARIES

DTIC QUALITY INSPECTED 3

**FEBRUARY 1998**

**VOLUME II**

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# DESCRIPTIVE SUMMARIES FOR PROGRAM ELEMENTS OF THE DEPARTMENT OF THE AIR FORCE RESEARCH AND DEVELOPMENT PROGRAM FY1999 AMENDED BUDGET ESTIMATES FEBRUARY 1998

## INTRODUCTION AND EXPLANATION OF CONTENTS

1. (U) GENERAL. 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 FY1999 President's Budget Submission (PB), except those listed in paragraph 2 - 4 below. All formats in this document are in accordance with the revised guidelines of the DoD Financial Management Regulation, Volume 2B, Chapter 5, insofar as possible.

a. Contents: Exhibits R-2 and R-3 provide narrative information for all RDT&E program elements and projects within the USAF FY1999 RDT&E program except the classified program elements. The formats and contents of this documents are in accordance with the guidelines and requirement 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. Volume III contains the Facilities exhibit (DoD Form 1391) and Combating Terrorism exhibit.

2. (U) CLASSIFICATION.

a. All R-2 and R-3 exhibits contained in Volumes I and II are UNCLASSIFIED. Classified R-2 and R-3 exhibits are not included in the submission due to the level of security classification and necessity of special security clearances.

3. (U) COMPARISON OF FISCAL YEARS 1998 AND 1999 DATA. A direct comparison of Fiscal Years 1998 and 1999 data shown in this document with corresponding data in the descriptive summaries dated February 1997 will reveal differences. The table highlights the relationship of the FY 1999 budget structure to the FY 1998 budget approved by Congress.

PROGRAM ELEMENT COMPARISON SUMMARY

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| **Program Element** | **Remarks** |
|---|---|
| BUDGET ACTIVITY 1: BASIC RESEARCH<br>No changes | |
| BUDGET ACTIVITY 2: APPLIED RESEARCH DEVELOPMENT | |
| 0602201F Phillips Laboratory Exploratory Dev | Project 4397 terminates in FY99 |
| 0602202F Armstrong Laboratory Exploratory Dev | Project 1900 terminates in FY99<br>Project 7755 terminates in FY99 |
| 0602203F Aerospace Propulsion | Project 3012 New Start in FY99 |
| 0602204F Aerospace Avionics | Project 2001 terminates in FY99 |
| 0602702F Command, Control & Communication | Project 2338 terminates in FY99 |
| 0602805F Dual Use Applications Program | Project 4770 New Start in FY99 |
| 0603852F CV-130J DEM/VAL | Project 4025 terminates in FY99 |
| 0603856F AF NRO Partnership | Project 4782 New Start in FY99 |
| BUDGET ACTIVITY 3: ADVANCE TECHNOLOGY DEVELOPMENT | |
| 0603106F Logistics Systems Technology | In FY99 and out, Projects 2745, 2940 and 2950 have been combined into Project 2745 |

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| | |
|---|---|
| 0603108F Integrated Data Systems | Transferred to PE 78611F, Project 4654 |
| 0603253F Advanced Avionics Integration | Software reuse efforts from Project 3833 transferred to Project 2735 |

BUDGET ACTIVITY 4: DEMONSTRATION AND VALIDATION

| | |
|---|---|
| 0603441F Space Based IR Arch (Dem/Val) (Space) | Project 0008 completed in FY98 |
| 0603852F C-130J Dem/Val | Project 4025 terminates in FY98 |
| 0603853F EELV D/V (Space) | Completed in FY98 |
| 0603860F Joint Precision & Landing Systems Dem/Val | New Start in FY99 |
| 0603876F Space Base Laser Systems Dem/Val | New Start in FY99 |

BUDGET ACTIVITY 5: ENGINEERING AND MANUFACTURING DEVELOPMENT

| | |
|---|---|
| 0207414F Combat Intelligence System | PEs 0604321F, 0207431F and 0305158F have been consolidated into PE 0207414F, Project 2758 |
| 0604201F Integrated Avionics Planning and | Project 2258 completes in FY99 |

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| | |
|---|---|
| 0604218F Engine Model Derivation Program | Project 2634 terminates in FY99 |
| 0604227F Flight Simulator Dev | Project 4673 New Start in FY99<br>Projects 2325 and 2769 terminate in FY99 |
| 0604243F Manpower, Personnel and Training | Projects 3818 and 4369 terminate in FY99 |
| 0604441F Space Base IR Arch | Project 4598 transferred to PE 0604442F in FY99 |
| 0604442F Space Based Infrared Sys (SBIRS) Low | New Start in FY99, Funds transferred from PE 0604441F |
| 0604602F Armament Ordnance Dev | MMHE moved from SEEK EAGLE (PE 0207590F/ Project 2784) to Armament Ordnance Development to align funding with ASC/CC decision to move MMHE out of the SEEK EAGLE program office. |
| 0604611F Joint Standoff Land Attack Missile | Per Congressional direction funds are held for administrative reasons in PE 0207325F, Project 4515 pending completion of Alternative of Analysis |
| 0604740F Computer Resource Technology | Project 2522 terminates in FY99 |
| 0604762F Common Low Observable Verification System | Project 4683 New Start in FY99 |
| 0604805F Duap Commercial Operations | New Start in FY99 |
| 0605011F RDT&E for Aging Aircraft | New Start in FY99 |

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| | |
|---|---|
| 0605704F Theater Air Defense BMC41 | Transfer to JTAMDO, PE 0605126J |

BUDGET ACTIVITY 6: RDT&E MANAGEMENT SUPPORT

| | |
|---|---|
| 0603402F Space Test Program | Transferred to PE 0605864F beginning in FY99 |
| 0605853F Environmental Conservation | Transferred to O & M, PE 0702896F for non-test-specific base operations support |
| 0605854F Pollution Prevention | All funds for Test Facility base operations support transferred to O&M, PE 0702896F |
| 0605856F Environmental Compliance | Transferred to O&M, PE 0702896F for non-test-specific base operations support |
| 0605876F Minor Construction | Transferred to O&M, PE 0702896F for non-test-specific base operations support |
| 0605878F Maintenance and Repair | Transferred to O&M, PE 0702896F for non-test-specific base operations support |
| 0605896F Real Property Services | Transferred to O&M, PE 0702896F for non-test-specific base operations support |

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BUDGET ACTIVITY 7: OPERATIONAL SYSTEM DEVELOPMENT

| | |
|---|---|
| 0102325F Joint Surveillance System | Projects 2976 and 4559 moved to PE 0102326F, Project 4592 |
| 0207131F A-10 Squadrons | Project 3861 New Start in FY99 |
| 0207217F Podded Reconnaissance System | Project 4611 completed in FY98 |
| 0207590F Seek Eagle | Project 2784 moved from Seek Eagle to Armament Ordnance Development (PE 0604602F/ Project 4696) |
| 0207601F USAF Wargaming & Simulation | Project 1011 transferred to PE 0308610F<br>Project 2888 transferred to PE 0207590F<br>Project 4567 FY99 New Start |
| 0207605F Wargaming & Simulation Center | New Program Element in FY99. FY98 funds in PE 27601F |
| 0208030F WRM-Ammunition | Combined with 0207323F |
| 0208019F Tactical Information Program | Project 4778 New Start in FY99 |
| 0208031F WRM-Equipment/Secondary Items | Project 4668 New Start in FY99 |
| 0302015F E-4B National Airborne Operations | Project 4777 New Start in FY99 |
| 0303131F Minimum Essential Emergency Communications Network | Project 4610 New Start in FY99 |

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| | |
|---|---|
| 0303140F Information Systems Security Program | Project 4579 New Start in FY99 |
| 0303144F Electromagnetic Compatibility | Project 649E was transferred to DISA, PE 0303153K. |
| 0303150F WWMCCS/Global Command | FY99 and out year funding transferred from 0303152F. PE title changed from Automated Data Processing Equipment |
| 0303152F Automated Data Processing Equipment | Transferred to PE 0303150F |
| 0305099F Global Air Traffic Management (GATM) | Projects 4689 and 4690 New Start in FY99 |
| 0305158F Tactical Terminals | Project 4394 moved to PE 0207414F, Project 2758 |
| 0305176F Combat Survivor Evader Locator | FY98 and prior years were funded in PE 0603853F and PE 0603854F |
| 0305910F Spacetrack | Project 4241 completed in FY98 |
| 0305953F Evolved Expendable Launch Veh (Space) | New Start in FY99 |
| 0308601F Modeling & Simulation Support | New Start in FY99 |
| 0401119F C5 Airlift Squadrons | Project 4495 name change to Avionics Modernization Program |
| 0401218F KC-135S | Project 4286 New Start in FY99 |

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| | |
|---|---|
| 0708071F Joint Log Program-Ammunition | New Start in FY99. FY97 and FY98 funds reclassified from O&M to RDT&E |
| 0708611F Support Systems Development | Project 4654 New Start in FY99. Funds transferred from 0603018F |
| 0803734F Crypto/Sigint Related Skill | Project 1005 completes in FY99 |
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| Defense Research Sciences | 0601102F | 1 |
| Defense Support Program (Space) | 0305911F | 1699 |
| Depot Maintenance (Non-If) | 0702207F | 1789 |
| Development Planning | 0605808F | 1175 |
| DoD Space Architect (Space) | 0305917F | 1719 |
| Dual Use Applications Program (DUAP) | 0602805F | 241 |
| E-4B National Airborne Operations Center (NAOC) | 0302015F | 1461 |
| Eastern Space Launch Facility (Space) | 0305182F | 1649 |
| Electromag Compatibility Analysis Ctr | 0303144F | 1517 |
| Electronic Combat (EC) Technology | 0603270F | 347 |
| Endurance UAVs | 0305205F | 1655 |
| Engine Model Derivative Program (EMDP) | 0604218F | 737 |
| Environmental Engineering Technology | 0603723F | 441 |
| Evolved Exp Launch Veh - EMD (Space) | 0604853F | 1089 |
| Evolved Expendable Launch Veh (EELV) (Space) | 0603853F | 677 |
| Evolved Expendable Launch Veh (Space) | 0305953F | 1725 |
| EW Development | 0604270F | 849 |
| F-117A Squadrons | 0207141F | 1275 |
| F-15E Squadrons | 0207134F | 1261 |

| Program Element Title | PE | PAGE |
|---|---|---|
| F-16 Squadrons | 0207133F | 1253 |
| F-22 EMD | 0604239F | 811 |
| Flight Simulator Development | 0604227F | 779 |
| Flight Vehicle Technology | 0603205F | 285 |
| Flight Vehicle Technology Integration | 0603245F | 331 |
| Global Air Traffic Management (GATM) | 0305099F | 1543 |
| Global Broadcast Service (GBS) (Space) | 0603854F | 683 |
| Global Combat Support System (GCSS) | 0303141F | 1509 |
| Global Positioning System Block IIF (Space) | 0604480F | 913 |
| Hardened Target Munitions | 0604327F | 707 |
| Hypersonic Technology Program | 0602269F | 159 |
| ICBM Dem/Val | 0603851F | 643 |
| ICBM EMD | 0604851F | 1073 |
| Industrial Preparedness | 0708011F | 1795 |
| Information Systems Security Program | 0303140F | 1489 |
| Information Warfare Support | 0208021F | 1433 |
| Initial Operational Test & Eval | 0605712F | 1147 |
| Integrated Avionics Planning and Development | 0604201F | 717 |
| Integrated Data Systems (IDS) | 0603108F | 249 |
| Intelligence Advanced Development | 0603260F | 491 |
| Intelligence Equipment | 0604750F | 1029 |
| International Activities | 1001004F | 1191 |
| Joint Air-to-Surface Standoff Missile | 0207325F | 1319 |
| Joint Direct Attack Munitions | 0604618F | 955 |
| Joint Interoperability Tactical Command/Control | 0604779F | 1059 |

ALPHABETICAL LISTING


| Program Element Title | PE | PAGE |
|---|---|---|
| Joint Logistics Program - Ammunition System | 0708071F | 1817 |
| Joint Standoff Weapon Systems | 0604727F | 999 |
| Joint Strike Fighter | 0603800F | 629 |
| Joint STARS | 0207581F | 1381 |
| Joint Surveillance System | 0102325F | 1233 |
| Joint Tactical Information Distribution System | 0604754F | 1035 |
| KC-135 Squadrons | 0401218F | 1771 |
| Life Support Systems | 0604706F | 969 |
| Logistics Systems Technology | 0603106F | 243 |
| Major Test And Evaluation Investment | 0604759F | 1125 |
| Manned Destructive Supression | 0207136F | 1269 |
| Manned Reconnaissance | 0305207F | 1661 |
| Materials | 0602102F | 43 |
| Medium Launch Vehicles (Space) | 0305119F | 1587 |
| Milstar LDR/MDR Sat Comm (Space) | 0604479F | 903 |
| Minimum Essential Emergency Communications Network (MEECN) | 0303131F | 1473 |
| Mission Planning Systems | 0208006F | 1425 |
| MILSTAR Satellite Comm Sys (Space) | 0303601F | 1537 |
| Mnpwr Pers & Trng Development | 0604243F | 837 |
| Modeling and Simulation Support | 0308601F | 1729 |
| Munitions Dispenser Development | 0604600F | 919 |
| National Airspace System | 0305137F | 1599 |
| National Polar-orbiting Operational Environmental Satellite System (NPOESS) (Space) | 0603434F | 539 |
| Navstar Global Pos Sys (User Eq) (Space) | 0305164F | 1635 |
| NATO Cooperative Research and Development | 0603790F | 585 |

| Program Element Title | PE | PAGE |
|---|---|---|
| NATO JSTARS | 1001018F | 1857 |
| NAVSTAR GPS (Space) | 0305165F | 1643 |
| NCMC-TW/AA Systems | 0305906F | 1667 |
| North Atlantic Defense System (NADS) | 0102411F | 1245 |
| Nuclear Weapons Support | 0604222F | 745 |
| Nudet Detection System | 0305913F | 1713 |
| Personnel, Training, and Simulation Technology | 0603227F | 315 |
| Phillips Laboratory Exploratory Development | 0602601F | 163 |
| Podded Reconnaissance System (PRS) | 0207217F | 1297 |
| Polar Adjunct (Space) | 0603432F | 535 |
| Pollution Prevention | 0605854F | 1179 |
| Product/Reliable/Avail/Maintain Prog | 0708026F | 1805 |
| Ranch Hand II Epidemiology Study | 0605306F | 1143 |
| RAND Project Air Force | 0605101F | 1139 |
| RDT&E FOR AGING AIRCRAFT | 0605011F | 1095 |
| Region/Sector Operations Control Center Modernization Program | 0102326F | 1239 |
| Rocket System Launch Program (Space) | 0605860F | 1183 |
| Satellite Control Network (Space) | 0305110F | 1559 |
| Security and Investigative Activities (S&IA) | 0305128F | 1593 |
| Seek Eagle | 0207590F | 1387 |
| Sensor Fuzed Weapons | 0207320F | 1313 |
| Space and Missile Rocket Propulsion | 0603302F | 359 |
| Space Based IR Arch (Dem/Val) (Space) | 0603441F | 545 |
| Space Based IR Arch (EMD) (Space) | 0604442F | 899 |
| Space Based IR Arch (EMD) (Space) | 0604441F | 887 |

ALPHABETICAL LISTING


| Program Element Title | PE | PAGE |
|---|---|---|
| Space Based Laser (SBL) (Space) | 0603876F | 697 |
| Space Systems Environmental Interactions Technology | 0603410F | 403 |
| Space Test Program (Space) | 0603402F | 1101 |
| Space Test Program (Space) | 0605864F | 1187 |
| Spacetrack (Space) | 0305910F | 1683 |
| Specialized Undergraduate Pilot Trng | 0604233F | 797 |
| Submunitions | 0604604F | 941 |
| Support Systems Development (SSD) | 0708611F | 1823 |
| Tactical AIM Missile | 0207161F | 1281 |
| Tactical Information Program | 0208019F | 487 |
| Tactical Terminals | 0305158F | 1617 |
| Target Systems Development | 0604258F | 1121 |
| Test And Evaluation Spt | 0605807F | 1155 |
| Theater Air Control System | 0207412F | 1327 |
| Theater Battle Management (TBM) C4I | 0207438F | 1363 |
| Theater Missile Defense | 0208060F | 1445 |
| Threat Simulator Development | 0604256F | 1105 |
| Titan Space Launch Vehicles (Space) | 0305144F | 1611 |
| Upper Stage Space Vehicles (Space) | 0305138F | 1605 |
| USAF Modeling and Simulation | 0207601F | 1401 |
| Variable Stability In-Flight Simulation Test Aircraft | 0604237F | 703 |
| Wargaming and Simulation Centers | 0207605F | 1419 |
| Weather Service | 0305111F | 1567 |
| Weather Systems Technology | 0603707F | 437 |
| WRM-Equipment/Secondary Items | 0208031F | 1437 |

| Program Element Title | PE | PAGE |
|---|---|---|
| WWMCCS/Global Command and Control System | 0303150F | 1525 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604602F Armament Ordnance Development

| | COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total Program Element (PE) Cost | 3,477 | 1,511 | 12,037 | 1,342 | 1,363 | 1,395 | 1,431 | Continuing | Continuing |
| 4696 | Armament Standardization/Control/ Munitions Material Handling Equipment (MMHE)* | 0 | 0 | 1,178 | 1,205 | 1,229 | 1,259 | 1,292 | Continuing | Continuing |
| 3133 | Bombs & Fuzes | 3,348 | 1,383 | 10,727 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| 5613 | Containers | 129 | 128 | 132 | 137 | 134 | 136 | 139 | Continuing | Continuing |
| | Quantity of RDT&E Articles | 609/$2852 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 747$3658** |

* MMHE is funded in Seek Eagle, PE 27590F, for FY97 and FY98

** Joint Programmable Fuze (JPF) RDT&E Articles only

(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.

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. (Funding for Project 4696 in FY97 and FY98 is through PE 27590F, Seek Eagle.)

Bombs and Fuzes: This project develops and improves conventional bombs and fuzes. It currently includes the development of the Joint Programmable Fuze (JPF) and the Hard Target Smart Fuze (HTSF). Small Bomb System (SBS) begins the Concept Exploration phase in this project. The initial Small Bomb System program funding will be used to explore concepts to meet CAF MNS 304-97 for the Miniaturized Munitions Capability.

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, prototyping, and testing capabilities.

This Armament Ordnance Development program is funded in budget activity 5 - Engineering and Manufacturing Development because the projects support the EMD phase of several munitions related items and functions.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604602F Armament Ordnance Development |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 3,483 | 1,597 | 135 | Continuing |
| (U) Appropriated Value | 3,642 | 1,597 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | -90 | -56 | | |
| b. SBIR | -69 | -30 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | -6 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 11,902 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 3,477 | 1,511 | 12,037 | Continuing |

(U) Change Summary Explanation:

Funding: FY 1999 changes were due to transferring the MMHE Project from Seek Eagle, funding Hard Target Smart Fuze development, and funding Small Bomb System pre-Milestone I risk reduction and Analysis of Alternatives.

Schedule: N/A

Technical: N/A

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Appropriation: Ammunition Procurement, Air Force, PE: 0208030F, Program Title: | | | | | | | | | |
| (U) Joint Programmable Fuze | 4,125 | 5,739 | 15,326 | 9,864 | 11,330 | 13,552 | 42,911 | 116,546 | 219,393 |
| (U) Hard Target Smart Fuze | 0 | 0 | 0 | 7,706 | 7,763 | 0 | 0 | 0 | 15,469 |
| (U) Appropriation: RDT&E, Air Force, PE: 0208030F, War Readiness Materials (HTSF), | 670 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 670 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604602F Armament Ordnance Development

PROJECT: 4696

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4696 Armament Standardization/Control/ Munitions Material Handling Equipment (MMHE)* | 0 | 0 | 1,178 | 1,205 | 1,229 | 1,259 | 1,292 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 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. (Funding for Project 4696 in FY97 and FY98 is through PE 27590F, Seek Eagle.)

(U) FY 1997 ($ in Thousands):
- (U) $ 0 Project funded in PE 27590F, Seek Eagle.

(U) FY 1998 ($ in Thousands):
- (U) $ 0 Project funded in PE 27590F, Seek Eagle.

(U) FY 1999 ($ in Thousands):
- (U) $ 498 Design, prototype and test various MMHE projects, i.e. complete testing of GBU Wing Container, International Storage Organization (ISO) Container Handling Device, T-2 Pallet Lock Device, and Flare Assembly Fixture. Complete prototype/testing of Alternate Mission Equipment (AME) Maintenance Stand.
- (U) $ 480 Initiate EMD for Next Generation Munitions Handler, complete evaluation/testing and MHU-110 Trailer Upgrade and Aluminum Rail Set
- (U) $ 100 Complete preliminary design of Next Generation Munitions Trailer and B-52 ALCM Pylon Loading Adapter
- (U) $ 100 Continue ISO Container Munitions Packaging and Bottom Lift Forklift Projects
- (U) $1,178 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604602F Armament Ordnance Development | PROJECT<br>4696 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 0 | 0 | 0 | 0 |
| (U) Appropriated Value | 0 | 0 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 1,178 | |
| (U) Current Budget Submit/ FY 1999 President's Budget | 0 | 0 | 1,178 | Continuing |

(U) Change Summary Explanation:

Funding: Project funding for FY97 and FY98 is in PE 27590, Seek Eagle. FY99 funding transferred from Seek Eagle.

Schedule: None.

Technical: None.

(U) **C. Other Program Funding Summary ($ in Thousands)**: Not Applicable.

(U) **D. Schedule Profile**: Not Applicable

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604602F Armament Ordnance Development<br>PROJECT 4696 |

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

| | FY 1997* | FY 1998* | FY 1999 |
|---|---|---|---|
| (U) Various MMHE Projects | 0 | 0 | 498 |
| (U) Next Generation Munitions Handler | 0 | 0 | 400 |
| (U) MHU-110 Trailer Upgrade | 0 | 0 | 50 |
| (U) Aluminum Rail Set | 0 | 0 | 30 |
| (U) Next Generation Munitions Trailer | 0 | 0 | 75 |
| (U) ISO Container Handling | 0 | 0 | 100 |
| (U) ALCM Pylon Adapter | 0 | 0 | 25 |
| (U) Total | 0 | 0 | 1,178 |

* Funded in Seek Eagle, PE 27590F

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604602F Armament Ordnance Development<br>PROJECT 4696 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Dept. of Energy/ NASA | MIPR | Oct 98 | N/A | N/A | 0 | 0 | 0 | 400 | Continuing | Continuing |
| Support and Management Organizations | | | | | | | | | | |
| TEAS/TAMS | MIPR | Oct 98 | N/A | N/A | 0 | 0 | 0 | 426 | Continuing | Continuing |
| AFDTC/FM | MIPR | Oct 98 | N/A | N/A | 0 | 0 | 0 | 160 | Continuing | Continuing |
| 64SSUPS/LGS | MIPR | Cont. | N/A | N/A | 0 | 0 | 0 | 30 | Continuing | Continuing |
| WL/MN | MIPR | Cont. | N/A | N/A | 0 | 0 | 0 | 50 | Continuing | Continuing |
| Test and Evaluation Organizations | | | | | | | | | | |
| 46th Test Wing | MIPR | Cont. | N/A | N/A | 0 | 0 | 0 | 112 | Continuing | Continuing |
| Subtotal Product Development | | | | | 0 | 0 | 0 | 400 | Continuing | Continuing |
| Subtotal Support and Management | | | | | 0 | 0 | 0 | 666 | Continuing | Continuing |
| Subtotal Test and Evaluation | | | | | 0 | 0 | 0 | 112 | Continuing | Continuing |
| Total Project | | | | | 0 | 0 | 0 | 1178 | Continuing | Continuing |

**Government Furnished Property:** Not Applicable.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604602F Armament Ordnance Development

PROJECT: 3133

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3133 Bombs & Fuzes | 3,348 | 1,383 | 10,727 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| Quantity of RDT&E Articles | 609($2852)* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 747($3658)* |

* JPF RDT&E Articles only

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

Bombs and Fuzes: This project develops and improves conventional bombs and fuzes including the development of the Joint Programmable Fuze (JPF) and the Hard Target Smart Fuze (HTSF). Small Bomb System (SBS) begins the Concept Exploration phase in this project.

(U) FY 1997 ($ in Thousands):
- (U) $ 1,667 Started JPF IOT&E
- (U) $ 158 Started JPF/JDAM Integration Flight Test
- (U) $ 1,523 Started Hard Target Smart Fuze (HTSF) EMD
- (U) $ 3,348 Total

(U) FY 1998 ($ in Thousands):
- (U) $ 201 Complete JPF IOT&E Test
- (U) $ 922 Complete JPF/JDAM Integration Flight Test
- (U) $ 260 Complete JPF Functional Configuration Audit, Production Readiness Review, and Physical Configuration Audit
- (U) $ 1,383 Total

(U) FY 1999 ($ in Thousands):
- (U) $ 1,050 HTSF System Requirements Review (SRR)
- (U) $ 2,534 HTSF Preliminary Design Review (PDR)
- (U) $ 2,243 Start Detailed Design
- (U) $ 1,000 Small Bomb System Concept Exploration Contracts
- (U) $ 250 Small Bomb System Program Office Support
- (U) $ 3,650 Small Bomb System Analysis of Alternatives (AoA)
- (U) $10,727 Total

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604602F Armament Ordnance Development

PROJECT: 3133

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 3,354 | 1,461 | 0 | Continuing |
| (U) Appropriated Value | 3,509 | 1,461 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | -86 | -51 | | |
| b. SBIR | -69 | -27 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | -6 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 10,727 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 3,348 | 1,383 | 10,727 | Continuing |

(U) Change Summary Explanation:

Funding: FY97 reductions were for SBIR, General Congressional Reductions, and support for Bosnia operations. FY98 reductions were for SBIR, and General Congressional Reductions. FY 1999 changes were due to funding Hard Target Smart Fuze and funding Small Bomb System pre-Milestone I risk reduction and Analysis of Alternatives.

Schedule: N/A

Technical: N/A

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Appropriation: Ammunition Procurement, Air Force, PE: 0208030F, Program Title: | | | | | | | | | |
| (U) Joint Programmable Fuze | 4,125 | 5,739 | 15,326 | 9,864 | 11,330 | 13,552 | 42,911 | 116,546 | 219,393 |
| (U) Hard Target Smart Fuze | 0 | 0 | 0 | 7,706 | 7,763 | 0 | 0 | 0 | 15,469 |
| (U) Appropriation: RDT&E, Air Force, PE: 0208030F War Readiness Materials (HTSF) | 670 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 670 |

(U) **D. Schedule Profile**

| FY 1997 | FY 1998 | FY 1999 |
|---|---|---|

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604602F Armament Ordnance Development<br>PROJECT 3133 |

| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (U) Joint Programmable Fuze (JPF) | | | | | | | | | | | | |
| (U) Complete DT&E | | | X | | | | | | | | | |
| (U) Start IOT&E | | | | X | | | | | | | | |
| (U) Complete IOT&E | | | | | | | | X | | | | |
| (U) Hard Target Smart Fuze (HTSF) | | | | | | | | | | | | |
| (U) EMD Start | | | | | | | X | | | | | |
| (U) System Requirement Review (SRR) | | | | | | | | | X | | | |
| (U) Preliminary Design Review (PDR) | | | | | | | | | | | X | |
| (U) Start Detailed Design | | | | | | | | | | | X | |
| (U) Small Bomb System (SBS) | | | | | | | | | | | | |
| (U) Start Concept Exploration/AoA | | | | | | | | | X | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604602F Armament Ordnance Development | PROJECT<br>3133 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) a. Contractor | 2,893 | 1019 | 5,805 |
| (U) b. Government | | | |
| Testing | 18 | 97 | 2,993 |
| Contractor support | 174 | 112 | 595 |
| Management support | 263 | 128 | 684 |
| ECO | 0 | 27 | 650 |
| Government Total | 455 | 364 | 4,922 |
| (U) Total | 3,348 | 1,383 | 10,727 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604602F Armament Ordnance Development |
| | PROJECT<br>3133 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Motorola (JPF Only) | CPAF | Jul 93 | 21,357 | 21,357 | 18,819 | 1,519 | 1019 | 0 | 0 | 21,357 |
| Unknown (HTSF and SBS) | TBD | Jan 98 | TBD | 7,179 | 0 | 1,374 | 0 | 5,805 | Continuing | Continuing |
| Support and Management Organizations | | | | | | | | | | |
| TEAS/TEAMS | Various | Various | N/A | N/A | 959 | 174 | 112 | 595 | Continuing | Continuing |
| ASC/WMG | Various | Various | N/A | N/A | 597 | 263 | 128 | 684 | Continuing | Continuing |
| Other | Various | Various | N/A | N/A | 250 | 0 | 27 | 650 | Continuing | Continuing |
| Test and Evaluation Organizations | | | | | | | | | | |
| 46th Test Wing | Various | Mar 94 | N/A | N/A | 3,212 | 18 | 97 | 2,993 | Continuing | Continuing |
| Subtotal Product Development | | | | | 18,819 | 2,893 | 1019 | 5,805 | Continuing | Continuing |
| Subtotal Support and Management | | | | | 1,806 | 437 | 267 | 1,929 | Continuing | Continuing |
| Subtotal Test and Evaluation | | | | | 3,212 | 18 | 97 | 2,993 | Continuing | Continuing |
| Total Project | | | | | 23,837 | 3,348 | 1,383 | 10,727 | Continuing | Continuing |

**Government Furnished Property:** Not Applicable

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604602F Armament Ordnance Development

PROJECT: 5613

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 5613 Containers | 129 | 128 | 132 | 137 | 134 | 136 | 139 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

Containers: This project funds the operation of the tri-service Container Design Retrieval System (CDRS). This system includes the maintenance of a container database to preclude proliferation and duplication of munitions containers. It also supports organic container design, prototyping, and testing capabilities. This project's efforts are limited to the study, design, and development of container systems. Any procurement will be performed and funded by the applicable weapons system project.

(U) FY 1997 ($ in Thousands):

- (U) $5 Initiated/continued/completed design/development of various CDRS projects, including a modular mobility container system, and special projects.
- (U) $5 Provided container design expertise, management, and technical support to programs such as AIM-9X, JASSM, AMRAAM, AGM-142, JDAM, AGM-130, and WCMD.
- (U) $119 Managed and operated the CDRS data base and support service.
- (U) $129 Total

(U) FY 1998 ($ in Thousands):

- (U) $5 Initiate/continue/complete design/development of various CDRS projects, including a modular mobility container system, and special projects.
- (U) $5 Provide container design expertise, management, and technical support to programs such as AIM-9X, JASSM, AMRAAM, AGM-142, JDAM, AGM-130, and WCMD.
- (U) $118 Manage and operate the CDRS data base and support service.
- (U) $128 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604602F Armament Ordnance Development |
| | PROJECT<br>5613 |

(U) FY 1999 ($ in Thousands):

- (U) $5 Initiate/continue/complete design/development of various CDRS projects, including a modular mobility container system, and special projects.
- (U) $5 Provide container design expertise, management, and technical support to programs such as AIM-9X, JASSM, AMRAAM, AGM-142, JDAM, AGM-130, and WCMD.
- (U) $122 Manage and operate the CDRS data base and support service.
- (U) $132 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 129 | 136 | 135 | Continuing |
| (U) Appropriated Value | 133 | 136 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | -4 | -5 | | |
| b. SBIR | | -3 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -3 | |
| (U) Current Budget Submit/FY99 President's Budget | 129 | 128 | 132 | Continuing |

(U) Change Summary Explanation:
Funding: FY98 change due to Congressional General Reductions and SBIR. FY99 change due to inflation.
Schedule: Not Applicable
Technical: Not Applicable

(U) **C. Other Program Funding Summary ($ in Thousands)**: Not Applicable

(U) **D. Schedule Profile**: Not Applicable

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604602F Armament Ordnance Development |
| | PROJECT<br>5613 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Travel/Transportation | 70 | 70 | 72 |
| (U) Supplies/Equipment | 49 | 48 | 50 |
| (U) Contractor Support | 0 | 0 | 0 |
| (U) Mission Support | 10 | 10 | 10 |
| (U) Test Support | 0 | 0 | 0 |
| (U) Total | 129 | 128 | 132 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| N/A | | | | | | | | | | |
| Support and Management Organizations | | | | | | | | | | |
| Sverdrup (TEAS) | Various | Oct 93 | N/A | N/A | 1,455 | 0 | 0 | 0 | Continuing | Continuing |
| ASC/YHS | Various | Various | N/A | N/A | 568 | 10 | 10 | 10 | Continuing | Continuing |
| Other | Various | Various | N/A | N/A | 451 | 119 | 118 | 122 | Continuing | Continuing |
| Test and Evaluation Organizations | | | | | | | | | | |
| 46th Test Wing | Various | Various | N/A | N/A | 190 | 0 | 0 | 0 | Continuing | Continuing |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604602F Armament Ordnance Development | PROJECT<br>5613 |

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

**Government Furnished Property:** Not Applicable

| | | | | | | |
|---|---|---|---|---|---|---|
| Subtotal Product Development | N/A | N/A | N/A | N/A | N/A | N/A |
| Subtotal Support and Management | 2,474 | 129 | 128 | 132 | Continuing | Continuing |
| Subtotal Test and Evaluation | 190 | 0 | 0 | 0 | Continuing | Continuing |
| Total Project | 2,664 | 129 | 128 | 132 | Continuing | Continuing |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604604F Submunitions

PROJECT: 3166

| COST *($ In Thousands)* | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3166 Joint Smart Munition Test and Evaluation Program | 4,761 | 4,748 | 4,805 | 4,886 | 4,909 | 4,921 | 4,867 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

This PE provides support for smart munitions 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 office which provides RDT&E support for developmental smart munitions acquisition programs. Project 3166 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. Phase IV (FY96-98) emphasized providing best value test and evaluation support for submunition development and weaponization studies, and Phase V (FY99-01) will provide modeling and simulation capabilities to augment a limited number of expensive measurement and open air tests of smart weapons and related technologies. Because this program supports development programs prior to production decision, this project is funded in BA 5 - Engineering and Manufacturing Development.

(U) **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.

(U) **FY 1997 ($ in Thousands):**

- (U) 1,088 Continued Phase IV of the weapon effectiveness evaluation
- (U) 300 Developed models and simulation tools to support electronic engagement simulations
- (U) 700 Continued maintenance and expansion of vulnerability/lethality and signature databases
- (U) 1,200 Planned and conducted captive carry flight tests and signature collection for seeker/sensor evaluations and algorithm development
- (U) 700 Conducted advanced warhead effectiveness evaluation
- (U) 773 Continued vulnerability analysis of Suppression of Enemy Air Defense (SEAD), and Theater Missile Defense (TMD) targets
- (U) $4,761 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604604F Submunitions<br>PROJECT 3166 |

(U) **FY 1998 ($ in Thousands):**

| | | | |
|---|---|---|---|
| – | (U) | 1,200 | Complete Phase IV of the weapon effectiveness evaluation |
| – | (U) | 458 | Develop models and simulation tools to support engagement simulations |
| – | (U) | 530 | Continue maintenance and expansion of vulnerability/lethality and signature database |
| – | (U) | 1,154 | Plan and conduct captive carry flight tests and signature collection for seeker/sensor evaluations and algorithm development |
| – | (U) | 706 | Conduct advanced warhead effectiveness evaluations |
| – | (U) | 700 | Continue vulnerability analysis of Suppression of Enemy Air Defense (SEAD) and Theater Missile Defense (TMD) targets |
| – | (U) | $4,748 | Total |

(U) **FY 1999 ($ in Thousands):**

| | | | |
|---|---|---|---|
| – | (U) | 1,200 | Initiate Phase V of the weapon effectiveness evaluation |
| – | (U) | 500 | Develop and validate improved models and simulation for assessment of alternatives and force on force studies |
| – | (U) | 500 | Increase utility of lethality/vulnerability and signature database through conversion to migration system and addition of moderm threat system data |
| – | (U) | 1,300 | Plan and conduct captive carry flight tests and signature collection for seeker/sensor evaluations and algorithm development |
| – | (U) | 600 | Characterize performance of advanced and programmable warheads to access potential for increasing lethality of weapons |
| – | (U) | 705 | Perform vulnerability analysis of upgraded/advanced Suppression of Enemy Air Defense (SEAD) and Theater Missile Defense (TMD) targets |
| – | (U) | $4,805 | Total |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 4,769 | 4,956 | 4,902 | Continuing |
| (U) Appropriated Value | 4,873 | 4,956 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | -104 | -162 | | |
| b. SBIR | | -46 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | -8 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -97 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 4,761 | 4,748 | 4,805 | Continuing |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604604F Submunitions | PROJECT<br>3166 |

(U) Change Summary Explanation:

Funding: No Significant Changes

Schedule: No change.

Technical: No change.

(U) C. **Other Program Funding Summary ($ in Thousands):** None

(U) D. **Schedule Profile:** Not Applicable as this is a continuing test effort (target/warhead evaluation/analysis, signature tests, captive carry flight tests, are ongoing throughout the year and continue through the FYDP).

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604604F Submunitions

PROJECT: 3166

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Program Support | 911 | 1,146 | 1,208 |
| (U) Target Support | 685 | 460 | 415 |
| (U) Warhead Range Operations | 315 | 308 | 327 |
| (U) Captive Flight Tests | 250 | 584 | 556 |
| (U) Database Support (MILES) | 440 | 265 | 285 |
| (U) Vulnerability/Effectiveness Analysis | 600 | 622 | 640 |
| (U) Warhead Evaluation | 460 | 335 | 343 |
| (U) Target Signature Tests | 800 | 570 | 545 |
| (U) Models and Simulation Tools | 300 | 458 | 486 |
| (U) Total | 4,761 | 4,748 | 4,805 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| N/A | | | | | | | | | | |
| Support and Management Organizations | | | | | | | | | | |
| Sverdrup | CIF | Jun 96 | N/A | N/A | 6,347 | 1,478 | 1,523 | 1,602 | Cont | Cont |
| ANSTEC | FFP | Apr 96 | N/A | N/A | 790 | 245 | 172 | 183 | Cont | Cont |
| 46 OG/OGML | N/A | Annual | N/A | N/A | 4,341 | 425 | 443 | 464 | Cont | Cont |
| Test and Evaluation Organizations | | | | | | | | | | |
| 46 OG/OGML | | Annual | N/A | N/A | 62,203 | 2,613 | 2,610 | 2,556 | Cont | Cont |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604604F Submunitions

PROJECT: 3166

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| **Government Furnished Property:** None | | | | | | | | | |
| Subtotal Product Development | | | | 0 | 0 | 0 | 0 | Cont | Cont |
| Subtotal Support and Management | | | | 11,478 | 2,148 | 2,138 | 2,249 | Cont | Cont |
| Subtotal Test and Evaluation | | | | 62,203 | 2,613 | 2,610 | 2,556 | Cont | Cont |
| TOTAL | | | | 73,681 | 4,761 | 4,748 | 4,805 | Cont | Cont |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604617F Air Base Operability

PROJECT: 2895

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2895 Air Base Operability | 2,776 | 1,260 | 2,503 | 2,563 | 2,587 | 0 | 0 | 0 | 153,384 |
| Quantity of RDT&E Articles | 2* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

* Two blades in different configurations costing $171K and $119K were purchased with FY97 3600 funding for test and evaluation. They will be fielded to provide a minimal capability for emergency ordnance clearance operations.

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

This Program Element provides capabilities to rapidly deploy, and defend and sustain airfield operations and command and control activities, which are prerequisites to establishing air superiority. These 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 a water source. They also offer crucial utilities, runway stabilization and repair, explosive ordnance disposal (EOD), 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, and Joint Endeavor, for security, base defense, relief efforts, and special operations throughout the world. Air Base Operability (ABO) capabilities being developed include: Joint Service (Army-led) test, evaluation and acquisition of protective vehicles to be used by Air Force explosive ordnance disposal technicians for reconnaissance and mine clearing missions; power generation and distribution systems to reduce airlift; medium shelters; and systems to stabilize soil and extend taxiways and aircraft parking aprons. The Air Base Operability (ABO) program is in RDT&E budget activity 5 - Engineering and Manufacturing Development (EMD) because it supports development, testing and evaluation of materials and equipment for contingency basing, detection and handling of explosive ordnance and tactical shelters.

(U) **Acquisition Strategy**

Many of the projects funded in the PE employ a streamlined acquisition approach, instead of traditional EMD. Whenever practical, commercial items are tested and evaluated as candidates for solutions to user needs. Instead of EMD, this approach uses a Commercial Item Performance Evaluation (CIPE) phase to determine if off-the-shelf equipment is adequate for military purposes. Initiation of the CIPE phase includes all EMD activities leading up to contract award and subsequent test and evaluation culminating in a Milestone III production decision.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604617F Air Base Operability<br>PROJECT 2895 |

(U) FY 1997 ($ in Thousands):
- (U) $780 Completed EMD for Rapid Ordnance Removal System (RORS).
- (U) $842 Initiated CIPE for Deployable Power Generation and Distribution System (DPGDS).
- (U) $111 Completed EMD for the UA-HHV
- (U) $1043 Continued other technical support.
- (U) $2,776 TOTAL

(U) FY 1998 ($ in Thousands):
- (U) $448 Initiate CIPE for Medium Shelter Systems.
- (U) $542 Continue CIPE for DPGDS.
- (U) $270 Continue other technical support.
- (U) $1,260 TOTAL

(U) FY 1999 ($ in Thousands):
- (U) $585 Complete CIPE for Medium Shelter Systems.
- (U) $485 Complete CIPE for DPGDS.
- (U) $780 Initiate CIPE for All-purpose Remote Transport System (ARTS).
- (U) $653 Continue other technical support.
- (U) $2,503 TOTAL

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604617F Air Base Operability | PROJECT<br>2895 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 2,781 | 1,424 | 2,553 | 153,741 |
| (U) Appropriated Value | 2,926 | 1,424 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional Gen Reductions | -77 | -133 | | |
| b. SBIR | -68 | -31 | | |
| c. Omnibus and Other Threshold Reprogrammings | | | | |
| c. Below Threshold Reprogramming | | | | |
| d. Rescissions (Bosnia) | -5 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -50 | |
| (U) Current Budget Submit/FY99 Presidents Budget | 2,776 | 1,260 | 2,503 | 153,384 |

(U) Change Summary Explanation:

Funding: No significant changes.

Schedule: No change.

Technical: No change.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604617F Air Base Operability<br>PROJECT 2895 |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement, AF, Other Base Maintenance and Support Program: | | | | | | | | | |
| Mobility Equipment (0208031F) (WSC 845420) | 21,478 | 24,048 | 35,973 | 35,757 | 37,667 | 13,179 | 13,423 | Cont | Cont |
| Air Base Operability (0208028F) (WSC 845100) | 2,905 | 4,118 | 5,363 | 4,482 | 1,884 | 0 | 0 | 0 | 18,752 |
| HMMWV, Armored (0208028F) (WSC 823200) | 3,114 | 3,037 | 0 | 0 | 0 | 0 | 0 | 0 | 6,151 |
| HMMWV, Armored (0207588F) (WSC 823200) | 4,282 | 45,856 | 0 | 0 | 0 | 0 | 0 | 0 | 50,138 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604617F Air Base Operability |
| | PROJECT<br>2895 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| RAPID ORDNANCE REMOVAL SYS | | | | | | | | | | | | |
| - Complete Performance Testing/No production planned | | | | * | | | | | | | | |
| MEDIUM SHELTER SYSTEMS | | | | | | | | | | | | |
| - Milestone I/II Decision | | | | | | X | | | | | | |
| - CIPE Contract Award | | | | | | | | X | | | | |
| - Complete IOT&E | | | | | | | | | | | X | |
| - Milestone III Decision | | | | | | | | | | | | X |
| DEPLOY POWER GEN & DISTRO SYS | | | | | | | | | | | | |
| - Initiate CIPE | | * | | | | | | | | | | |
| - Milestone I/II Decision | | | | * | | | | | | | | |
| - Award Phase I Contract | | | | | | | X | | | | | |
| - Award Phase II Contract | | | | | | | | | | | X | |
| UP-ARMORED VEHICLE (UA-HHV) | | | | | | | | | | | | |
| - Complete EMD (Upper Armor) | | | | | | X | | | | | | |
| - Production Contract Award (Lower Armor) | | | | * | | | | | | | | |
| - Consign to ALC | | | | | | X | | | | | | |
| ALL-PURPOSE REMOTE TRANSPORT SYSTEM | | | | | | | | | | | | |
| - Initiate CIPE for Attachments | | | | | | | | | | X | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604617F Air Base Operability

PROJECT: 2895

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Contracts | 430 | 662 | 1,050 |
| (U) A&AS Support | 632 | 245 | 650 |
| (U) Other Government Agencies | 661 | 83 | 150 |
| (U) Materials/Equipment | 10 | 0 | 0 |
| (U) Other Technical Support | 1,043 | 270 | 653 |
| (U) Total | 2,776 | 1,260 | 2,503 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Projects | | | | | * | | | | | * |
| RORS-Army | MIPR | May 96 | 1,569 | 1,569 | 735 | 780 | 0 | 0 | 0 | 1,515 |
| Medium Shelter Systems | FFP | Aug 98 | 1,050 | 1,050 | 0 | 0 | 448 | 585 | 0 | 1,033 |
| Deployable Power | FFP | May 98 | 2,238 | 2,238 | 0 | 842 | 542 | 485 | 0 | 1,869 |
| UA-HHV | Mult | Sep 97 | 2,702 | 2,702 | 1,478 | 111 | 0 | 0 | 0 | 1,589 |
| ARTS | FFP | TBD | 2,800 | 2,800 | 0 | 0 | 0 | 780 | 170 | 950 |
| Other ABO Projects | | | 4,180 | 4,180 | 0 | 0 | 0 | 0 | 4,180 | 4,180 |
| Sub-Total | | | | | * | 1,733 | 990 | 1,850 | 4,350 | * |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604617F Air Base Operability |
| | PROJECT<br>2895 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to * FY 1997 | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Support and Management Organizations | | | | | | | | | | |
| Various | Various | Various | N/A | N/A | * | 1,043 | 270 | 653 | 800 | * |
| Test and Evaluation Organizations | | | | | | | | | | |
| Various | Various | Various | N/A | N/A | * | 0 | 0 | 0 | 0 | * |
| **Government Furnished Property:** | None | | | | | | | | | |
| Subtotal Product Development | | | | | * | 1,733 | 990 | 1,850 | 4,350 | * |
| Subtotal Support and Management | | | | | * | 1,043 | 270 | 653 | 800 | * |
| Subtotal Test and Evaluation | | | | | * | 0 | 0 | 0 | 0 | * |
| Total Project | | | | | 141,695 | 2,776 | 1,260 | 2,503 | 5,150 | 153,384 |

* Not traceable to previous allocation amoung subtotals, however total prior to FY97 is included in overall project line

| | DATE |
|---|---|
| | February 1998 |
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604617F Air Base Operability |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604618F Joint Direct Attack Munitions

PROJECT: 3890

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3890 Joint Direct Attack Munitions | 32,932 | 21,896 | 12,204 | 1,410 | 1,191 | 1,610 | 0 | 0 | 293,935 |
| Quantity of RDT&E Articles | 213/$5904 | 296/$8122* | 0 | 0 | 0 | 0 | 0 | 0 | 509/$14026 |

* These amounts reflect assets by delivery year and can not be reconciled to the dollar amounts (incremental funding) shown in any one year.

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

Desert Storm confirmed the need for a more accurate weapon delivery capability in adverse weather conditions from medium/high altitudes. Failure to satisfy this requirement will allow the enemy to continue to take advantage of the sanctuary of weather and/or prevent US air power from prosecuting a conflict on its terms. JDAM is an Air Force and Navy munitions program to correct these shortfalls, with the Air Force as the executive service. JDAM will upgrade the existing inventory of general purpose bombs (Mk-84, BLU-109, and Mk-83/BLU-110) by integrating them with a guidance kit consisting of a Global Positioning System aided Inertial Navigation System (INS/GPS). JDAM will provide an accurate (13 meters) adverse weather capability. JDAM threshold aircraft are B-52H, F-22, and F/A-18C/D, and JDAM objective aircraft are B-2, B-1B, F-16, F-15E, and A/V-8B and other aircraft. JDAM development is a two-phased Engineering and Manufacturing Development (EMD) effort. EMD Phase I emphasized competitive design and manufacturing processes. This phase completed 10 Oct 95. EMD Phase II emphasizes full scale hardware build and flight test to verify system performance and will support OT&E. JDAM is an Air Force ACAT ID program. JDAM Low Rate Initial Production (LRIP) began in FY97. This program is funded in Budget Activity 5, EMD, due to its focus on devising an affordable design and manufacturing process.

(U) **Acquisition Strategy:**

The JDAM contract for Engineering and Manufacturing Development (EMD) Phase II is Cost Plus Award Fee. In addition, there are two Firm Fixed Price contract options for Procurement Lots 1 and 2 (LRIP). Procurement Lots 3, 4, and 5 have a Procurement Price Committment agreement to ensure a low unit cost.

(U) FY 1997 ($ in Thousands):

- (U) $20,325 Continued EMD prime contractor activities to include delivery of Guided Test Vehicles (GTVs) and ground test equipment for combined Developmental and Operational Testing (DT/OT) and began redesign of BLU-109 and MK-83 kits.
- (U) $ 3,236 Continued Support and Management tasks to define and coordinate the program activities of the prime contractor and various government development and test organizations.
- (U) $ 9,371 Conducted guided flight tests for DT/OT on the F/A-18, F-16, B-1, B-2, and B-52
- (U) $32,932 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604618F Joint Direct Attack Munitions<br>PROJECT 3890 |

(U) FY 1998 ($ in Thousands):

- (U) $ 9,521 Continue EMD prime contractor activities for F/A-18, B-1, B-52, and B-2 aircraft. Initiate AV-8B and F-16 integration and testing. Continue redesign of BLU-109 and MK-83 kits.
- (U) $ 2,943 Continue Support and Management tasks to define and coordinate the program activities of the prime contractor and various government development and test organizations.
- (U) $ 9,432 Complete B-52 and F/A-18 and continue B-1 and B-2 aircraft flight testing. Continue F-16 aircraft guided flight tests. Test redesign of BLU-109 and MK-83 kits.
- (U) $21,896 Total

(U) FY 1999 ($ in Thousands):

- (U) $ 5,452 Complete EMD prime contractor activities for F/A-18, B-1, B-52, B-2 aircraft. Continue AV-8B and F-16 integration and testing.
- (U) $ 2,354 Continue Support and Management tasks to define and coordinate the program activities of the prime contractor and various government development and test organizations.
- (U) $ 4,398 Complete B-1 and B-2 aircraft flight testing. Start AV-8B and continue F-16 aircraft guided tests.
- (U) $12,204 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 36,993 | 19,553 | 12,450 | 300,156 |
| (U) Appropriated Value | 38,636 | 24,553 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions/Gen Reductions | -839 | -944 | | |
| b. SBIR | -804 | -1,713 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | -4,061 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -246 | |
| (U) Current Budget Submit/FY99 President's Budget | 32,932 | 21,896 | 12,204 | 293,935 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604618F Joint Direct Attack Munitions<br>PROJECT 3890 |

(U) Change Summary Explanation:

Funding: FY 1997 Congressional Rescission of $4M for Bosnia Supplemental. FY98 Congressional transfer of $5M from Procurement (3011) to fund redesign efforts. FY97 and FY98 changes also due to Congressional General Reductions and SBIR. FY99 change due to changes in inflation projections. In FY98, $0.2M pending reprogramming to fund higher Air Force priorities and $0.7M pending reprogramming for additional SBIR reductions.

Schedule: N/A

Technical: N/A

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Appropriation: Ammunition Procurement, Air Force, Program Title: JDAM, PE 27583F, BA 01, BP 35, P-1 Line 20 | | | | | | | | | |
| (U) Ammunition Procurement | 23,010 | 54,949 | 53,157 | 127,999 | 246,016 | 216,298 | 210,009 | 427,814 | 1,359,252 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604618F Joint Direct Attack Munitions<br>PROJECT 3890 |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) LRIP (Lot 1) Option | | | X | | | | | | | | | |
| (U) LRIP (Lot 2) Option | | | | | | | X | | | | | |
| (U) Milestone III (2000 lb) | | | | | | | | | | X | | |
| **(U) MK-84 Schedule** | | | | | | | | | | | | |
| (U) DT/OT | | | | | | | X | | | | | |
| (U) Operational Evaluation (OPEVAL) Start/Finish | | | | | | | X | X | | | | |
| (U) Initial Operational Test & Eval (IOT&E) Start/Finish | | | | | | | X | X | | | | |
| **(U) BLU-109 Schedule** | | | | | | | | | | | | |
| (U) DT/OT Start/Finish | | | | | | | X | | | | | |
| (U) OPEVAL Start/Finish | | | | | | | X | X | | | | |
| (U) OT&E Start/Finish | | | | | | | X | X | | | | |
| **(U) MK-83 Schedule** | | | | | | | | | | | | |
| (U) DT Flight Tests Start | | | | | | X | | | | | | |
| (U) DT Flight Tests Finish | | | | | | | | | X | | | |
| **(U) A/C Integration** | | | | | | | | | | | | |
| (U) Threshold Fighter/Bomber | | | | | | | | | | | | |
| (U) -- 2000 lb Complete | | | | | | | | X | | | | |
| (U) -- 1000 lb Start | | | | | X | | | | | | | |
| (U) -- 1000 lb Finish - 1st Qtr FY03 | | | | | | | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604618F Joint Direct Attack Munitions |
| | PROJECT<br>3890 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Primary Hardware Development | 20,325 | 9,521 | 5,452 |
| (U) Test & Evaluation | 9,371 | 9,432 | 4,398 |
| (U) Engineering & Prog Mgt Support | 3,236 | 2,943 | 2,354 |
| (U) Total | 32,932 | 21,896 | 12,204 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Prime Contractors Boeing (St Louis, MO) Lockheed/Martin (Orlando, FL; FY94/95 Only) | CPAF | Oct-95 | 159,439 | 166,672* | 129,425 | 19,469 | 9,521 | 5,452 | 2,805 | 166,672 |
| Conceptual Studies | Various | Various | N/A | N/A | 21,571 | 856 | 0 | 0 | 0 | 22,427 |

* Project Office EAC includes projected increase of contract scope.

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604618F Joint Direct Attack Munitions

PROJECT: 3890

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Support and Management Organizations | | | | | | | | | | |
| Engineering Spt. | CPAF | Oct 96 | 12,162 | 12,162 | 10,495 | 583 | 900 | 184 | 0 | 12,162 |
| TAMS Contractor | CPAF | Oct 96 | 4,615 | 4,615 | 3,090 | 497 | 700 | 328 | 0 | 4,615 |
| Program Office | Various | Various | N/A | N/A | 12,788 | 2,156 | 1,343 | 1,842 | 377 | 18,506 |
| Test and Evaluation Organizations | | | | | | | | | | |
| Aircraft SPO/PMA Supt. | Various | Various | N/A | N/A | 12,276 | 355 | 279 | 2,214 | 1,013 | 16,137 |
| Flight Testing | Various | Various | N/A | N/A | 19,552 | 8,981 | 8,838 | 2,184 | 16 | 39,571 |
| Ground Testing | Various | Various | N/A | N/A | 9,210 | 35 | 315 | 0 | 0 | 9,560 |
| GFE | Various | Various | N/A | N/A | 4,285 | 0 | 0 | 0 | 0 | 4,285 |
| Government Furnished Equipment: Not Applicable | | | | | | | | | | |
| Subtotal Product Development | | | | | 150,996 | 20,325 | 9,521 | 5,452 | 2,805 | 189,099 |
| Subtotal Support and Management | | | | | 26,373 | 3,236 | 2,943 | 2,354 | 377 | 35,283 |
| Subtotal Test and Evaluation | | | | | 45,323 | 9,371 | 9,432 | 4,398 | 1,029 | 69,553 |
| Total Project | | | | | 222,692 | 32,932 | 21,896 | 12,204 | 4,211 | 293,935 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604703F Aeromedical Systems Development

PROJECT: 2866

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2866 Aeromedical/Casualty Care Systems Dev | 4,498 | 3,907 | 3,336 | 564 | 95 | 0 | 0 | 0 | TBD |
| Quantity of RDT&E Articles | 0 | 7/1,350* | 8/1,104* | 0 | 0 | 0 | 0 | 0 | N/A |

* Note: The 7 items to be bought in FY98 are 6 Spinal Cord Injury Transport System (SCITS) units at $138 thousand each, and 1 Theater Medical Information Program (TMIP) unit at $522 thousand. The 8 items to be bought in FY 99 are 8 SCITS units at $138 thousand each.

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

The Program Element provides tactical, strategic, and covert aeromedical evacuation systems and medical treatment equipment to meet unique Air Force medical readiness and operational requirements. Note: This program is in budget activity 5 - Engineering and Manufacturing Development because it supports development of systems for treatment, evacuation, and prediction of wartime casualties in a conventional or non-conventional warfare environment.

(U) **Acquisition Strategy**

All major projects within this Program Element were awarded under full and open competition.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604703F Aeromedical Systems Development |
| | PROJECT<br>2866 |

(U) FY 1997 ($ in Thousands):

| | | | |
|---|---|---|---|
| – | (U) | $44 | Transportable Blood Transshipment Center (TBTC) - Delivered production units and provided program/engineering support. |
| – | (U) | $6 | SCITS - Developed acquisition strategy and obtained Milestone I/II decision approval to support tri-Service requirements. |
| – | (U) | $326 | THREAT Model - Integrated nuclear, biological and chemical modules for Build 2, completed integration testing, and delivered Build 3. |
| – | (U) | $1 | Continuous Intermittent Suction Unit (CISU) - Completed operational testing. |
| – | (U) | $808 | CHATH/CHAMP - Completed qualification testing. |
| – | (U) | $128 | Civil Reserve Air Fleet Aeromedical Evacuation Ship Set (CRAF-AESS) - Developed Patient Loading System (PLS) support equipment. |
| – | (U) | $1,067 | TMIP - Defined, prototyped and demonstrated a deployable medical information infrastructure; planned and initiated an acquisition strategy for the same. |
| – | (U) | $518 | Aeromedical Systems Analysis - Conducted foundational studies and analyses, requirements analyses, and product demonstrations to meet operational needs, and defined acquisition strategies and baselines for potential system solutions to Air Force Medical Service materiel needs identified through the Air Force Surgeon General's modernization planning process. |
| – | (U) | $1,600 | Funded proportional efforts of Human Systems Center, System Program Office, and Technical Engineering and Management Support contractor. |
| – | (U) | $4,498 | TOTAL |

(U) FY 1998 ($ in Thousands):

| | | | |
|---|---|---|---|
| – | (U) | $63 | TBTC - Program/Engineering Support for production item activation. |
| – | (U) | $1036 | SCITS - Begin EMD. |
| – | (U) | $324 | CHATH/CHAMP - Complete operational test and evaluation (OT&E), meet initial operational capability (IOC), obtain Milestone III decision approval and exercise production option. |
| – | (U) | $98 | CRAF-AESS - Support production decision and Initial Operational Capability (IOC) for the Patient Loading System. |
| – | (U) | $1,395 | TMIP-Air Force - Integrate and test a deployable medical information infrastructure; plan and initiate a deployment strategy for the same; investigate and plan for pre-planned product improvements. |
| – | (U) | $45 | 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 identified through the Air Force Surgeon General's modernization planning process. |
| – | (U) | $946 | Fund proportional efforts of Human Systems Center, System Program Office, and Technical Engineering and Management Support contractor. Support production unit deliveries for CISU. |
| – | (U) | $3,907 | TOTAL |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604703F Aeromedical Systems Development |
| | PROJECT<br>2866 |

(U) FY 1999 ($ in Thousands):

| | | |
|---|---|---|
| – | (U) $1,585 | SCITS - Conduct OT&E and complete EMD. |
| – | (U) $270 | CHATH/CHAMP - Program/Engineering support for production item activation. |
| – | (U) $599 | TMIP-AF - Execute medical information infrastructure deployment; integrate and test planned product improvements. |
| – | (U) $15 | CRAF-AESS - Support production effort of the Patient Loading System (PLS). |
| – | (U) $77 | 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 identified through the Air Force Surgeon General's modernization planning process. Prepare RFP for Advanced Hybrid Oxygen System - Medical (AHOS-M). |
| – | (U) $790 | Fund proportional efforts of Human Systems Center, System Program Office, and Technical Engineering and Management Support contractor, including the CISU production effort. Begin transition effort from research effort, exploring the potential technologies for future EMD efforts on the Advanced Hybrid Oxygen System - Medical (AHOS-M). |
| – | (U) $3,336 | TOTAL |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604703F Aeromedical Systems Development

PROJECT: 2866

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 5,707 | 4,354 | 2,057 | TBD |
| (U) Appropriated Value | 5,977 | 4,354 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional Gen Reductions | -162 | -373 | | |
| b. SBIR | -108 | -74 | | |
| c. Omnibus or Other Above Threshold Reprogramming | -1,200 | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | -9 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | +1,279 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 4,498 | 3,907 | 3,336 | TBD |

(U) Change Summary Explanation:

Funding: FY97: $1.2 Million was approved by Congress as an Omnibus source; Funds were reduced to meet higher AF requirements.
FY99: Restores content and funds used for FY97 Omnibus source.

Schedule: No change.

Technical: No change.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement, AF, PE 28038F, Other Base and Maintenance Support, Medical/Dental Equipment | 11,567 | 7,406 | 9,112 | 9,797 | 8,082 | 4,630 | 4,580 | Cont | Cont |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604703F Aeromedical Systems Development |
| | PROJECT<br>2866 |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| TRANSPORTABLE BLOOD TRANSSHIPMENT CENTER | | | | | | | | | | | | |
| - FOC | | | | | | | X | | | | | |
| SPINAL CORD INJURY TRANSPORT SYS | | | | | | | | | | | | |
| - Begin EMD | | | | | | X | | | | | | |
| - Begin OT&E | | | | | | | | | | | | X |
| THREAT MODEL | | | | | | | | | | | | |
| - FOC | | | | | * | | | | | | | |
| CONT/INTERMIT SUCTION UNIT | | | | | | | | | | | | |
| - Complete OT&E | | | | * | | | | | | | | |
| - Begin Production | | | | | * | | | | | | | |
| - Complete Production | | | | | | | | | X | | | |
| CHATH/CHAMP | | | | | | | | | | | | |
| - Complete DT&E | | | | * | | | | | | | | |
| - Complete OT&E | | | | | | X | | | | | | |
| - Milestone III Decision | | | | | | X | | | | | | |
| - Begin Production | | | | | | X | | | | | | |
| CRAF AES | | | | | | | | | | | | |
| - IOT&E for PLS | | | | | | X | | | | | | |
| - IOC for PLS | | | | | | | X | | | | | |
| - FOC for PLS | | | | | | | | | | X | | |
| AHOS-M | | | | | | | | | | | | |
| - Prepare RFP | | | | | | | | | | | | X |
| TMIP-AF | | | | | | | | | | | | |
| - Define Sys performance characteristics | | | | | | | X | | | | | |
| - Integrate and test system solutions | | | | | | | | | | | X | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604703F Aeromedical Systems Development

PROJECT: 2866

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Engineering and Manufacturing Development | 1,280 | 1,819 | 1,701 |
| (U) Development/Operational Test and Evaluation | 157 | 36 | 115 |
| (U) Contractor Engineering Support | 1,889 | 1,258 | 941 |
| (U) Miscellaneous (System Program Office Operations) | 422 | 211 | 165 |
| (U) Mission Support/Supplies | 750 | 583 | 414 |
| (U) Total | 4,498 | 3,907 | 3,336 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| TBTC-A.D. Little | CPAF/FFP | Mar 91 | 11,033 | 13,289 | 13,134 | 0 | 0 | 0 | 0 | 13,134 |
| CHATH/CHAMP Ph I-EASI/Guild | CPFF | Dec 94 | 2,989 | 2,989 | 2,989 | 0 | 0 | 0 | 0 | 2,989 |
| CHATH/CHAMP Phase II-ERDC/EASI | CPFF | Aug 95 | 3,853 | 3,853 | 3,609 | 287 | 0 | 0 | 0 | 3,896 |
| SCITS | TBD | TBD | TBD | TBD | 0 | 0 | 784 | 1,302 | 466 | 2,552 |
| CRAF (PLS) | | TBD | TBD | TBD | 0 | 40 | 0 | 0 | 0 | 40 |
| WAR-MED PS-BDM | CPAF | May 96 | 6,159 | 6,159 | 6,159 | 0 | 0 | 0 | 0 | 6,159 |
| TMIP-AF | Various | Various | TBD | TBD | 0 | 808 | 1,035 | 400 | 120 | 2,363 |
| THREAT-BDM | CPFF | Aug 94 | 1,453 | 1,453 | 1,308 | 145 | 0 | 0 | 0 | 1,453 |
| New Business-Project 2866 | Various | Various | | | 17,477 | 0 | 0 | 0 | 0 | 17,477 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604703F Aeromedical Systems Development

PROJECT: 2866

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Mission Support/ Supplies | Various | Various | | | 532 | 810 | 583 | 414 | 0 | 2,339 |
| Sub-Total | | | | | 45,208 | 2,090 | 2,402 | 2,116 | 586 | 52,402 |
| Support/Mgmt Organizations | | | | | | | | | | |
| TEAMS-OpTech, McDonald Tech, MTC | Delivery Order | Various | | | 3,061 | 1,829 | 1,258 | 941 | 0 | 7,089 |
| SPO Operations | Various | Various | | | 3,767 | 422 | 211 | 165 | 73 | 4,638 |
| Sub-Total | | | | | 6,828 | 2,251 | 1,469 | 1,106 | 73 | 11,727 |
| Test and Evaluation Organizations | | | | | | | | | | |
| Aberdeen Prov. Grnd | | | | | 2 | 157 | 36 | 0 | 0 | 195 |
| Armstrong Lab | | | | | 0 | 0 | 0 | 77 | 0 | 77 |
| Other | | | | | 138 | 0 | 0 | 37 | 0 | 175 |
| Sub-Total | | | | | 140 | 157 | 36 | 114 | 0 | 447 |
| **Government Furnished Property:** | **None** | | | | | | | | | |
| Subtotal Product Development | | | | | 45,208 | 2,090 | 2,402 | 2,116 | 586 | 52,402 |
| Subtotal Support and Management | | | | | 6,828 | 2,251 | 1,469 | 1,106 | 73 | 11,727 |
| Subtotal Test and Evaluation | | | | | 140 | 157 | 36 | 114 | 0 | 447 |
| Total Project | | | | | 52,176 | 4,498 | 3,907 | 3,336 | 659 | 64,576 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604706F Life Support Systems

PROJECT: 412A

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 412A Life Support Systems | 10,289 | 4,301 | 3,744 | 3,747 | 3,848 | 537 | 0 | 0 | 26,466 |
| Quantity of RDT&E Articles | 53/426K* | 45/270* | 4/560K* | 158/636K* | 0 | 0 | 0 | 0 | 260 |

*Fiscal Year (FY) 1997: (2) Advanced Concept Ejection Seats (ACES II) at 60K per item; (51) Advanced Technology Concept Anti-Gravity Suits (ATAGS) at 6K per item. FY1998: (45) ATAGS at 6K per item. FY1999: (4) ACES II ejection seats at 140K per item (full-scale configuration). FY2000: (79) tractor rockets for ACES II at 4K per item; (27) Enhanced Drogue rocket containers for ACES II, at 9K per item; (25) parachutes for ACES II at 2K per item; (27) cable assemblies for ACES II at 1K per item.

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

This project provides for Engineering, Manufacturing, and Development (EMD) of life support equipment and subsystems to satisfy operational command requirements for improved life support equipment. This project also provides for the continuing development of life support items and subsystems such as the following: flight helmets, oxygen breathing equipment for aviators, anti-G coveralls, survival radios, night vision devices, active/passive noise reduction devices, parachute releases, and aircraft ejection seats. Program management support includes tasks to assess deficiencies of currently fielded equipment. It also provides for the transitions of new technology into EMD and to support all current life support projects. Life Support System's contractors are ITT Electro-Optical Products Division, Krug Life Sciences, Boeing Co., System Research Laboratories (SRL), and Mustang Survival. Life Support efforts result from full and open competition among qualified vendors to select a single primary source for EMD and follow-on production.

(U) **Acquisition Strategy:** Acquisition strategy is incorporated at the project level.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604706F Life Support Systems<br>PROJECT 412A |

(U) FY 1997 ($ in Thousands):

| | | |
|---|---|---|
| – | (U) $4,821 | Laser Eye Protection (LEP) - for dye-based dielectric coated aircrew visors and technology demonstrations |
| – | (U) $1,482 | ACES II Component Improvement Program (CIP) - technology demonstrations |
| – | (U) $500 | Continued reviews and audits for Night Vision System (NVS) EMD |
| – | (U) $2,256 | Continued Government Developmental Testing & Evaluation (DT&E) & Initial Operational Testing & Evaluation (IOT&E) on NVS test assets - (ejection sled testing) |
| – | (U) $1,107 | Initiated EMD for the Advanced Technology Concept Anti-Gravity Suit (ATAGS) design for all fighter aircraft |
| – | (U) $123 | Program Management/Technical Support/Travel/Test & Evaluation in support of AF Life Support Systems - (MAC-10/100 - anti-exposure suit, Joint Strike Fighter (JSF) program, Oxygen Generating Systems (OGS), Panoramic Night Vision Goggles (PNVGs), Joint Helmet Mounting Cueing System (JHMCS), Integrated Chin-Nape Strap (ICNS), Active Noise Reduction (ANR), Universal Water Activated Release Systems (UWARS), Low Profile Parachute (LPP), Female Aircrew Member Bladder Relief Capability (FAMBRC), Combat Survivor Evader Locator (CSEL), Automatic Life Preserver, F-22 Integration of Current Life Support Systems Evaluation, Joint Aircrew Survival Vest (AIRSAVE), Visually Coupled Targeting and Acquisition System (VCATS), HGU-55P Lightweight Helmet, Laser Eye Protection (LEP), ACES II Advanced Recovery Sequencer (ARS). |
| – | (U) $10,289 | Total |

(U) FY 1998 ($ in Thousands):

| | | |
|---|---|---|
| – | (U) $700 | Complete NVS EMD contract, DT&E (combined with IOT&E) and production support costs |
| – | (U) $1,216 | Initiate Air Force funded EMD program to continue development for ACES II CIP - follow-on work to FY97 Congressional add |
| – | (U) $1,112 | Continue ATAGS EMD |
| – | (U) $1,000 | Congressional add for ejection seats |
| – | (U) $273 | Program Management/Technical Support/Travel/Test & Evaluation in support of AF Life Support Systems - (MAC-10/100 - anti-exposure suit, Joint Strike Fighter (JSF) program, Oxygen Generating Systems (OGS), Panoramic Night Vision Goggles (PNVGs), Joint Helmet Mounting Cueing System (JHMCS), Integrated Chin-Nape Strap (ICNS), Active Noise Reduction (ANR), Universal Water Activated Release Systems (UWARS), Low Profile Parachute (LPP), Female Aircrew Member Bladder Relief Capability (FAMBRC), Combat Survivor Evader Locator (CSEL), Automatic Life Preserver, F-22 Integration of Current Life Support Systems Evaluation, Joint Aircrew Survival Vest (AIRSAVE), Visually Coupled Targeting and Acquisition System (VCATS), HGU-55P Lightweight Helmet, Laser Eye Protection (LEP), ACES II Advanced Recovery Sequencer (ARS). |
| – | (U) $4,301 | Total |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604706F Life Support Systems<br>PROJECT 412A |

(U) FY 1999 ($ in Thousands):

- (U) $3,671 Continue ACES II CIP EMD
- (U) $43 Complete ATAGS EMD and production support costs
- (U) $30 Program Management/Technical Support/Travel/Test & Evaluation in support of AF Life Support Systems - (MAC-10/100 - anti-exposure suit, Joint Strike Fighter (JSF) program, Oxygen Generating Systems (OGS), Panoramic Night Vision Goggles (PNVGs), Joint Helmet Mounting Cueing System (JHMCS), Integrated Chin-Nape Strap (ICNS), Active Noise Reduction (ANR), Universal Water Activated Release Systems (UWARS), Low Profile Parachute (LPP), Female Aircrew Member Bladder Relief Capability (FAMBRC), Combat Survivor Evader Locator (CSEL), Automatic Life Preserver, F-22 Integration of Current Life Support Systems Evaluation, Joint Aircrew Survival Vest (AIRSAVE), Visually Coupled Targeting and Acquisition System (VCATS), HGU-55P Lightweight Helmet, Laser Eye Protection (LEP), Night Vision System (NVS), ACES II ARS.
- (U) $3,744 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604706F Life Support Systems | PROJECT<br>412A |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 10,391 | 3,726 | 3,819 | 26,288 |
| (U) Appropriated Value | 10,863 | *4,726 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional General Reduction | -240 | -330 | | |
| b. Omnibus & Other Above Threshold Reprogramming | | | | |
| c. Small Business Innovative Research (SBIR) | -232 | -95 | | |
| d. Below Threshold Reprogramming (BTR) | -85 | | | |
| e. Rescissions | -17 | | | |
| (U) Adjustments to Budget Years since FY98 PB | | | -75 | |
| (U) Current Budget Submit/99 President's Budget | 10,289 | 4,301 | 3,744 | 26,466 |

(U) Change Summary Explanation:

Funding: FY97 $85K reprogrammed to PE27268F, Aircraft Engine Component Improvement Program. *FY98 $1M Congressional add for ejection seats -- this Congressional add is in the process of being reclassified to PE603231F, Crew Systems Technology, per Congressional request. LEP effort was terminated due to the lack of procurement funds and Air Force requirements met by parallel Navy program. Of the $1.8M allocated for LEP, $1.4M is reallocated to ACES II CIP and $400K to F-22 ATAGS development. FY99 $75K reduction for inflation adjustment.

Schedule: Enhanced drogue tractor rocket development was delayed due to facility scheduling problems by the contractor. NVS DT/OT delays due to range schedule conflicts.

Technical: No Change

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

| | FY 1997 | FY1998 | FY1999 | FY2000 | FY2001 | FY2002 | FY2003 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| NATO Cooperative R&D PE 0603790D (OSD funded) ACES II CIP | 0 | 500 | 0 | 0 | 0 | 0 | 0 | 0 | 500 |
| NATO Cooperative R&D PE 0603790F (AF funded) ACES II CIP | 0 | 0 | 1500 | 1500 | 0 | 0 | 0 | 0 | 3000 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604706F Life Support Systems<br>PROJECT 412A |

(U) D. **Schedule Profile**

| | FY1997 | | | | FY1998 | | | | FY1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Started NVS Contractor Qual Test | * | | | | | | | | | | | |
| (U) Started UWARS Production Deliveries | | * | | | | | | | | | | |
| (U) Initiated ACES II CIP - preliminary design and test | | | * | | | | | | | | | |
| (U) Initiated LEP program (AL & Navy) | | | * | | | | | | | | | |
| (U) Awarded F-22 ATAGS Contract | | | | * | | | | | | | | |
| (U) Completed Government Conducted NVS DT&E / OT&E | | | | | * | | | | | | | |
| (U) Production Award for NVS | | | | | | X | | | | | | |
| (U) ACES II Pre-EMD | | | | | | X | | | | | | |
| (U) Receive ATAGS OT&E | | | | | | | X | | | | | |
| (U) EMD award for ACES II CIP | | | | | | | | X | | | | |
| (U) NVS Production First Delivery | | | | | | | | | X | | | |
| (U) Complete UWARS Prod. Deliveries | | | | | | | | | X | | | |
| (U) Complete detail design for ACES II | | | | | | | | | | | X | |
| (U) Start Qual. Testing for ACES II | | | | | | | | | | | | X |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604706F Life Support Systems | PROJECT<br>412A |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Contracts | 6,797 | 1,434 | 1,226 |
| (U) Technical Engineering Support | 1,475 | 1,061 | 964 |
| (U) Travel | 204 | 239 | 193 |
| (U) Government Testing | 1,394 | 43 | 1,100 |
| (U) Program Management/Technical Support and Misc. | 419 | 1,524 | 261 |
| (U) Total | 10,289 | 4,301 | 3,744 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| ITT-NVS | C/CPIF | 18 Jan 93 | 14,081 | 14,081 | 13,630 | 270 | 181 | 0 | 0 | 14,081 |
| KRUG-ATAGS | SS/FFP | 7 July 97 | 424 | 424 | 0 | 424 | 0 | 0 | 0 | 424 |
| Mustang-ATAGS | SS/FFP | Aug 97 | 749 | 749 | 0 | 271 | 478 | 0 | 0 | 749 |
| LEP - (AL/Navy) | C/CPFF | Jun 97 | 4,552 | 4,552 | 0 | 4,552 | 0 | 0 | 0 | 4,552 |
| MDA-Enhanced Drogue | SS/CPFF | Jun 97 | 1,130 | 1,130 | 0 | 1,130 | 0 | 0 | 0 | 1,130 |
| Boeing-ACES II Pre-EMD | SS/CPFF | Feb 98 | 275 | 275 | 0 | 0 | 275 | 0 | 0 | 275 |
| MDA-ACES II | SS/FFP | Sep 97 | 1,010 | 1,010 | 0 | 150 | 350 | 510 | 0 | 1,010 |
| Boeing-ACES II EMD | SS/CPFF | Nov 98 | 2,836 | 2,836 | 0 | 0 | 0 | 716 | 2120 | 2,836 |
| SRL-ATAGS DT&E Support | SS/CPFF | Dec 97 | 150 | 150 | 0 | 0 | 150 | 0 | 0 | 150 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604706F Life Support Systems

PROJECT: 412A

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Support and Management Organizations | | | | | | | | | | |
| Program Management Support | | | 4,053 | 4,053 | 2,132 | 419 | 524 | 261 | 717 | 4,053 |
| Travel | | | 1,381 | 1,381 | 347 | 204 | 239 | 193 | 398 | 1,381 |
| Tech Eng & Acq | | | 8,387 | 8,387 | 2,560 | 1,475 | 1,061 | 964 | 2,327 | 8,387 |
| Cong. add for ejection seats (being reclassified to PE 603231F) | | | | | | | 1,000 | | | 1,000 |
| Test and Evaluation Organizations | | | | | | | | | | |
| AFFTC | | Proj Ord-Various | 4,361 | 4,361 | 3,103 | 1,215 | 43 | 0 | 0 | 4,361 |
| AL/CF | | Various | 179 | 179 | 0 | 179 | 0 | 0 | 0 | 179 |
| Holloman | | Various | 3,471 | 3,471 | 0 | 0 | 0 | 1,100 | 2,371 | 3,471 |
| Pax River | | Various | 233 | 233 | 0 | 0 | 0 | 0 | 233 | 233 |
| **Government Furnished Property:** | | None | | | | | | | | |
| Subtotal Product Development | | | 25,207 | 25,207 | 13,630 | 6,797 | 1,434 | 1,226 | 2,120 | 25,207 |
| Subtotal Support and Management | | | 13,821 | 13,821 | 5,039 | 2,098 | 1,824 | 1,418 | 3,442 | 13,821 |
| Subtotal Test and Evaluation | | | 8,244 | 8,244 | 3,103 | 1,394 | 43 | 1,100 | 2,604 | 8,244 |
| Cong. add for ejection seats (being reclassified to PE 603231F) | | | | | | | 1,000 | | | 1,000 |
| Total Project | | | 47,272 | 47,272 | 21,772 | 10,289 | 4,301 | 3,744 | 8,166 | 48,272 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604708F Civil, Fire, Environmental, Shelter

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | FY 2004 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 2,613 | 2,526 | 2,715 | 2,768 | 2,824 | 2,864 | 2,917 | 0 | TBD | Continuing |
| 2054 Aerospace Facilities Engineering Development | 672 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,570 |
| 2505 Aircraft Firefighting Suppression And Rescue | 1,129 | 2,339 | 2,528 | 2,585 | 2,634 | 2,672 | 2,722 | 0 | TBD | Continuing |
| 2674 Tactical Shelters | 152 | 187 | 187 | 183 | 190 | 192 | 195 | 0 | TBD | Continuing |
| 3788 Environmental Quality | 660 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,739 |

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

This program funds the development, testing and evaluation of materials, equipment and procedures in the following areas: (1) Aircraft Fire Fighting, Suppression and Rescue and Civil Engineer (CE) Readiness, and (2) Tactical Shelters. Overall CE readiness is supported by multimedia training systems for Fire Fighting, CE readiness (Disaster Preparedness, Chem/Bio) and Force Protection (Explosive Ordnance Disposal (EOD)) by developing interactive training scenarios which simulate hazardous situations, allows both training and testing of response capabilities, and complements field training while reducing time, cost and direct exposure to hazards. Develops new concepts and technology applications for fire fighting, suppression and rescue to provide rapidly deployable capabilities to support bare base, contingency operating areas or main operating bases, and to reduce fire risks to personnel and resources. 2) Tactical Shelters is the USAF portion of a tri service effort to develop standardized, low maintenance, highly survivable shelters and shelter accessories that are easily mobilized and compatible with air, sea and land transport systems. These products will effectively support high mobility aircraft support, command and control, communications, medical, and data processing units for the tactical and strategic forces. These shelters also optimize the latest enhancements of force protection technology. This program is in budget activity five, Engineering and Manufacturing Development, because it takes emerging technologies and concepts and develops them for Air Force use.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604708F Civil, Fire, Environmental, Shelter |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 2,617 | 2,698 | 2,770 | Continuing |
| (U) Appropriated Value | 2,736 | 2,698 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong/General Reductions | -69 | -107 | | |
| b. SBIR | -50 | -65 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | -4 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -55 | |
| (U) Current Budget Submit/FY1999 President's Budget | 2,613 | 2,526 | 2,715 | |

(U) Change Summary Explanation:

Funding: None.

Schedule: None

Technical: None

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

(U) D. **Schedule Profile** N/A

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604708F Civil, Fire, Environmental, Shelter | PROJECT<br>2054 |

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | FY 2004 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| 2054 Aerospace Facilities Engineering Development | 672 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,570 |

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

Develops equipment, materials, and procedures to improve the operational effectiveness of aerospace facilities.

(U) **Acquisition Strategy:**

EMD for the program completed in FY97 and program transition to PE 28031 for procurement.

(U) FY 1997 ($ in Thousands):
- (U) $547 Completed EMD for Small Shelters/Environmental Control Units (ECUs)
- (U) $125 Continued other technical support
- (U) $672 Total

(U) FY 1998 ($ in Thousands):
- (U) $0
- (U) $
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $0
- (U) $
- (U) $0 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604708F Civil, Fire, Environmental, Shelter |
| | PROJECT<br>2054 |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | Total Cost |
|---|---|---|---|---|---|
| (U) Previous President's Budget FY98 PB | 689 | 0 | 0 | 0 | 1,570 |
| (U) Appropriated Value | 689 | | | | |
| (U) Adjustments to Appropriated Value | | | | | |
| a. Cong Reductions | -17 | | | | |
| b. SBIR | | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | | |
| d. Below Threshold Reprogramming | | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | | | |
| (U) Current Budget Submit/FY 1999 President's Budget | 672 | | | | 1,570 |

(U) Change Summary Explanation:

Funding: FY 97 Congressional reductions of $17K

Schedule: N/A

Technical: N/A

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement, AF, Other Base Maintenance and Support Program: Mobility Equipment (0208031F) (WSC 845420) | 21,478 | 24,048 | 35,973 | 35,757 | 37,667 | 13,179 | 13,423 | Cont | Cont |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604708F Civil, Fire, Environmental, Shelter<br>PROJECT 2054 |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| SMALL SHELTER SYSTEMS | | | | | | | | | | | | |
| - Milestone I/II Decision | X | | | | | | | | | | | |
| - Award Evaluation Contract with Production Options | | | | | X | | | | | | | |
| - Milestone III Decision | | | | | | | X | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604708F Civil, Fire, Environmental, Shelter |
| | PROJECT<br>2054 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Contracts | 287 | | |
| (U) A&AS Support | 260 | | |
| (U) Other Government Agencies | | | |
| (U) Materials/Equipment | | | |
| (U) Other Technical Support | 125 | | |
| (U) Total | 672 | 0 | 0 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Small Shelters/ECUs | C/FFP | Aug 97 | 1,500 | 1,500 | 748 | 547 | 0 | 0 | 0 | 1,295 |
| Support and Management Organizations | | | | | | | | | | |
| N/A | | | 400 | 400 | 150 | 125 | 0 | 0 | 0 | 275 |
| Test and Evaluation Organizations | | | | | | | | | | |
| N/A | | | | | 0 | 0 | 0 | 0 | 0 | 0 |

**Government Furnished Property:** None

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604708F Civil, Fire, Environmental, Shelter |
| | PROJECT<br>2054 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Product Development | | | | | 748 | 547 | 0 | 0 | 0 | 1,295 |
| Subtotal Support and Management | | | | | 150 | 125 | 0 | 0 | 0 | 275 |
| Subtotal Test and Evaluation | | | | | | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | | 898 | 672 | 0 | 0 | 0 | 1,570 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604708F Civil, Fire, Environmental, Shelter

PROJECT: 2505

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | FY 2004 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| 2505 Aircraft Firefighting Suppression And Rescue | 1,129 | 2,339 | 2,528 | 2,585 | 2,634 | 2,672 | 2,722 | 0 | TBD | Continuing |

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

Develops improved civil engineering, fire fighting suppression and rescue equipment, materials, and methods to increase fire protection, readiness, force protection, mobility, and disaster preparedness effectiveness and training.

(U) **Acquisition Strategy:**
Courseware materials will continue to be developed, tested, modified and readied for production and procurement by field units.

(U) FY 1997 ($ in Thousands):
- (U) $ 863 Continued courseware development of civil engineer (CE)/Firefighter Multimedia Training System (FMTS) systems.
- (U) $ 237 Continued commercial technology exploitation.
- (U) $ 29 Other technical support.
- (U) $ 1,129 Total

(U) FY 1998 ($ in Thousands):
- (U) $1,728 Continued courseware development of CE/FMTS systems.
- (U) $ 146 Continued commercial technology exploitation.
- (U) $ 465 Other technical support.
- (U) $2,339 Total

(U) FY 1999 ($ in Thousands):
- (U) $2,040 Continued courseware development of CE/FMTS systems.
- (U) $ 140 Continued commercial technology exploitation.
- (U) $ 348 Other technical support.
- (U) $2,528 Total

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604708F Civil, Fire, Environmental, Shelter

PROJECT: 2505

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget FY98PB | 1,049 | 1,060 | 1,098 | Cont |
| (U) Appropriated Value | 1,116 | 2,496 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong/General Reductions | 38 | -96 | | |
| b. SBIR | -25 | -61 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 690 | |
| (U) Current Budget Submit/FY1999 President's Budget | 1,129 | 2,339 | 2,528 | Cont |

(U) Change Summary Explanation:

Funding: None.

Schedule: N/A

Technical: N/A

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

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| CE MULTIMEDIA TRAINING SYS | | | | | | | | | | | | |
| - Complete B1B/F-16/C-17/747/F-18 | | X | | | | | | | | | | |
| - Complete C-130/KC-135/RC-135 | | | | | X | | | | | | | |
| - Complete F-117 | | | | | | X | | | | | | |
| - Complete CRAF Aircraft | | | | | | | | | X | | | |
| FIRE COMMERCIAL TECHNOLOGY EXPLOITATION | | | | | | | | | | | | |
| - Complete FY97 AFOTEC Evaluation | | | | X | | | | | | | | |
| - Complete FY98 AFOTEC Evaluation | | | | | | | | X | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604708F Civil, Fire, Environmental, Shelter<br>PROJECT 2505 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Contracts | 500 | 1,353 | 1,200 |
| (U) A&AS Support | 352 | 324 | 780 |
| (U) Other Government Agencies | 175 | 177 | 180 |
| (U) Materials/Equipment | 73 | 20 | 20 |
| (U) Other Technical Support | 29 | 465 | 348 |
| (U) Total | 1,129 | 2,339 | 2,528 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Multimedia Training Systems | Mult | Cont | 14,500 | 14,500 | 498 | 863 | 1,728 | 2,040 | Cont | Cont |
| Fire Commercial Technology Exploitation | Mult | Cont | 1,500 | 1,500 | 250 | 85 | 31 | 60 | Cont | Cont |
| Support and Management Organizations | | | | | | | | | | |
| Various | | | 1,950 | 1,950 | 150 | 29 | 465 | 348 | Cont | Cont |
| Test and Evaluation Organizations | | | | | | | | | | |
| Various | | | 750 | 750 | 0 | 152 | 115 | 80 | Cont | Cont |

**Government Furnished Property:** None

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604708F Civil, Fire, Environmental, Shelter |
| | PROJECT<br>2505 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Product Development | | | | | 748 | 948 | 1,759 | 2,100 | Cont | TBD |
| Subtotal Support and Management | | | | | 150 | 29 | 465 | 348 | Cont | TBD |
| Subtotal Test and Evaluation | | | | | 0 | 152 | 115 | 80 | Cont | TBD |
| Total Project | | | | | 898 | 1,129 | 2,339 | 2,528 | Cont | TBD |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604708F Civil, Fire, Environmental, Shelter

PROJECT: 2674

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | FY 2004 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| 2674 Tactical Shelters | 152 | 187 | 187 | 183 | 190 | 192 | 195 | 0 | TBD | Continuing |

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

Provides reliable, cost effective tactical shelters required to ensure the success of Air Force missions, provides Air Force membership in the DOD Tactical Shelter Program, and provides technology insertion for shelter development.

(U) **Acquisition Strategy:**
Tactical shelters development will continue to support Initial Deployable Kitchen (IDK) Program.

(U) FY 1997 ($ in Thousands):
- (U) $ 75 Continue research, development and acquisition of the Modular Extendible Ridged Wall Shelter (MERWS)
- (U) $ 67 Establish capability to evaluate shelter design and performance and perform system integration analysis
- (U) $ 10 Provide direct feedback and ensure Air Force requirements identified to Joint Committee for Tactical Shelters (JOCOTAS) and ASTM
- (U) $152 Total

(U) FY 1998 ($ in Thousands):
- (U) $ 75 Continue research, development and acquisition of the Modular Extendible Ridged Wall Shelter (MERWS)
- (U) $102 Establish capability to evaluate shelter design and performance and perform system integration analysis
- (U) $ 10 Provide direct feedback and ensure Air Force requirements identified to Joint Committee for Tactical Shelters (JOCOTAS) and ASTM
- (U) $187 Total

(U) FY 1999 ($ in Thousands):
- (U) $ 75 Continue research, development and acquisition of the Modular Extendible Ridged Wall Shelter (MERWS)
- (U) $102 Establish capability to evaluate shelter design and performance and perform system integration analysis
- (U) $ 10 Provide direct feedback and ensure Air Force requirements identified to Joint Committee for Tactical Shelters (JOCOTAS) and ASTM
- (U) $187 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604708F Civil, Fire, Environmental, Shelter<br>PROJECT 2674 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 181 | 202 | 191 | Continuing |
| (U) Appropriated Value | 152 | 202 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong/General Reductions | | -11 | | |
| b. SBIR | | -4 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | | |
| (U) Current Budget Submit/FY1999 President's Budget | 152 | 187 | 187 | Continuing |

(U) Change Summary Explanation:

Funding: N/A

Schedule: N/A

Technical: N/A

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

(U) D. **Schedule Profile** N/A

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604708F Civil, Fire, Environmental, Shelter<br>PROJECT 2674 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) MERWS program | 75 | 75 | 75 |
| (U) Shelter design, performance and analysis | 67 | 102 | 102 |
| (U) JOCOTAS program | 10 | 10 | 10 |
| (U) Total | 152 | 187 | 187 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| MERWS program | Multiple | Multiple | | | | 75 | 75 | 75 | Cont | Cont |
| Shelter design, performance and analysis | Multiple | Multiple | | | | 67 | 102 | 102 | Cont | Cont |
| JOCOTAS program | Multiple | Multiple | | | | 10 | 10 | 10 | Cont | Cont |
| Support and Management Organizations | | | | | | | | | | |
| N/A | | | | | | 0 | 0 | 0 | 0 | |
| Test and Evaluation Organizations | | | | | | | | | | |
| N/A | | | | | | 0 | 0 | 0 | 0 | 0 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604708F Civil, Fire, Environmental, Shelter | PROJECT<br>2674 |

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

**Government Furnished Property:** None

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Subtotal Product Development | | | | *16,310 | 152 | 187 | 187 | Cont | TBD |
| Subtotal Support and Management | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal Test and Evaluation | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | *16,310 | 152 | 187 | 187 | Cont | TBD |

* = Prior year funding could not be broken out in above categories

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604708F Civil, Fire, Environmental, Shelter

PROJECT: 3788

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | FY 2004 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| 3788 Environmental Quality | 660 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,739 |

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

Develops equipment, materials, and processes in support of the Air Force environmental program including pollution prevention, compliance, restoration, and conservation. The focus is on technologies to reduce and eliminate pollutant sources, provide cost effective waste disposal, conduct remediation, and mitigate the effects of wastes and pollutants.

(U) **Acquisition Strategy:**

Demonstrate, test and validate innovative and promising environmental technologies that eliminate/reduce pollution, comply with environmental regulations and pursue/meet AF goals.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604708F Civil, Fire, Environmental, Shelter |
| | PROJECT<br>3788 |

(U) FY 1997 ($ in Thousands):

- (U) $413 Compliance - Green Aerospace Ground Support Equipment (Green AGSE), JP-8 Fuel Emissions characterization, and Open Path Analyzers
- (U) $106 Pollution Prevention - Continue developmental roadmap for metal plating/metal finishing
- (U) $141 Commercial/lab technology assessment and exploitation
- (U) $660 Totals

(U) FY 1998 ($ in Thousands):

- (U) $0
- (U) $0
- (U) $0 Total

(U) FY 1999 ($ in Thousands):

- (U) $0
- (U) $0
- (U) $0 Total

(U) FY 2000 ($ in Thousands):

- (U)$0
- (U)$0
- (U)$0 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604708F Civil, Fire, Environmental, Shelter | PROJECT<br>3788 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 698 | 0 | 0 | 2,739 |
| (U) Appropriated Value | 698 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -13 | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | -25 | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | | |
| (U) Current Budget Submit/FY1999 President's Budget | 660 | 0 | 0 | 2,739 |

(U) Change Summary Explanation:

Funding: ` FY 97 Congressional reductions of $13K and SBIR of $25K.

Schedule: N/A

Technical: N/A

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

(U) D. **Schedule Profile** N/A

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604708F Civil, Fire, Environmental, Shelter |
| | PROJECT<br>3788 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| Compliance | 413 | 0 | 0 |
| Pollution Prevention | 106 | 0 | 0 |
| Commercial/lab technology assessment and exploitation | 141 | 8 | 0 |
| Total | 660 | 0 | 0 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604708F Civil, Fire, Environmental, Shelter<br>PROJECT 3788 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Compliance | Multiple | Multiple | | | | 413 | 0 | 0 | 0 | 2,739 |
| Pollution Prevention | Multiple | Multiple | | | | 106 | 0 | 0 | 0 | 106 |
| Comm Techn | Multiple | Multiple | | | | 141 | 0 | 0 | 0 | 141 |
| Support and Management Organizations | | | | | | | | | | |
| None | | | | | | 0 | 0 | 0 | 0 | 0 |
| Test and Evaluation Organizations | | | | | | | | | | |
| None | | | | | | 0 | 0 | 0 | 0 | 0 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604708F Civil, Fire, Environmental, Shelter | PROJECT<br>3788 |

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

**Government Furnished Property:** None

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Subtotal Product Development | | | | 2,079 | 660 | 0 | 0 | 0 | 2,739 |
| Subtotal Support and Management | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal Test and Evaluation | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | 2,079 | 660 | 0 | 0 | 0 | 2,739 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604727F Joint Standoff Weapon Systems

PROJECT: 1000

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 1000 Joint Standoff Weapon Systems | 22,039 | 21,992 | 15,134 | 10,495 | 1,540 | 0 | 0 | 0 | 196,388 |
| Quantity of RDT&E Articles | 19/* | 8/* | 0 | 0 | 0 | 0 | 0 | 0 | 27/* |

* Costs of RDT&E articles are not individually priced due to variations in test configurations

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

The Joint Standoff Weapon (JSOW) is an air-to-ground weapon designed to attack a variety of targets during day, night, and adverse weather conditions. JSOW will enhance aircraft survivability as compared to current interdiction weapon systems by providing the capability for launch aircraft to standoff outside the range of enemy point defenses. The JSOW launch-and-leave capability will allow several target kills per aircraft sortie. Integration of the JSOW baseline weapon, the AGM-154A (BLU-97 Combined Effects Bomblets), and the JSOW anti-armor weapon, the AGM-154B (BLU-108 submunition), with the threshold F-16C/D Block 50 aircraft is also included. The program provides for development and test of a dispenser design for the JSOW/BLU-108 variant which employs a BLU-108/B submunition payload. Future integration (objective aircraft) is planned with the B-1B, F-16C/D Block 40, and F-15E. B-2 and B-52 integration is currently underway; B-2 is funding its own integration while B-52 integration is being funded by both JSOW and JASSM. The JSOW program also includes the development of Common Munitions BIT (Built-In Test) Reprogramming Equipment (CMBRE) software which is a tester for JSOW, Joint Direct Attack Munition (JDAM), Wind Corrected Munitions Dispenser (WCMD), and future smart weapons. Also included in this program element is funding for the development of the BRU-55, a MIL-STD-1760 dual-carriage ejector rack capable of carrying smart munitions. BRU-55 will allow the F-16C/D to carry four smart weapons including JSOW (a JSOW threshold requirement), 1000 lb JDAM, and WCMD. JSOW is a joint Air Force/Navy program; Navy is the lead service with the Air Force funding development of the JSOW/BLU-108 variant. JSOW is an ACAT ID program. The RDT&E Budget Activity is 5. Engineering and Manufacturing Development. Milestone II was completed 26 April 1995.

**(U) B. Acquisition Strategy**

JSOW used a competitively selected prime contractor for E&MD. A Cost Plus Incentive Fee (CPIF) contract was awarded for AGM-154A LRIP I. For AGM-154A LRIP II, a Fixed Price Incentive Fee (FPIF) contract was awarded. Both LRIP contracts were conducted in a sole source environment. A sole source AGM-154B LRIP contract will be awarded in FY99.

(U) FY 1997 ($ in Thousands):

- (U) $ 13,938 - Planned, designed, and produced Initial Operational Test & Evaluation test vehicles, and associated Systems Engineering Program Management (SEPM); continued development/test Air Force Mission Support System (AFMSS) module
- (U) $ 153 - Government Furnished Equipment (GFE) (BLU-108 developmental submunition)
- (U) $ 2,220 - Planned and conducted Developmental Test & Evaluation (DT&E)
- (U) $ 3,099 - Continued engineering support, program office support, Navy technical support at China Lake, and other government support
- (U) $ 2,629 - Continued BRU-55 integration and testing; procured JSOW test assets to support BRU-55 testing
- (U) $ 22,039 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604727F Joint Standoff Weapon Systems<br>PROJECT 1000 |

(U) FY 1998 ($ in Thousands):

- (U) $ 12,315 - Continue JSOW/BLU-108 development and associated SEPM; continue development/test AFMSS module and JSOW CMBRE software
- (U) $ 300 - GFE (BLU-108 developmental submunition)
- (U) $ 858 - Complete JSOW DT&E flight testing
- (U) $ 4,093 - Continue engineering support, program office support, Navy technical support at China Lake, and other government support
- (U) $ 4,426 - Continue BRU-55 development, integration, and flight testing
- (U) $ 21,992 Total

(U) FY 1999 ($ in Thousands):

- (U) $ 9,276 - Complete development and test of B-52 AFMSS module; conduct beddown training; continue integration and planning support for B-1B and F-15E; Conduct design-to-cost initiatives that make JSOW BLU-108 more reliable and allow increased performance
- (U) $ 2,110 - Continue engineering support, program office support, and Navy technical support at China Lake
- (U) $ 3,320 - Complete BRU-55 flight and ground tests; complete BRU-55 EMD; continue F-16 Operational Flight Program (OFP) software development
- (U) $ 428 - F-16 self-targeting/F-16 production OFP verification; F-16/BRU-55 developmental testing
- (U) $ 15,134 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE: 0604727F Joint Standoff Weapon Systems — PROJECT: 1000 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 22,463 | 24,676 | 23,139 | 211,300 |
| (U) Appropriated Value | 23,563 | 24,676 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong/Gen Reductions | -505 | -853 | | |
| b. SBIR | -595 | -1831 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | -387 | * | | |
| e. Rescissions | -37 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -8,005 | |
| (U) Current Budget Submit/FY1999 President's Budget | 22,039 | 21,992 | 15,134 | 196,388 |

(U) Change Summary Explanation:

Funding: FY97 BTR transfers excess funds to support research for the development of a miniaturized, near-precision conventional weapon and internal carriage technology. $4M FY99 funds transferred to PE 0207324F (JSOW procurement) to support FY99 BRU-55 production start. $3.7M FY99 funds transferred for other higher priorities. $305K FY99 funds taken as an inflation adjustment.

* An additional $524K is pending reprogramming in FY98 to fund other higher priorities.

Schedule: Delays BLU-108 P3I integration.
Technical: None

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total |
|---|---|---|---|---|---|---|---|---|---|
| (U) Appropriation: Missile Procurement (3020), Air Force, Program Title: JSOW, PE 0207324F BA-02, BP-20, P-1 Line 4 | 0 | 18,528 | 41,724 | 89,431 | 115,095 | 123,859 | 169,153 | 1,159,567 | 1,736,873 |
| (U) SEEK EAGLE (PE 0207590F) | 7,986 | 1,112 | 10,418 | 0 | 0 | 0 | 0 | 0 | 19,516 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604727F Joint Standoff Weapon Systems |
| | PROJECT<br>1000 |

(U) D. Schedule Profile

| | | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Acquisition Milestones | | | | | | | | | | | | | |
| JSOW/BLU-108 Critical Design Review | | | * | | | | | | | | | | |
| BRU-55 Critical Design Review | | | | | | * | | | | | | | |
| BRU-55 Development/Testing Completion | | | | | | | | | X | | | | |
| BRU-55 Production Contract | | | | | | | | | | | | X | |
| JSOW/Baseline Production Award (LRIP 2/ First AF buy) | | | | | | * | | | | | | | |
| JSOW/Baseline Milestone III/FRP | | | | | | | | | | X | | | |
| JSOW/BLU-108 LRIP Decision | | | | | | | | | | X | | | |
| USAF JSOW RAA | FY00 | | | | | | | | | | | | |
| JSOW/BLU-108 Milestone III/FRP | FY02 | | | | | | | | | | | | |
| T&E Milestones | | | | | | | | | | | | | |
| JSOW/BLU-108 DT&E (Start/Complete) | | | * | | | | | X | | | | | |
| JSOW/BLU-108 System Qualification Test (Start/Complete) | | | * | | | | X | | | | | | |
| JSOW/BLU-108 IOT&E | FY00 | | | | | | | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604727F Joint Standoff Weapon Systems |
| | PROJECT<br>1000 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Major Contracts | 13,938 | 12,315 | 9,276 |
| (U) Support Contracts | 2,542 | 3,403 | 1,690 |
| (U) Program Office Support/Other government support | 557 | 690 | 420 |
| (U) Test and Evaluation | 2,220 | 858 | 428 |
| (U) Government Furnished Equipment (GFE) | 153 | 300 | 0 |
| (U) BRU-55 | 2,629 | 4,426 | 3,320 |
| TOTAL | 22,039 | 21,992 | 15,134 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604727F Joint Standoff Weapon Systems

PROJECT: 1000

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Raytheon System Company (RSC) | SS/CPIF | Jun 95 | 136,039 | 136,039 | 92,094 | 13,938 | 12,315 | 9,276 | 8,416 | 136,039 |
| Lockheed | FP/CPIF | Feb 95 | 18,020 | 18,020 | 8,900 | 800 | 3,000 | 3,320 | 2,000 | 18,020 |
| M Tech | FP/CPIF | Oct 95 | 8,720 | 8,720 | 5,465 | 1,829 | 1,426 | 0 | 0 | 8,720 |
| Support and Management Organizations | | | | | | | | | | |
| China Lake NWC | MIPR | Apr 97 | N/A | N/A | 2,790 | 758 | 800 | 500 | 100 | 4,948 |
| ASC/YH & Other | | | N/A | N/A | 8,771 | 2,341 | 3,293 | 1,610 | 1,519 | 17,534 |
| Test and Evaluation Organizations | | | | | | | | | | |
| AFDTC, Eglin AFB | PO | Apr 97 | N/A | N/A | 3,341 | 2,220 | 858 | 428 | 0 | 6,847 |
| **Government Furnished Property:** | | | | | | | | | | |
| Product Development Organizations | | | | | | | | | | |
| Textron | FPIF | Mar 96 | 4,280 | 4,280 | 3,827 | 153 | 300 | 0 | 0 | 4,280 |
| Support and Management Organizations | | | | | | | | | | |
| None | | | | | | | | | | |
| Test and Evaluation Organizations | | | | | | | | | | |
| None | | | | | | | | | | |
| Subtotal Product Development | | | | | 110,286 | 16,720 | 17,041 | 12,596 | 10,416 | 167,059 |
| Subtotal Support and Management | | | | | 11,561 | 3,099 | 4,093 | 2,110 | 1,619 | 22,482 |
| Subtotal Test and Evaluation | | | | | 3,341 | 2,220 | 858 | 428 | 0 | 6,847 |
| **Total Project** | | | | | 125,188 | 22,039 | 21,992 | 15,134 | 12,035 | 196,388 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604735F Combat Training Ranges

PROJECT: 2286

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2286 Combat Training Range Equipment | 26,490 | 19,131 | 14,581 | 12,984 | 14,011 | 14,706 | 14,982 | Continuing | Continuing |
| Quantity of RDT&E Articles | 4* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |

**Note:** * AMODSM - Quantity of RDT&E Articles: 4 Not Separately Priced (NSP)

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

This program develops the electronic, telecommunications, and instrumentation equipment/systems for training ranges worldwide. These systems provide real-time monitoring and control of aircrew air-to-air, air-to-ground, and electronic warfare training along with the ability to record events for crew debriefing and analysis. The primary developmental effort is the Nellis Air Combat Training System (NACTS) at Nellis AFB. NACTS is a Global Positioning System (GPS) based system to replace the current Red Flag Measurement and Debriefing System (RFMDS) increasing to 100 the number of instrumented participants, improving aircraft position tracking accuracy, expanding range coverage, multiplying weapons simulations and adding electronic warfare threat/aircrew interaction. The development effort involves software development to increase the number of high activity players as well as the integration and test of the training system comprised of ground equipment and aircraft pods purchased by procurement funding. This program element also funds the continued development of advanced electronic threats, aircraft/pod interfaces, software interoperability among service ranges and the encryption of range/aircraft data links. This program develops the Advanced Message Oriented Data Security Module (AMODSM) communications security equipment. This program is in budget activity 5 - Engineering and Manufacturing Development 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) **Acquisition Strategy:**

. The acquisition strategy is competitive, with cost plus contracts

(U) FY 1997 ($ in Thousands):

- (U) $4,031 Continued Combat Training Ranges (CTR) basic operating support, and system acquisition and engineering support for range and threat systems
- (U) $9,208 Continued Engineering and Development (EMD) of NACTS
  - -- Finalized NACTS software design (NSP)
  - -- Initiated system integration and factory testing (NSP)
  - -- Completed prototype flight testing (NSP)
  - -- Initiate weapons simulation integration efforts (NSP)
- (U) $707 Began interoperability improvements with the Navy to include software upgrades and weapons simulations
- (U) $372 Began advanced threat development effort

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604735F Combat Training Ranges<br>PROJECT 2286 |

- (U) $1,521 Continued AMODSM development with the Navy.
- (U) $808 Continued development and support of interface between ACTS (Air Combat Training System) programs and Air Force platforms
  - -- Established interface agreements for F-16A/B, F-16 Block 30, A-10, and B-52 (NSP)
  - -- Continued Interface Control Working Group activities (NSP)
  - -- Established Interface Memorandum of Agreement (MOA) with OO-ALC for F-16 Block 30, and F-16A/B (NSP)
  - -- Established MOA with SM-ALC for A-10 (NSP)
  - -- Established MOA with OC-ALC for B-52 (NSP)
  - -- Exercised interface contract option with Lockheed Martin and McDonnell Douglas (NSP)
  - -- Conducted Combined Interface Control Working Group and Technical Interchange meetings (NSP)
- (U) $2,179 Continued ASSET (ACTS Software Support Evaluation and Test) efforts to perform Air Combat Training Systems software baseline sustainment support for the airborne instrumentation systems for all Air Force configurations and Advanced Display Debriefing System (ADDS) for the joint services.
- (U) $2,500 Began efforts to ensure interoperability between the Navy's Joint Tactical Combat Training System (JTCTS) and Air Force unique requirements JTCTS Contractor: Raytheon, NJ (Navy Contract)
- (U) $5,164 Began EMD development of Alpena pod and ground system.
- (U) $26,490 Total

(U) FY 1998 ($ in Thousands):

- (U) $3,751 Continue CTR basic operating support, and system acquisition and engineering support for range and threat systems
- (U) $4,705 Complete NACTS EMD
  - -- Complete and test final implementation of secure data link (NSP)
  - -- Complete system site installation, integration and testing (NSP)
  - -- Complete implementation of weapons simulation (NSP)
  - -- Achieve Initial Operational Capability (IOC) (unencrypted) April 98 ( preliminary date, final IOC date to be negotiated) (NSP)
- (U) $1,995 Continue interoperability improvements with existing Navy ranges to include software upgrades and weapons simulation development
- (U) $941 Continue development of aircraft interfaces with aircraft/Pod integration for range applications with aircraft program offices and aircraft manufactures
- (U) $5,175 Continue advanced threat system development effort
- (U) $1,623 Continue ASSET efforts
- (U) $941 Complete Alpena EMD
- (U) $19,131 Total

(U) FY 1999 ($ in Thousands):

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604735F Combat Training Ranges |
| | PROJECT<br>2286 |

- (U) $3,061 Continue CTR basic operating support, and system acquisition and engineering support for range and threat systems
- (U) $3,080 Continue interoperability improvements with existing Air Force and Navy ranges to include software, upgrades, and weapons simulation development
- (U) $1,080 Continue development of aircraft interfaces with aircraft/Pod integration for range applications with aircraft program offices
- (U) $4,880 Continue advanced threat system development effort
- (U) $1,880 Continue ASSET efforts
- (U) $600 Begin development of software for proof of concept prototype demo of AN/MSR-T4 Enhanced Electronic Countermeasures (ECM) Environment Analysis Capability (TURBO TRAINS)
- (U) $14,581 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (1998 PB) | 21,926 | 20,331 | 14,875 | TBD |
| (U) Appropriated Value | 23,018 | 20,331 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -517 | -690 | | |
| b. SBIR | -575 | -510 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | +4,600 | | | |
| e. Rescissions | -36 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -294 | |
| (U) Current Budget Submit/ FY 1999 President's Budget | 26,490 | 19,131 | 14,581 | TBD |

(U) Change Summary Explanation:

Funding: Increase in FY97 was to support Alpena EMD
Decrease in FY97 was due to the rescission to fund Bosnia supplemental
Decrease in FY99 is inflation adjustment

Schedule: None

Technical: None

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

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604735F Combat Training Ranges

PROJECT: 2286

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) PE27429F: Appropriation: Other Procurement, AF (OPAF) Budget Activity: OPAF/Electronics & Telecommunications Equipment, Program Title : Combat Training Ranges | 12,252 | 15,713 | 15,017 | 19,029 | 33,502 | 31,190 | 30,443 | Cont | TBD |
| (U) PE27429F: Appropriation: Aircraft Procurement, AF (APAF) Budget Activity: APAF/Other Procurement Charges, Program Title: Combat Training Ranges | 16,512 | 9,771 | 3,955 | 18,395 | 20,094 | 20,465 | 20,909 | Cont | TBD |

**(U) D. Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| **(U) Nellis Air Combat Training System (NACTS)** | | | | | | | | | | | | |
| (U) Final Design Review | | * | | | | | | | | | | |
| (U) Complete System Integration and Factory Test | | | | | | X | | | | | | |
| (U) Complete Site Installation | | | | | | | X | | | | | |
| (U) Site Acceptance Testing | | | | | | | | X | | | | |
| (U) System Turnover Activity | | | | | | | | | X | | | |
| (U) IOC | | | | | | | | | X | | | |
| **(U) Advances Threats Development** | | | | | | | | | | | | |
| (U) Initiate New Acquisition | * | | | | | | | | | | | |
| (U) Contract Award | | | | | | X | | | | | | |
| **(U) Joint Service Range Software Interoperability** | | | | | | | | | | | | |
| (U) New Block Upgrade (Ongoing) | * | * | | | | X | | | | | | |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604735F Combat Training Ranges<br>PROJECT 2286 |

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) New Block Upgrade Installation and Checkout (Ongoing) | | * | * | * | * | X | | | | | | |
| **(U) Advanced Message Oriented Data Security Module (AMODSM)** | | | | | | | | | | | | |
| (U) Deliver Engineering Development Models (EMDs) (2 - Prototypes) | | * | | | | | | | | | | |
| (U) Exercise Production Options | | | | | | | X | | | | | |
| (U) Deliver Production Units | | | | | | | | | X | | | |
| **(U) Aircraft/Pod Interface Development** | | | | | | | | | | | | |
| (U) F-16 Block 40 & 50 Interface Contract | * | * | * | * | * | X | | | | | | |
| (U) F-15 Interface Contract | * | * | * | * | * | X | | | | | | |
| (U) Initiate Combined Interface Control Working Group | * | * | * | * | * | X | | | | | | |
| (U) Establish Interface MOA w/OO-ALC | * | * | * | * | * | X | | | | | | |
| (U) Establish Interface MOA w/SM-ALC | | * | * | * | * | X | | | | | | |
| (U) Establish Interface MOA w/OC-ALC | | | * | * | * | X | | | | | | |
| **(U) ASSET Facility** | | | | | | | | | | | | |
| (U) Contract Award/Option | | | | | * | | | | | | | |
| (U) New Contract Award | | | | | | | | | X | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604735F Combat Training Ranges

PROJECT: 2286

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Nellis Air Combat Training System (NACTS) | 9,208 | 4,705 | 0 |
| (U) Advanced Message Oriented Data Security Module (AMODSM) | 1,521 | 0 | 0 |
| (U) Aircraft Interface Development | 808 | 941 | 1,080 |
| (U) Advanced Threat Development | 372 | 5,175 | 4,880 |
| (U) Joint Service Interoperability Improvements | 707 | 1,995 | 3,080 |
| (U) ASSET Efforts | 2,179 | 1,623 | 1,880 |
| (U) JTCTS Interoperablilty Efforts | 2,500 | 0 | 0 |
| (U) Enhanced ECM Environment Analysis Capability | 0 | 0 | 600 |
| (U) Combat Training Ranges Program Office Support | 4,031 | 3,751 | 3,061 |
| (U) Alpena | 5,164 | 941 | 0 |
| (U) Total | 26,490 | 19,131 | 14,581 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Cubic Defense (NACTS) | C/CPAF/FFP | Mar 95 | | | 17,586 | 8,870 | 4,705 | 0 | 0 | 31,161 |
| Raytheon (JTCTS) | Navy Contr | Mar 95 | | | 0 | 2,500 | 0 | 0 | 0 | 2,500 |
| Lockheed Martin (AMODSM) | Navy Contr | FY 95 | | | 2,566 | 1,095 | 0 | 0 | 0 | 3,661 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604735F Combat Training Ranges

PROJECT: 2286

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| ASI (ASSET) | S/CPAF | Sep 96 | | | 350 | 182 | 700 | 1,000 | Cont | TBD |
| Advanced Threats (Contractor TBD) | Unknown | Jan 98 | | | 0 | 0 | 5,175 | 5,000 | Cont | TBD |
| Joint Interoperability Aircraft Interface | Navy Contract Through MOAs with ALCs & Aircraft SPO Contractors | Mar 97 | | | 0 | 618 | 650 | 1,200 | Cont | TBD |
| | | Jun 96 | | | 412 | 272 | 456 | 1,200 | Cont | TBD |
| Alpena (Contractor TBD) | FPIF | Feb 98 | | | 0 | 4,764 | 800 | 0 | Cont | TBD |
| Support and Management Organizations | | | | | | | | | | |
| ASC/WMR, Eglin AFB, FL | Various | | | | 4,887 | 5,914 | 5,475 | 5,011 | Cont | TBD |
| NAWC, China Lake, CA | Various | | | | 0 | 1,935 | 870 | 870 | Cont | TBD |
| Test and Evaluation Organizations | | | | | | | | | | |
| ASC/WMR, Eglin AFB, FL | Various | | | | 1,405 | 100 | 100 | 100 | Cont | TBD |
| 46 Test Wing, Eglin AFB, FL | Various | | | | 640 | 240 | 200 | 200 | Cont | TBD |
| Total Project | | | | | 27,841 | 26,490 | 19,131 | 14,581 | Cont | TBD |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604735F Combat Training Ranges | PROJECT<br>2286 |

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

**Government Furnished Property:** NA

| | | | | | | |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 20,914 | 18,301 | 12,486 | 8,400 | Cont | TBD |
| Subtotal Support and Management | 4,887 | 7,849 | 6,345 | 5,881 | Cont | TBD |
| Subtotal Test and Evaluation | 2,040 | 340 | 300 | 300 | Cont | TBD |
| Total Project | 27,841 | 26,490 | 19,131 | 14,581 | Cont | TBD |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604740F Computer Resources Management Technology

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 1,805 | 4,157 | 200 | 0 | 0 | 0 | 0 | 0 | 19,746 |
| 2522 Advanced Computer Technology Transition | 1,226 | 676 | 0 | 0 | 0 | 0 | 0 | 0 | 5,607 |
| 2523 Architectural Implementation | 579 | 684 | 200 | 0 | 0 | 0 | 0 | 0 | 3,443 |
| 2524 Reuse and Component Support | 0 | 2,797 | 0 | 0 | 0 | 0 | 0 | 0 | 10,696 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

A major restructuring of this program into an Air Force Product Lines (AFPL) program is currently in process. As part of this, Project 2522 will be merged and funding will transition to Project 2523, to be renamed Product Line Implementation, during the FY 2000 Program Objective Memorandum (POM). The AFPL program dramatically reduces the development time, costs, and risks associated with the acquisition and development of warfighting command and control (C2) systems by using families of pre-defined product lines. The use of product line designs during program development improves the quality of computer systems and reduces overall life cycle costs. These improvements are implemented through Project 2523, the Command and Control Product Lines (CCPL) program and Project 2524, the Comprehensive Approach to Reusable Defense Software (CARDS) program. CCPL minimizes development cost and time by using pre-defined product line architectures with tested, reusable software components from mature programs. CARDS identifies, tests, and provides reusable software components and products to the CCPL program. CARDS developed a software reuse strategy for the DoD; and is developing a Product Line Asset Center Software Reuse Repository to manage a command center product line based on primarily commercial off-the-shelf (COTS) products. This initiative has determined that over 80% of the functionality of any command center software is common to all command centers. For seven programs using product line concepts, average savings of 56% in development costs and 66% in development time can be realized. CCPL transitions the R&D concept to the operational world and provides additional product lines. This program is in budget activity 5 - Engineering and Manufacturing Development, due to the developmental nature of the effort.

(U) **Acquisition Strategy:**

All major contracts within this Program Element were awarded after full and open competition, with the exception of STI, which was awarded under a sole source procurement.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604740F Computer Resources Management Technology

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 1,862 | 1,459 | 1,485 | 21,333 |
| (U) Appropriated Value | 1,956 | 4,459 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -5 | -146 | | |
| b. SBIR | -48 | -156 | | |
| c. Omnibus or Other Above Threshold Reprogramming | | | | |
| d. Below Threshold Reprogramming | -54 | | | |
| e. Rescissions | -44 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -1,285 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 1,805 | 4,157 | 200 | 19,746 |

(U) Change Summary Explanation:

Funding: Congress added $3.0 million to the FY 98 budget for the Comprehensive Approach to Reusable Defense Software (CARDS) program (project 2524). As a result of higher Air Force priorities, FY 99 and outyear funding was reduced/eliminated. As a result, The Computer Resources Management Technology program is being restructured to support development of an Air Force Product Lines (AFPL) program as part of the FY 2000 POM effort.

Schedule: See above.

Technical: See above.

(U) C. Other Program Funding Summary ($ in Thousands)
Not applicable.

(U) D. Schedule Profile:
See individual projects.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604740F Computer Resources Management Technology<br>PROJECT 2522 |

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2522 Advanced Computer Technology Transition | 1,226 | 676 | 0 | 0 | 0 | 0 | 0 | 0 | 5,607 |

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

This project conducts research to improve support of embedded computer system software. It encompasses automation and standardization of support processes, advanced support methodologies, tools and environments, and readiness support to facilitate rapid turnaround of software in response to changing mission and/or changing threat requirements. As part of a major restructuring of this program, this project will be terminated after FY 98. This program is in budget activity 5 - Engineering and Manufacturing Development, due to the developmental nature of the effort.

(U) **Acquisition Strategy:**

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

(U) **FY 1997 ($ in Thousands):**

- (U) $361 Continued development of technology transition infrastructure within the Air Force
- (U) $114 Continued funding of Joint Logistics Commanders activities in software re-engineering and modernization of obsolescent, expensive software.
- (U) $751 Improved and continued to implement Air Force-wide metrics repository.
- (U) $1,226 Total

(U) **FY 1998 ($ in Thousands):**

- (U) $676 Funding will be merged with Project 2523 as part of the restructuring of this program (see page 1)to develop architecture for CCPL.
- (U) $676 Total

(U) **FY 1999 ($ in Thousands):**

Project 2522 transitioned to Project 2523 in FY 98.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604740F Computer Resources Management Technology |
| | PROJECT<br>2522 |

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 1,228 | 725 | 698 | 6,354 |
| (U) Appropriated Value | 1,228 | 725 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | | -24 | | |
| b. SBIR | | -25 | | |
| c. Omnibus or Other Above Threshold Reprogramming | | | | |
| d. Below Threshold Reprogramming | -2 | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -698 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 1,226 | 676 | 0 | 5,607 |

(U) Change Summary Explanation:

Funding: Program is being merged with Project 2523 as part of the Command and Control Product Lines (see page 1).

Schedule: See above.

Technical: See above.

(U) C. Other Program Funding Summary ($ in Thousands):
Not applicable.

(U) D. Schedule Profile
Not applicable.

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604740F Computer Resources Management Technology<br>PROJECT 2522 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Technology Transition Infrastructure Development | 361 | | |
| (U) Joint Logistics Commanders Activities | 114 | | |
| (U) Metrics Repository Implementation | 751 | | |
| (U) Command and Control Product Lines (CCPL) | | 676 | |
| (U) Total | 1,226 | 676 | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604740F Computer Resources Management Technology<br>PROJECT 2522 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget FY 2000 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | | |
| Universal SCA | CP | Dec 94 | N/A | N/A | 75 | 0 | 0 | 0 | 0 | 0 | 75 |
| AGCS | CP | Jan 95 | N/A | N/A | 50 | 0 | 0 | 0 | 0 | 0 | 50 |
| Martin Marietta | FFP | 22 Oct 94 | N/A | N/A | 213 | 0 | 0 | 0 | 0 | 0 | 213 |
| Hughes Aircraft | CPFF | 19 Dec 92 | N/A | N/A | 282 | 287 | 220 | 0 | 0 | 0 | 789 |
| Raytheon Co. | CPFF | 19 Dec 92 | N/A | N/A | 891 | 361 | 200 | 0 | 0 | 0 | 1,452 |
| Unisys | CPFF | 29 Sep 93 | N/A | N/A | 660 | 0 | 0 | 0 | 0 | 0 | 660 |
| TRW | CPFF | 20 Feb 97 | N/A | N/A | 0 | 22 | 256 | 0 | 0 | 0 | 278 |
| Lockheed Martin | CP | Var | N/A | N/A | 0 | 100 | 0 | 0 | 0 | 0 | 100 |
| Support and Management Organizations | | | | | | | | | | | |
| OO-ALC | N/A | Var | N/A | N/A | 157 | 0 | 0 | 0 | 0 | 0 | 157 |
| SENCOM | N/A | Jan 95 | N/A | N/A | 25 | 0 | 0 | 0 | 0 | 0 | 25 |
| MOSAIC (TEMS) | CP | Jan 95 | N/A | N/A | 415 | 0 | 0 | 0 | 0 | 0 | 415 |
| JLC | N/A | Var | N/A | N/A | 230 | 0 | 0 | 0 | 0 | 0 | 230 |
| SEI | FFRDC | Var | N/A | N/A | 185 | 0 | 0 | 0 | 0 | 0 | 185 |
| Sterling | N/A | Var | N/A | N/A | 0 | 100 | 0 | 0 | 0 | 0 | 100 |
| ATTI | N/A | Var | N/A | N/A | 0 | 73 | 0 | 0 | 0 | 0 | 73 |
| ESC | N/A | N/A | N/A | N/A | 522 | 283 | 0 | 0 | 0 | 0 | 805 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | | | | | | | | | | DATE: February 1998 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development | | | | | PE NUMBER AND TITLE: 0604740F Computer Resources Management Technology | | | | | | PROJECT: 2522 |
| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget FY 2000 | Budget to Complete | Total Program |
| Test and Evaluation Organizations | | | | | | | | | | | |
| Not applicable. | | | | | | | | | | | |
| Subtotal Product Development | | | | | 2,171 | 770 | 676 | 0 | 0 | 0 | 3,617 |
| Subtotal Support and Management | | | | | 1,534 | 456 | 0 | 0 | 0 | 0 | 1,990 |
| Subtotal Test and Evaluation | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | | 3,705 | 1,226 | 676 | 0 | 0 | 0 | 5,607 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604740F Computer Resources Management Technology

PROJECT: 2523

| COST *($ In Thousands)* | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2523 Architectural Implementation | 579 | 684 | 200 | 0 | 0 | 0 | 0 | 0 | 3,443 |

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

As part of the restructuring of this program (see page 1), this project is being renamed Command and Control Product Lines (CCPL). The CCPL program provides pre-defined product line architectures with tested, reusable software components to build Command and Control (C2) systems. Using rapid prototyping techniques, a CCPL contractor can quickly tailor a product line 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; 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. CCPL minimizes development risks by reusing proven software components from mature programs and by continuously testing new products and technologies against the product line designs to ensure integration and interoperability. The CCPL contractors develop and maintain the C2 product line infrastructure in a collaborative, synergistic environment using validated, mature software engineering processes to help ensure the quality of the designs and components. Proven product line 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 designs as part of the product line development process to minimize any impact to the user. This program is in budget activity 5 - Engineering and Manufacturing Development, due to the developmental nature of the effort.

(U) **Acquisition Strategy:**

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

(U) **FY 1997 ($ in Thousands):**

- (U) $229 Developed architecture for Command and Control Product Line (CCPL)
- (U) $200 Qualified components for CCPL.
- (U) $150 Integrate products into CCPL

(U) $579 Total

(U) **FY 1998 ($ in Thousands):**

- (U) $340 Qualify components for CCPL.
- (U) $344 Integrate products into CCPL
- (U) $684 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604740F Computer Resources Management Technology<br>PROJECT 2523 |

(U) FY 1999 ($ in Thousands):
- (U) $200 Qualify components for CCPL.
- (U) $200 Total

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 634 | 734 | 787 | 4,080 |
| (U) Appropriated Value | 634 | 734 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | | -24 | | |
| b. SBIR | | -26 | | |
| c. Omnibus or Other Above Threshold Reprogramming | | | | |
| d. Below Threshold Reprogramming | -52 | | | |
| e. Rescissions | -3 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -587 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 579 | 684 | 200 | 3,443 |

(U) Change Summary Explanation:

Funding: See above

Schedule: See above.

Technical: See above.

(U) C. Other Program Funding Summary ($ in Thousands)
Not applicable

(U) D. Schedule Profile
Not applicable

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604740F Computer Resources Management Technology

PROJECT: 2523

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Command and Control Product Line Architectural (CCPL) Development | 229 | | |
| (U) CCPL Component Qualification | 200 | 340 | 200 |
| (U) CCPL Product Integration | 150 | 344 | |
| (U) Total | 579 | 684 | 200 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Hughes | CPFF | 19 Dec 92 | N/A | N/A | 453 | 300 | 458 | 67 | 0 | 1,278 |
| Raytheon | CPFF | 19 Dec 92 | N/A | N/A | 1,000 | 100 | 0 | 66 | 0 | 1,166 |
| AGCS | CPFF | Dec 94 | N/A | N/A | 50 | 0 | | 0 | 0 | 50 |
| TRW | CPFF | 12 Feb 97 | N/A | N/A | 0 | 100 | 190 | 67 | 0 | 357 |
| Unisys | CPFF | 29 Sep 93 | N/A | N/A | 30 | 0 | 0 | 0 | 0 | 30 |
| Support and Management Organizations | | | | | | | | | | |
| MOSAIC (TEMS) | N/A | Var | N/A | N/A | 178 | 0 | 0 | 0 | 0 | 178 |
| ATTI | N/A | Var | N/A | N/A | 22 | 0 | 0 | 0 | 0 | 22 |
| ESC | N/A | N/A | N/A | N/A | 247 | 79 | 36 | 0 | 0 | 362 |

Test and Evaluation Organizations

Not applicable.

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | | DATE: February 1998 |
|---|---|---|---|
| BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE: 0604740F Computer Resources Management Technology | | PROJECT: 2523 |

**Government Furnished Property:**
Not applicable.

| | | | | | | |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 1,533 | 500 | 648 | 200 | 0 | 2,881 |
| Subtotal Support and Management | 447 | 79 | 36 | 0 | 0 | 562 |
| Subtotal Test and Evaluation | | | | | | |
| Total Project | 1,980 | 579 | 684 | 200 | 0 | 3,443 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604740F Computer Resources Management Technology<br>PROJECT 2524 |

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2524 Reuse and Component Support | 0 | 2,797 | 0 | 0 | 0 | 0 | 0 | 0 | 10,696 |

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

This project will be renamed the Central Archive for Reusable Defense Software (CARDS) program. CARDS develops a reuse blueprint for DoD and establishes a reuse library. CARDS is a Congressional special interest item for which Congress added funds in FY 1998. CARDS identifies, tests, and provides reusable software components and products to the CCPL program. CARDS developed a software reuse strategy for the DoD; and is developing a Product Line Asset Center Software Reuse Repository to manage a command center product line based on primarily on commercial off-the-shelf (COTS) products. This program is in budget activity 5 - Engineering and Manufacturing Development, due to the developmental nature of the effort.

(U) **Acquisition Strategy:**

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

(U) FY 1997

Not applicable.

(U) FY 1998

- (U) $440 Identify Enterprise Wide Assets (From COTS, GOTS, Product line engineering centers)
- (U) $2060 Perform suitability testing against product line architectures, assets, criteria and design
- (U) $297 Maintain repository/distribute product line architecture, assets, criteria and design
- (U) $2,797 Total

(U) FY 1999

- (U) $0 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604740F Computer Resources Management Technology<br>PROJECT 2524 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 0 | 0 | 0 | 10,899 |
| (U) Appropriated Value | 0 | 3,000 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | | -98 | | |
| b. SBIR | | -105 | | |
| c. Omnibus or Other Above Threshold Reprogramming | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | | |
| (U) Current Budget Submit/FY 1999 President's Budget | 0 | 2,797 | 0 | 10,696 |

(U) Change Summary Explanation:

Funding: Congress added $3.0 million to the FY 98 budget for the Comprehensive Approach to Reusable Defense Software (CARDS) program.

Schedule: See above.

Technical: See above.

(U) C. **Other Program Funding Summary ($ in Thousands)**
Not applicable.

(U) D. **Schedule Profile**
Not applicable.

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604740F Computer Resources Management Technology<br>PROJECT 2524 |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 |
|---|---|---|---|---|
| (U) Identify Enterprise Wide Assets | | 440 | | |
| (U) Perform Suitability Testing | | 2,060 | | |
| (U) Maintain Repository/Distribute Product Line | | 297 | | |
| (U) Total | | 2,797 | | |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget FY 2000 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | | |
| Lockheed Martin | CPFF | May 97 | N/A | N/A | 0 | 0 | 330 | 0 | 0 | 0 | 330 |
| Support and Management Organizations | | | | | | | | | | | |
| Unisys | CPFF | 29 Sep 93 | N/A | N/A | 5,638 | 0 | 0 | 0 | 0 | 0 | 5,638 |
| AGCS | CR | Dec 94 | N/A | N/A | 270 | 0 | 0 | 0 | 0 | 0 | 270 |
| WVA High Tech | NPLACE | 18 Nov 96 | N/A | N/A | 1,700 | 0 | 2,060 | 0 | 0 | 0 | 3,760 |
| Raytheon/Hughes | CPFF | 19 Dec 92 | N/A | N/A | 38 | 0 | 407 | 0 | 0 | 0 | 445 |
| ATTI | N/A | N/A | N/A | N/A | 253 | 0 | 0 | 0 | 0 | 0 | 253 |

Test and Evaluation Organizations
Not applicable.

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604740F Computer Resources Management Technology<br>PROJECT 2524 |

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

**Government Furnished Property:**

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget FY 2000 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Product Development | | | | 0 | 0 | 330 | 0 | 0 | 0 | 330 |
| Subtotal Support and Management | | | | 7,899 | 0 | 2,467 | 0 | 0 | 0 | 10,366 |
| Subtotal Test and Evaluation | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | 7,899 | 0 | 2,797 | 0 | 0 | 0 | 10,696 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604750F Intelligence Equipment

PROJECT: 2053

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2053 National Air Intel Center | 1,013 | 1,223 | 1,300 | 1,369 | 1,336 | 1,353 | 1,379 | Cont | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

Intelligence Equipment (IE) provides continuing development and upgrades of threat analysis capabilities of the National Air Intelligence Center (NAIC) and Air Force Information Warfare Center (AFIWC). Both organizations are tasked with providing detailed foreign technology intelligence information to a variety of both 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 airborne and aerospace systems. This is the only AF program developing new, or upgraded analysis, modeling and simulation tools focused on intelligence production in support of AF developmental and operational functions. This effort is Budget Activity 5, Engineering & Manufacturing Development, because the program develops and inserts new technology into existing systems and models to keep existing systems current.

(U) **Acquisition Strategy:**
All major contracts within this Program Element were awarded after full and open competition.

(U) FY 1997 ($ in Thousands):
- (U) $ 180 Continued Model Synthesis Interface.
- (U) $ 215 Completed Low Observables Design Synthesis Tools (LODST) Upgrades for UAV
- (U) $ 180 Initiated Advanced Communication Network Modeling
- (U) $ 164 Initiated RF Weapons Modeling
- (U) $ 274 Initiated Advanced Infrared Countermeasures Assessment
- (U) $1,013 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604750F Intelligence Equipment<br>PROJECT 2053 |

(U) FY 1998 ($ in Thousands):
- (U) $ 180 Complete Model Synthesis Interface.
- (U) $ 421 Continue Advanced Communication Network Modeling
- (U) $ 351 Continue RF Weapons Modeling
- (U) $ 271 Complete Advanced Infrared Countermeasures Assessment
- (U) $1,223 Total

(U) FY 1999 ($ in Thousands):
- (U) $ 425 Complete Advanced Communication Network Modeling
- (U) $ 244 Complete RF Weapons Modeling
- (U) $ 316 Initiate Foreign C3I Simulation (FoCIS)
- (U) $ 315 Initiate Electromagnetic Counter Measures Modeling
- (U) $1,300 Total

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

| | FY 1997 | FY 1998 | FY1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998) | 1,167 | 1,287 | 1,326 | TBD |
| (U) Appropriated Value | 1,211 | 1,287 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | (25) | (42) | | |
| b. Small Business Innovative Research (SBIR) | (19) | (22) | | |
| c. Below Threshold Reprogramming (BTR ) | | | | |
| d. Rescissions | (154) | | | |
| (U) Adjustment to Budget Years Since FY1998 PB (U)) | | | (26) | |
| (U) Current Budget Submit/FY1999 President's Budget | 1,013 | 1,223 | 1,300 | TBD |

(U) Change Summary Explanation:
Funding: None.
Schedule: None
Technical: None.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604750F Intelligence Equipment<br>PROJECT<br>2053 |

(U) C. Other Program Funding Summary ($ in Thousands)
(U) None.

(U) RELATED ACTIVITIES—None.

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Model Synthesis Interface | | | | | | | | X | | | | |
| (U) Air Surveillance C3 - web based simulation | | X | | | | | | | | | | |
| (U) Low Observables Design Synthesis Tools Upgrades for UAVs | | | | X | | | | | | | | |
| (U) Advanced Communication Network Modeling | | | | | | | | | | | | X |
| (U) Radio Frequency Weapons Modeling | | | | | | | | | | | X | |
| (U) Advanced Infrared Countermeasures Assessment | | | | | X | | | | | | | |
| (U) Foreign C3I Simulation (FoCIS) | | | | | | | | | | X | | |
| (U) Electromagnetic Counter Measures Modeling | | | | | | | | | | X | | |
| (U) Advanced IRCM Systems Assessment Model (AIRSAM) | | | | | | | | | | | | |
| (U) Electromagnetic Antenna Modeling | | | | | | | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604750F Intelligence Equipment | PROJECT<br>2053 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Model Synthesis Interface | 180 | 180 | |
| (U) Low Observables Design Synthesis Tools Upgrades for UAVs | 215 | | |
| (U) Advanced Communication Network Modeling | 180 | 421 | 425 |
| (U) Radio Frequency Weapons Modeling | 164 | 351 | 244 |
| (U) Advanced Infrared Countermeasures Assessment | 274 | 271 | |
| (U) Foreign C3I Simulation (FoCIS) | | | 316 |
| (U) Electromagnetic Counter Measures Modeling | | | 315 |
| (U) Advanced IRCM Systems Assessment Model (AIRSAM) | | | |
| (U) Electromagnetic Antenna Modeling | | | |
| **(U) Total** | 1,013 | 1,223 | 1,300 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604750F Intelligence Equipment<br>PROJECT 2053 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| GRCI 93-C-0261/0 | CPFF | 30 Sep 93 | | | 563 | 120 | 120 | 0 | 0 | 803 |
| McDonnell Douglas F33657-94-D-2277 | | 8 May 97 | | | 304 | 225 | 0 | 0 | Cont. | TBD |
| GRCI 93-C-0261/25 | CPFF | 31 May 97 | | | 7 | 139 | 379 | 0 | 0 | 575 |
| Harris Corp 94-D-0055/10 | CPFF | 15 May 97 | | | | 225 | 220 | 0 | Cont. | TBD |
| Applied Science Lab 97-C-0036 | CPFF | 16 Jul 97 | | | | 100 | 300 | 221 | Cont. | TBD |
| Contractor TBD | | | | | | | | 887 | Cont. | TBD |
| Rome Laboratory | | | | | | 204 | 204 | 192 | Cont. | TBD |

Support and Management Organizations - N/A

Test and Evaluation Organizations - N/A

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604750F Intelligence Equipment | PROJECT<br>2053 |

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

**Government Furnished Property:**

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property - N/A | | | | | | | | | |
| Support and Management Property - N/A | | | | | | | | | |
| Test and Evaluation Property - N/A | | | | | | | | | |
| Subtotal Product Development | | | | 874 | 1,013 | 1,223 | 1,300 | Cont | TBD |
| Subtotal Support and Management | | | | 0 | 0 | 0 | 0 | | |
| Subtotal Test and Evaluation | | | | 0 | 0 | 0 | 0 | | |
| Total Project | | | | 874 | 1,013 | 1,223 | 1,300 | Cont | TBD |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604754F Joint Tactical Information Distribution System

PROJECT: P771

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| P771 JTIDS | 29,127 | 7,374 | 7,956 | 8,863 | 8,989 | 9,116 | 9,439 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

Joint Tactical Information Distribution System (JTIDS) is a communications component of the Tactical Digital Information Link (TADIL) designated Link-16, and is synonymous with the TADIL-J message standard. The Link-16 System provides the Air Force, Army, Navy, and Marine Corps Theater Command and Control (C2) elements, weapons platforms, and sensors with a secure, jam-resistant, high-capacity data link for use in a tactical combat environment. Link-16 permits rapid and secure exchange of essential C2 and status information through a network with all Link-16 terminals in the tactical theater.

The number of Air Force platforms hosting Link-16 is expanding, from $C^2$ aircraft (E-3, E-8, etc.) into the fighter, bomber, sensor, tanker, and other tactical fleets (F-15, F-16, RJ, ABCCC, B-2, B-52, etc.). Utilization of Link-16 in a joint environment requires the integration of terminals into these host platforms, and interoperability of Link-16 nets across all deployed joint and allied platforms. Integration encompasses hardware, software, operational, and logistics development activities for common platform requirements and for specific host platforms. Cross-platform activities include certification of individual Link-16 implementations to joint and allied standards, establishment of Service-wide net management procedures and operations, and test and sustainment activities.

This program is in budget activity 5 (Engineering Manufacturing and Development) because it supports development, integration and interoperability solutions, sustainment capabilities, and support of special projects.

(U) **Acquisition Strategy**

The JTIDS program office continues to manage the acquisition for the JTIDS family of terminals (Class 2/2H for the Air Force, Navy, and Marine Corps; Class 2M for the Army). Future acquisition of the Link 16 communications component (MIDS family) is now the responsibility of the Navy's Multifunctional Information Distribution System (MIDS) Joint International Program Office. Host platforms program and budget for JTIDS, MIDS (Fighter Data Link (FDL) and Low Volume Terminal derivatives) production terminals and for installation into operational units.

The Air Force Link 16 System Integration Office (SIO) 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.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604754F Joint Tactical Information Distribution System<br>PROJECT P771 |

FY1997 ($ in thousands)

– (U) **100** **PROGRAMS:** Efforts associated with Acquisition and Integration of Class 2/2H and Fighter Data Link.
-- (U) Class 2/2H Terminals for E-3, E-8, F-15, RIVET JOINT, COBRA BALL, ABCCC, MAOC, and MCE platforms.

-- (U) Command and Control (C2) Terminal Acquisition Support.
--- Determined Terminal Technical and Configuration Requirements.
--- Established delivery schedule.
--- Coordinated Spare Requirements.
--- Established Maintenance Plans.
--- Established Maintenance Training Schedules.

– (U) **24,423** **INTEGRATION:** Continued efforts associated with integration of terminals into the various platforms.
-- (U) Ongoing integration support to AWACS, RIVET JOINT, ABCCC, MAOC, MCE, JSTARS, and F-22.
-- (U) Technical Improvements:
--- Technical support to AF Platforms to integrate Pre-Planned Product Improvements (P3I).
--- Assisted in processing P3I efforts.
-- (U) Field Support for F-15 Operations.
--- Provided two SJSs to Nellis AFB.
--- Supported flight training, exercises, and scenario development/demonstrations.
--- Supported Data Link Utility Evaluation through Operational Special Project (OSP) and follow-on activities.
--- Supported F-15 Electronic Combat Identification (CID) DT&E and Follow-on Activities.
-- (U) Provided technical assistance to Boost Phase Intercept Programs.
--- High Gear Program: Tested sensor tracking of Theater Missile.
--- Airborne Interceptor: Established procedures for intercepting Theater Missile.
-- (U) Purchased MIDS terminals for early integration, testing, and prototype activity.
-- (U) Continued engineering studies for Link 16 into the F-16.
-- (U) Began Link 16 engineering studies for platform development/upgrade on F-15.
-- (U) Conducted Link 16 engineering studies on secondary platforms: Joint Stars, AWACS, ABCCC, Rivet Joint, AFMSS, A-10, and B-1.
-- (U) Investigated approaches to implementing a modern, COTS-based, open systems architecture processor between Link 16 host system processors and Link 16 terminals through a generic interface processor study and demonstration.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604754F Joint Tactical Information Distribution System<br>PROJECT P771 |

- (U) **3,515** **INTEROPERABILITY:** Efforts associated with ensuring Link-16 operates effectively across all Host Platforms.
  - -- (U) AF Platform Interoperability.
    - --- Supported multi-service interoperability tests.
    - --- Supported All Service Combat Identification Evaluation Team (ASCIET) tests.
    - --- Supported to Engineering Interoperability Review Groups (IORGS US/UK bilateral).
    - --- Supported definition of Link-16 network structures to support Interoperability.
    - --- Developed Enhanced Position Location Radio System (EPLRS)/Link-16 gateway.
  - -- (U) Network Support.
    - --- Air Force Network Design.
      - ---- Provided network design expertise.
      - ---- Determined network design for integration testing.
      - ---- Provided network design for integration testing.
      - ---- Maintained AF network design aid for operations.
      - ---- Evaluated Navy network design aid for Air Combat Command (ACC) users.
    - --- Investigated internet-networking of JTIDS and transport control internet protocol networks.

- (U) **200** **SUSTAINMENT:** Efforts associated with ensuring fielded terminals are supported.
  - -- (U) ISSA technical engineering software support at Warner Robins AFB.
  - -- (U) Maintained and upgraded the SJSs, Link-16 Winnebagos.
  - -- (U) Maintained and upgraded the MULTI-LINK Translator and Display System (MTDS) prototype hardware.

- (U) **889** **TEST:** Efforts associated with fielding terminals.
  - -- (U) Support provided by the 46th Test Squadron.
    - --- Software support.
    - --- Platform integration support.
    - --- Product improvement and special projects support.
    - --- Regression test and integration.
    - --- Product improvement/development support.

- (U) **$ 29,127** **TOTAL**

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604754F Joint Tactical Information Distribution System<br>PROJECT P771 |

– (U) **FY1998** **($ in thousands)**

**JTIDS PROGRAMS**: Efforts associated with Acquisition and Integration of Class 2/2H terminals

– (U) **200** **ACQUISITION SUPPORT**

-- (U) Write, execute and administer contracts for E-3, E-8, F-15, F-22, AWACS, JSTARS, RIVET JOINT, ABCCC, MAOC and MCE platforms.

-- (U) Command and Control Terminal Acquisition Support

--- Determine technical and configuration requirements for existing and prospective platforms

--- Establish hardware delivery schedules

--- Establish maintenance plans

--- Establish maintenance training schedules

--- Coordinate spare requirements

– (U) **350** **TECHNICAL SUPPORT**

-- (U) Ongoing technical and programmatic support to for JTIDS users - AWACS, JSTARS, RIVET JOINT, ABCCC, MAOC MCE and F-22 platforms.

-- (U) Technical Improvements:

--- Technical support to AF platforms for the purpose of integrating Pre-Planned Product Improvements (P3I)

--- Assist in executing P3I requirements

-- (U) Assist in technical trouble shooting for platforms utilizing Class 2/2H terminals

-- (U) Coordinate hardware availability and support equipment for interoperability certifications

-- (U) Provide acquisition support to Time Slot Reallocation (TSR) software efforts

-- (U) Manage Pre-Operational support of Class 2/2H hardware

-- (U) Develop and coordinate terminal usage schedules for platforms developing JTIDS capability

– (U) **100** **DIMINISHING MANUFACTURING RESOURCES**

-- (U) Investigate Diminishing Manufacturing Sources

--- Identify problem electronic parts

--- Assess impacts to fielded hardware test support equipment

--- Develop resolution plans

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604754F Joint Tactical Information Distribution System<br>PROJECT P771 |

**SYSTEM INTEGRATION**

– (U) **3,246** **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 F-15C, AWACS, RIVET JOINT, ABCCC, MAOC, MCE, and JSTARS.

-- (U) Engineering integration support.

--- New platforms to include F-15E, F-16, F-22, B-1, B-2, B-52, A-10, F-117, and Joint Strike Fighter.

--- Perform initial evaluation for new mission areas.

--- Integration cost reduction initiatives for interface processor.

-- (U) Technical Improvements:

--- Technical support for integration of Class 2 terminal P3I efforts.

--- Technical support and demos for Link 16 capacity enhancements.

--- Support development of Joint VMF/Link-16 gateway.

-- (U) Field Support.

--- Support special exercises and tests.

-- (U) Provide technical assistance to Link 16 Demonstration programs to include Project Strike (Link 16 delivery of information to support strikes on time critical targets).

-- (U) Generic Integration/Common Operating Environment (COE) support.

--- Integration cost reduction initiatives (Hardware/Software) across multiple platforms.

--- Provide support to ASC2A in developing common operating picture

--- Provide support in providing Link-16 capability (data in cockpit) for Expenditionary Force Experiment'98.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604754F Joint Tactical Information Distribution System<br>PROJECT P771 |

– (U) 1,623 **LINK-16 INTEROPERABILITY:** Efforts associated with ensuring Link-16 operates effectively across all host platforms.

-- (U) Support CAF/Joint certification testing.
-- (U) Support development of interoperability matrixes.
-- (U) Support development of distributive interoperability testing initiatives.
-- (U) Provide engineering support to interoperability working groups. (IORGS, US/UK bilateral, MIDS)
-- (U) Support operational contingencies, multi-service operational tests, and exercises and evaluations (ASCIET, Roving Sands, Air Expeditionary Force Experiment, etc ).
-- (U) Network Support:
--- Engineering Support to Air Force Network Design Facility
---- Provide network design engineering expertise and training.
---- Provide network design guidelines.
--- Assist customers with network design problems.
--- Evaluate/Develop Air Force and Joint Network Design Aids.
-- (U) Communication Support:
--- Evaluate/develop communications design aids, including tools for Joint Interface Control Officer/Service Interface Control Officer (JICO/SICO).
--- Provide Engineering Support for Air Force Communications planning.
-- (U) Crypto Support:
--- Support Air Force Electronic Key Management Plan System support and joint key management plan development.
--- Provide support to Joint Crypto working groups and planning efforts.
-- Spectrum Support:
--- Provide engineering support for Air Force Spectrum and Electromagnetic Compatibility (EMC) issues and tests.
-- Link-16 Gateways/Interfaces:
--- Interface to Various DII systems (GCCS).
--- Interface via network protocols (TCP/IP, ATM, etc).
--- Interface to Intel/COTS Products (NTM platforms).

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604754F Joint Tactical Information Distribution System<br>PROJECT P771 |

– (U) **1,855** **LINK-16 EMD SUPPORT:** Efforts associated with fielding terminals.
- -- (U) Support Operations Support Working Groups.
- -- (U) Maintenance of Developmental Equipment:
  - --- Maintain and upgrade the SJS and Link-16 Winnebagos.
  - --- Maintain suite of developmental terminals.
  - --- Maintain and Upgrade the Multi-Link Translator and Display System (MTDS) prototype hardware and software.
- -- (U) Test Support:
  - --- Platform integration support.
  - --- Special/Unique test support.
  - --- Operational Link-16 problem investigation support.
- -- (U) Fielding/Non-Recurring Training:
  - -- Initial/non-recurring training support.
  - -- Initial fielding support.

– (U) **$ 7,374** **TOTAL**

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604754F Joint Tactical Information Distribution System<br>PROJECT P771 |

– (U) **FY1999** **($ in thousands)**

**JTIDS PROGRAMS**: Efforts associated with Acquisition and Integration of Class 2/2H terminals

– (U) **200** **ACQUISITION SUPPORT**

-- (U) Write, execute and administer contracts for E-3, E-8, F-15, F-22, AWACS, JSTARS, RIVET JOINT, ABCCC, MAOC and MCE platforms.

-- (U) Command and Control Terminal Acquisition Support

--- Determine technical and configuration requirements for existing and prospective platforms

--- Establish hardware delivery schedules

--- Establish maintenance plans

--- Establish maintenance training schedules

--- Coordinate spare requirements

– (U) **300** **TECHNICAL SUPPORT**

-- (U) Ongoing technical and programmatic support to for JTIDS users - AWACS, JSTARS, RIVET JOINT, ABCCC, MAOC MCE and F-22 platforms.

-- (U) Technical Improvements:

--- Technical support to AF platforms for the purpose of integrating Pre-Planned Product Improvements (P3I)

--- Assist in executing P3I requirements

-- (U) Assist in technical trouble shooting for platforms utilizing Class 2/2H terminals

-- (U) Coordinate hardware availability and support equipment for interoperability certifications

-- (U) Provide acquisition support to Time Slot Reallocation (TSR) software efforts

-- (U) Manage Pre-Operational support of Class 2/2H hardware

-- (U) Develop and coordinate terminal usage schedules for platforms developing JTIDS capability

– (U) **100** **DIMINISHING MANUFACTURING RESOURCES**

-- (U) Investigate Diminishing Manufacturing Sources

--- Identify problem electronic parts

--- Assess impacts to fielded hardware test support equipment

--- Develop resolution plans

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604754F Joint Tactical Information Distribution System<br>PROJECT P771 |

SYSTEM INTEGRATION

– (U) **3,578** **LINK-16 INTEGRATION:** Efforts associated with integration of Link 16 terminals into Air Force platforms.

-- (U) On-going engineering integration support to F-15C, AWACS, RIVET JOINT, ABCCC, MAOC, MCE, and JSTARS.

-- (U) Engineering integration support.

--- New platforms to include F-15E, F-16, F-22, B-1, B-2, B-52, A-10, F-117, and Joint Strike Fighter.

--- Perform initial evaluation for new mission areas.

--- Integration cost reduction initiatives for interface processor.

-- (U) Technical Improvements:

--- Technical support for integration of Class 2 terminal P3I efforts.

--- Technical support and demos for Link 16 capacity enhancements.

--- Support development of Joint VMF/Link-16 gateway.

-- (U) Field Support.

--- Support special exercises and tests.

-- (U) Provide technical assistance to Link 16 Demonstration programs to include Project Strike (Link 16 delivery of information to support strikes on time critical targets).

-- (U) Generic Integration/Common Operating Environment (COE) support.

--- Integration cost reduction initiatives (Hardware/Software) across multiple platforms.

--- Provide support to ASC2A in developing common operating picture

--- Provide support in providing Link-16 capability (data in cockpit) for Expenditionary Force Experiment'98.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604754F Joint Tactical Information Distribution System<br>PROJECT P771 |

– (U) 1,735 **LINK-16 INTEROPERABILITY:** Efforts associated with ensuring Link-16 operates effectively across all host platforms.

-- (U) Support CAF/Joint certification testing.
-- (U) Support development of interoperability matrixes.
-- (U) Support development of distributive interoperability testing initiatives.
-- (U) Provide engineering support to interoperability working groups. (IORGS, US/UK bilateral, MIDS)
-- (U) Support operational contingencies, multi-service operational tests, and exercises and evaluations (ASCIET, Roving Sands, Air Expeditionary Force Experiment, etc ).
-- (U) Network Support:
--- Engineering Support to Air Force Network Design Facility
---- Provide network design engineering expertise and training.
---- Provide network design guidelines.
--- Assist customers with network design problems.
--- Evaluate/Develop Air Force and Joint Network Design Aids.
-- (U) Communication Support:
--- Evaluate/develop communications design aids, including tools for Joint Interface Control Officer/Service Interface Control Officer (JICO/SICO).
--- Provide Engineering Support for Air Force Communications planning.
-- (U) Crypto Support:
--- Support Air Force Electronic Key Management Plan System support and joint key management plan development.
--- Provide support to Joint Crypto working groups and planning efforts.
-- Spectrum Support:
--- Provide engineering support for Air Force Spectrum and Electromagnetic Compatibility (EMC) issues and tests.
-- Link-16 Gateways/Interfaces:
--- Interface to Various DII systems (GCCS).
--- Interface via network protocols (TCP/IP, ATM, etc).
--- Interface to Intel/COTS Products (NTM platforms).

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604754F Joint Tactical Information Distribution System<br>PROJECT P771 |

– (U) **2,043** **LINK-16 EMD SUPPORT:** Efforts associated with fielding terminals.
- -- (U) Support Operations Support Working Groups.
- -- (U) Maintenance of Developmental Equipment:
  - --- Maintain and upgrade the SJS and Link-16 Winnebagos.
  - --- Maintain suite of developmental terminals.
  - --- Maintain and Upgrade the Multi-Link Translator and Display System (MTDS) prototype hardware and software.
- -- (U) Test Support:
  - --- Platform integration support.
  - --- Special/Unique test support.
  - --- Operational Link-16 problem investigation support.
- -- (U) Fielding/Non-Recurring Training:
  - -- Initial/non-recurring training support.
  - -- Initial fielding support.

-- (U) **$ 7,956** **TOTAL**

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604754F Joint Tactical Information Distribution System<br>PROJECT P771 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998) | 29,321 | 8,557 | 8,616 | TBD |
| (U) Appropriated Value | 30,875 | 8,557 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. General Congressional Reduction | -786 | -991 | | |
| b. Small Business Innovative Research | -768 | -192 | | |
| c. Omnibus and Other Above Threshold Reprogrammings | | | | |
| d. Below Threshold Reprogrammings | -146 | | | |
| e. Recissions | -48 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -660 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 29,127 | 7,374 | 7,956 | TBD |

(U) Change Summary Explanation:

Funding: FY98 CGR and SBIR reductions ($ -1,183) eliminates or significantly reduces specific platform support to the F-16, the Bombers and EFX exercise. Integration costs for these platforms expected to increase 25-50%. FY98 $50K on withhold pending reprogramming for higher priorities. FY99 adjustment to fund other service priorities (-$660K).

Schedule: Above reductions put F-16 delivery schedule at risk, could slip two years based on operational flight program cycles and required deadlines.

Technical: Eliminates B-1B, B-2, and B-52 generic integration solution work.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|
| (U) Other Proc AF, PE 27417F (AWACS), BA 7 | 16,100 | 3,400 | 300 | 0 | 0 | 0 | 0 | 50,900 |
| (U) Other Proc AF, PE 27581F (JSTARS), BA 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15,800 |
| (U) Other Proc AF, PE 27412F (MCE), BA 7 | 0 | 22,100 | 15,000 | 0 | 0 | 0 | 0 | 143,900 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604754F Joint Tactical Information Distribution System<br>PROJECT P771 |

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|
| (U) Other Proc AF, PE 35154F (AIA), BA 7 | 3,400 | 4,800 | 4,900 | 5,000 | 5,700 | 0 | 0 | 33,300 |

- (U) **Related RDT&E:**
  (U)- Program Element 0604770F / 0207581F E-8 (Joint STARS)
  (U)- Program Element 0207417F E-3 (AWACS)
  (U)- Program Element 0207412F Modular Control Equipment (MCE)
  (U)- Program Element 0207419F Airborne Battlefield Command and Control Center (ABCCC)
  (U)- Program Element 0305154F AIA.

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Acquisition Milestones | | | | | | | | | | | | |
| - Milestone III FRP 2M | | X | | | | | | | | | | |
| (U) T&E Milestones | | | | | | | | | | | | |
| - F-15 OSP Complete | | | | X | | | | | | | | |
| - MCE IOT&E | | | X | | | | | | | | | |
| - MS OT-III | X | | | | | | | | | | | |
| - IOT&E Class 2M | X | | | | | | | | | | | |
| (U) FDL Testing | | | | | | | | | | | | |
| - Initial Operational Assessment | | | | | | X | | | | | | |
| - QT&E/QOT&E Complete | | | | | | | | X | | | | |
| - Flight QOT&E Complete | | | | | | | | | | X | | |
| (U) Contract Milestones | | | | | | | | | | | | |
| - FRP Class 2M | | | X | | | | | | | | | |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604754F Joint Tactical Information Distribution System

PROJECT: P771

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| - FRP II | | X | | | | | | | | | | |
| - FDL Award | X | | | | | | | | | | | |
| - FDL Pilot Production Start | | | | | | X | | | | | | |
| - FDL Initial Rate Production | | | | | | | | | X | | | |
| - FDL Full Rate Production | | | | | | | | | | | | X |
| (U) Host Platform Integration Start | | | | | | | | | | | | |
| - F-15E | | | | | X | | | | | | | |
| - F-16 | | | | | X | | | | | | | |
| - F-22 (1992) | | | | | | | | | | | | |
| - B-1 (FY00 POM) | | | | | | | | | | | | |
| - B-2 (FY00 POM) | | | | | | | | | | | | |
| - B-52 (FY00 POM) | | | | | | | | | | | | |
| - A-10 (FY03) | | | | | | | | | | | | |
| - F-117 (FY04) | | | | | | | | | | | | |
| - Airborne Laser (ABL) | | | | | X | | | | | | | |
| (U) Command and Control Platforms | | | | | | | | | | | | |
| - AWACS Link 16 Qual Complete | | | | | | | | | | | | X |
| - JSTARS | | | | | | | | | | | | |
| Start Baseline Integration | | | | X | | | | | | | | |
| Complete Baseline Integration | | | | | | | | | | | X | |
| - RIVET JOINT | | | | | | | | | | | | |
| First Install | | | X | | | | | | | | | |
| Complete (FY02) | | | | | | | | | | | | |
| - ABCCC | | | | | | | | | | | | |
| - MCE (P3I) | | | | | | | | | | | | |
| Installation Start | | | | | | | X | | | | | |
| Installation Complete (FY00) | | | | | | | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|

| BUDGET ACTIVITY | PE NUMBER AND TITLE | PROJECT |
|---|---|---|
| 5 - Engineering and Manufacturing Development | 0604754F Joint Tactical Information Distribution System | P771 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Programs | 100 | | |
| (U) Integration | 24,423 | | |
| (U) Interoperability | 3,515 | | |
| (U) Sustainment | 200 | | |
| (U) Test | 889 | | |
| (U) JTIDS PROGRAMS | | | |
| (U) Acquisition Support | | 200 | 200 |
| (U) Technical Support | | 350 | 300 |
| (U) Diminshing Manufacturing Resources | | 100 | 100 |
| (U) SYSTEM INTEGRATION (Link 16) | | | |
| (U) Link-16 Integration | | 3,246 | 3,578 |
| (U) Link-16 Interoperability | | 1,623 | 1,735 |
| (U) EMD Activities | | 1,855 | 2,043 |
| (U) TOTAL | 29,127 | 7,374 | 7,956 |

NOTE 1: ESC reorganization resulted in a split between JTIDS and Link-16 efforts. Sustainment and parts of other efforts are now included under JTIDS PROGRAMS. The ongoing Link 16 integration functions are included under SYSTEM INTEGRATION.
In future Descriptive Summaries, another BPAC will be used to facilitate separate tracking of the Link 16 SYSTEM INTEGRATION activities.

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604754F Joint Tactical Information Distribution System

PROJECT: P771

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

Performing Organizations:

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| GEC-MARCONI | FFP | DEC 85 | 80,727 | 80,727 | 80,527 | 200 | 0 | 0 | 0 | 80,727 |
| LOCKHEED | FFP | JUN 93 | 6,761 | 6,761 | 4,661 | 2100 | 0 | 0 | 0 | 6,761 |
| GEC-MARCONI | FFP | JUN 93 | 850 | 850 | 850 | 0 | 0 | 0 | 0 | 850 |
| CACD | FFP | JUN 93 | 1,072 | 1,072 | 1,072 | 0 | 0 | 0 | 0 | 1,072 |
| MCAIR | CPFF | MAR 94 | 2,434 | 2,434 | 2,434 | 0 | 0 | 0 | 0 | 2,434 |
| RADC | PO/616 | Various | Various | Various | 2,867 | 200 | 0 | 0 | 0 | 3,067 |
| WR-ALC | PO/616 | Various | Various | Various | 2,966 | 0 | 0 | 0 | 0 | 2,966 |
| NADEP | MIPR | Various | Various | Various | 795 | 0 | 235 | 0 | 0 | 1,030 |
| ACSI | FFP | SEP 94 | 492 | 492 | 492 | 0 | 0 | 0 | 0 | 492 |
| VIASAT, INC. | FFP | Various | 815 | 815 | 0 | 815 | 0 | 0 | 0 | 815 |
| AF Platforms | PO/616 | Various | Various | Various | 0 | 169 | 0 | 0 | 0 | 169 |
| NORTHRUP GR | FFP | AUG 97 | 500 | 500 | 0 | 500 | 0 | 0 | 0 | 500 |
| ROCKWELL | FFP | Various | 2,080 | 2,080 | 0 | 2,080 | 0 | 0 | 0 | 2,080 |
| HUGHES | FFP | Various | 133 | 133 | 0 | 133 | 0 | 0 | 0 | 133 |
| DRC | FFP | MAY 97 | 213 | 213 | 0 | 213 | 0 | 0 | 0 | 213 |
| MIDSCO, Inc | MIPR | Various | 4,251 | 4,251 | 0 | 3,850 | 0 | | | 4,250 |
| MOTOROLA INC | FFP | Various | 1,800 | 1,800 | 0 | 1,800 | 0 | 0 | 0 | 1,800 |
| ALLIED SIGNAL | CPFF | Various | 75 | 75 | 0 | 75 | 0 | 0 | 0 | 75 |
| MCDONNEL DG | FFP | Various | 2,582 | 2,582 | 0 | 2,582 | 0 | 0 | 0 | 2,582 |
| BOEING | FFP | Various | 869 | 869 | 0 | 869 | 0 | 0 | 0 | 869 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604754F Joint Tactical Information Distribution System

PROJECT: P771

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Support and Management Organizations | | | | | | | | | | |
| ESC | Various | Various | 26,969 | 26,969 | 19,214 | 2,211 | 738 | 966 | Continue | TBD |
| CONTRACTOR SUPPORT | Various | Various | 52,457 | 52,457 | 39,765 | 2,783 | 855 | 1,440 | Continue | TBD |
| MITRE | FPLOE | Various | 89,900 | 89,900 | 77,340 | 7,619 | 4,546 | 4,550 | Continue | TBD |
| Test and Evaluation Organizations | | | | | | | | | | |
| MT HOME AFB | PO/616 | Various | Various | Various | 416 | | | | | 416 |
| EGLIN AFB | PO/616 | Various | Various | Various | 826 | 928 | 1,000 | 1,000 | Continue | TBD |
| Government Furnished Property: N O T A P P L I C A B L E | | | | | | | | | | |
| Subtotal Product Development | | | | | 96,664 | 15,586 | 235 | 0 | Continue | TBD |
| Subtotal Support and Management | | | | | 136,319 | 12,613 | 6,139 | 6,956 | Continue | TBD |
| Subtotal Test and Evaluation | | | | | 1,242 | 928 | 1,000 | 1,000 | Continue | TBD |
| Total Project | | | | | 234,225 | 29,127 | 7,374 | 7,956 | Continue | TBD |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604762F Common Low Observable Verification System (CLOVerS)

PROJECT: 4683

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4683 Common Low Observable Verification System | 0 | 0 | 4,901 | 2,440 | 972 | 0 | 0 | 0 | 8,313 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |

(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-22, as well as future aircraft such as the Joint Strike Fighter, and the Darkstar Unmanned Aerial Vehicle. 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 and Manufacturing Development, Research Category 6.4 because this program develops the Common Low Observable Verification System (CLOVerS).

(U) **Acquisition Strategy:**

All major contracts within this program element will be awarded using full and open competition.

(U) FY 1999 ($ in Thousands):

- (U) $500 Initiate technical assessment and cost benefit analysis (CBA) of potential solutions.
- (U) $200 Establish formal cost estimates based on CBA
- (U) $3,901 Award risk reduction contracts
- (U) $300 Program Office Support
- (U) $4,901 Total

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604762F Common Low Observable Verification System (CLOVerS)

PROJECT: 4683

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 0 | 0 | 0 | 0 |
| (U) Appropriated Value | | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | 0 | 0 | 4,901 | 8,313 |
| (U) Current Budget Submit/ 1999 President's Budget | 0 | 0 | 4,901 | 8,313 |

(U) Change Summary Explanation:

Funding: CLOVerS is an FY99 new start

Schedule: CLOVerS is an FY99 new start

Technical: None

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) PE11127F:Appn: Aircraft Procurement, AF (APAF) Budget Activity: Aircraft (A/C) Procurement/Common Support Equipment, Program Title: Common Low Observable Test Equipment | 0 | 0 | 0 | 0 | 1,458 | 2,807 | 1,446 | Cont | TBD |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604762F Common Low Observable Verification System (CLOVerS) |
| | PROJECT<br>4683 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Risk Reduction Contract Award | | | | | | | | | | X | | |
| (U) Cost Estimate Established | | | | | | | | | | | X | |
| (U) Tech Assessment/CBA Complete | | | | | | | | | | | X | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604762F Common Low Observable Verification System (CLOVerS)

PROJECT: 4683

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Risk Reduction Contracts | 0 | 0 | 3,901 |
| (U) EMD Preparation (CBA, Cost estimate establishment) | | | 700 |
| (U) Program Office Support | | | 300 |
| (U) Total | | | 4,901 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| TBD | | | | | 0 | 0 | 0 | 3,901 | TBD | TBD |
| Support and Management Organizations | | | | | | | | | | |
| ASC/SMD, WPAFB OH | Various | | | | 0 | 0 | 0 | 1,000 | TBD | TBD |
| Test and Evaluation Organizations | | | | | | | | | | |
| | | | | | 0 | 0 | 0 | 0 | TBD | TBD |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | | DATE: February 1998 |
|---|---|---|---|
| BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE: 0604762F Common Low Observable Verification System (CLOVerS) | | PROJECT: 4683 |

**Government Furnished Property:** None

| | | | | | | |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 0 | 0 | 0 | 3,901 | TBD | TBD |
| Subtotal Support and Management | 0 | 0 | 0 | 1,000 | TBD | TBD |
| Subtotal Test and Evaluation | 0 | 0 | 0 | 0 | TBD | TBD |
| Total Project | 0 | 0 | 0 | 4,901 | 3,412 | 8,313 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604779F Joint Interoperability Tactical Command/Control

PROJECT: Project

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| JINTACCS | 4,697 | 4,972 | 5,823 | 5,943 | 5,988 | 6,060 | 6,168 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

JINTACCS is a Joint Staff directed program for the development and maintenance of tactical information exchange configuration items (CIs) and operational procedures. This program enables and ensures tactical command and control (C2)/weapons systems to be interoperable within an Air Force (AF), a joint (two or more US services or agencies) or combined (US and allied) environment. The JINTACCS program includes: joint development, interoperability certification, message standard implementation, and configuration management (CM) of US Message Text Formatting (USMTF) CIs; joint development, interoperability certification, message standard implementation, and CM. Link 11A/B, 4, 16, etc. (TADILs A/B, C, J, etc.). Air Force JINTACCS complies with and satisfies DoD Directive 4630.5. Air Force JINTACCS supports participation with the Army, Navy, Marines, Air Intelligence Agency, CINC Bloc, Joint Interoperability and Engineering Organization (JIEO) which acts as the Executive Agent, Joint Interoperability Test Command (JITC), and allied/combined equivalents. CINC, Service and agency (C/S/A) activities are governed by Joint Chiefs of Staff (JCS) approved documentation including Technical Interface Concepts, Technical Interface Design Plans (TIDPs), Military Standards (MIL-STDs), CJCSMs, and CJCSIs, NATO Standard Agreements (STANAGs) and operating procedures (ADatPs). Close liaison across each of the Service JINTACCS programs precludes duplication of efforts. Air Force platforms/systems participating in this program include: AWACS; ABCCC; MCE; AOC; Joint STARS; F-15C/D; F-15E; F-16; F-22; RC-135; R/SOCC, CBRN; IADS; ASOC; and TACP. Air Force JINTACCS supports the Assistant Secretary of Defense (ASD) directive on harmonization of US and NATO messages (e.g., ATO and ACO), and fulfills the Link 16 General Officer Steering Group (GOSG – ASC2A/CC, AFPEO/FB, SAF/AQI, ACC/DR) direction to develop and manage the Air Force JINTACCS CM Plan for TADIL (LINK) and MTF Message Standards (AFJCMP-TMMS). The JINTACCS program, formerly Ground and Amphibious Military Operation (GAMO), is directed by JCS Memorandum 205-72, dated 1 April 1971, as modified by a Secretary of Defense memorandum, "Reorganization of the DoD Program to Achieve Interoperability of Tactical C2 Systems for GAMO," dated 2 Aug 1977. The program complies with requirements of DoD Directive 4630.5, "Compatibility, Interoperability, and Integration of Command, Control, Communications, and Intelligence (C3I) Systems," November 12, 1992, and DoD Instruction 4630.8, "Procedures for Compatibility, Interoperability, and Integration of C3I Systems," November 18, 1992. The JINTACCS program entails the compatibility and interoperability of C3 systems including tactical intelligence for joint or combined operations through the development and management of a joint architecture, tactical information exchange requirements process, interface definitions, message text formats (MTFs), Tactical Digital Information Links (TADILs), Variable Message Formats (VMF), and other combat data link standards. This includes the coordination of all combat data link and MTF certification testing and configuration management of message standard CIs under one program element. This project ensures C3/weapons system interoperability among all the CINCs, DoD agencies, and the services. Developmental certification testing is a pre-production requirement in accordance with DoDD 4630.5 and DoDI 4630.8. This program is in budget activity 5 - Engineering and Manufacturing Development, because it is designed to improve the interoperability of Tactical Command and Control (C2) Systems used in support of joint operations.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604779F Joint Interoperability Tactical Command/Control |
| | PROJECT<br>Project |

(U) **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.

(U) **FY 1997**

| | | | |
|---|---|---|---|
| – | (U) $ | 72 | Directed Technical support (contractor support). |
| – | (U) $ | 168 | Began Joint testing of Iceland Air Defense System (IADS). |
| – | (U) $ | 155 | Continued acquisition of JTIDS Test Device (JTD)/enhancements. |
| – | (U) $ | 100 | Began development of follow-on automated test tools. |
| – | (U) $ | 100 | Continued Combat Air Force (CAF) and Joint certification testing of Airborne Command Control Center (ABCCC). |
| – | (U) $ | 100 | Continued CAF and Joint certification testing of E-3. |
| – | (U) $ | 100 | Continued CAF and Joint testing of Regional Air Operations Center (RAOC)/AWACS Digital Information Link (RADIL). |
| – | (U) $ | 732 | Message Text Standards Configuration Management (contractor support). |
| – | (U) $ | 277 | NATO Message Text Standards configuration management. |
| – | (U) $ | 647 | Future information exchange development efforts. |
| – | (U) $ | 60 | Continued expansion of MTF certification testing to fielded systems. |
| – | (U) $ | 546 | TADIL configuration management (contractor support). |
| – | (U) $ | 454 | Link 16 Migration support (contractor support). |
| – | (U) $ | 286 | TADIL configuration management (contractor support). |
| – | (U) $ | 300 | Continued development of TADIL documentation on CD-ROM. |
| – | (U) $ | 100 | Continued modification of message standards supporting Theater Missile Defense. |
| – | (U) $ | 200 | Continued development of Digital Message Transfer Device (DMTD), Variable Message Format (VMF), and TADIL J capability. |
| – | (U) $ | 100 | Continued network design and aids development for JTIDS network design facility and architecture. |
| – | (U) $ | 200 | Started hardware/software integration for F-15E, F-16 Block 50/52, and RAOC/Sector Air Operations Center (SAOC). |
| | (U) $ | **4,697** | **Total** |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604779F Joint Interoperability Tactical Command/Control |
| | PROJECT<br>Project |

(U) **FY 1998**

| | | | |
|---|---|---|---|
| – | (U) $ | 60 | Direct technical support (contractor support). |
| – | (U) $ | 135 | Continue CAF testing of JSTARS. |
| – | (U) $ | 135 | Continue annual CAF and Joint certification testing requirements for IADS. |
| – | (U) $ | 85 | Continue development of automated test tools. |
| – | (U) $ | 240 | Continuing annual CAF and Joint certification testing requirements for E-3 Block 20/25/30/35, IADS and MCE (TADIL A, B, J). |
| – | (U) $ | 135 | Begin annual CAF and Joint certification testing requirements for MCE P3I TADIL J/Link 16. |
| – | (U) $ | 60 | Continuing annual CAF and Joint certification testing requirements for RADIL. |
| – | (U) $ | 135 | Begin CAF and Joint certification testing for Senior Troupe (TADIL A, B). |
| – | (U) $ | 135 | Begin CAF and Joint certification testing for Senior Scout (TADIL A). |
| – | (U) $ | 135 | Begin CAF and Joint certification testing for Contingency Theater Air Planning System (CTAPS)/ Theater Battle Management and Control System (TBMCS). |
| – | (U) $ | 60 | Begin CAF and Joint certification testing for ABCCC (TADIL J). |
| – | (U) $ | 135 | Begin CAF and Joint certification testing for Battlefield Situation Display (BSD) (TADIL A, B, J). |
| – | (U) $ | 100 | Existing automated test tool upgrades (JTD, Simulation Modeling Analysis Reporting Test System (SMARTS)). |
| – | (U) $ | 532 | Message Text Standards configuration management (contractor support). |
| – | (U) $ | 177 | NATO Message Text Standards configuration management (contractor support). |
| – | (U) $ | 347 | Future information exchange development efforts. |
| – | (U) $ | 60 | Direct technical support (contractor support). |
| – | (U) $ | 60 | Continue expansion of MTF certification testing to fielded systems. |
| – | (U) $ | 835 | TADIL configuration management (contractor support). |
| – | (U) $ | 454 | Link 16 migration support (contractor support). |
| – | (U) $ | 275 | TADIL configuration management (contractor support). |
| – | (U) $ | 94 | Continue modification of message standards supporting TMD. |
| – | (U) $ | 94 | Continue development of DMTD and VMF standards. |
| – | (U) $ | 100 | Continue network design and aids development for JTIDS network design facility and architecture. |
| – | (U) $ | 120 | Hardware/software integration technical support (contractor support). |
| – | (U) $ | 150 | Continue hardware/software integration for F-15E, F-16 Block 50/52, RAOC/SAOC. |
| – | (U) $ | 50 | Start hardware/software integration for F-16 Block 40/42. |
| – | (U) $ | 74 | Continue development of TADIL documentation on CD ROM. |
| | (U) $ | **4,972** | **Total** |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604779F Joint Interoperability Tactical Command/Control |
| | PROJECT<br>Project |

(U) **FY 1999**

- (U) $ 1,944 Certification Testing
- (U) $ 1,151 Message Text Formats
- (U) $ 2,728 TADILs Management

(U) $ **5,823** **Total**

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998) | 5,606 | 5,929 | 5,940 | TBD |
| (U) Appropriated Value | 5,976 | 5,929 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. General Congressional Reduction | -223 | -827 | | |
| b. Small Business Innovative Research | -147 | -130 | | |
| c. Omnibus and other Above Threshold Reprogrammings | | | | |
| d. Below Threshold Reprogrammings | -900 | | | |
| e. Recissions | -9 | | | |
| (U) Adjustments to Budget Years Since FY98 PB | | | -117 | |
| (U) Current Budget Submit/ FY 1999 President's Budget | 4,697 | 4,972 | 5,823 | TBD |

(U) Change Summary Explanation:

Funding: Reprogramming in FY97 reduced FFRDC support for JSTARS testing and for Configuration Management. FY98 CGR and SBIR reductions (-$957K) cut support by 75% from only USAF effort to operate NATO harmonization data/message link standardization, critical need to the USAF and mandatory for continued coalition operations. FY98 $234K is pending reprogramming to other RDT&E requirements and service priorities.

Schedule: Reductions have delayed operational interoperability certification one year for JSTARS, ABCCC, Iceland Air Defense and Counterdrug Surveillance and Control System and will force the service to limit interaction on data exchange issues with our allies.

Technical: None

(U) **C. Other Program Funding Summary ($ in Thousands)** NOT APPLICABLE

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604779F Joint Interoperability Tactical Command/Control |
| | PROJECT<br>Project |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) CERTIFICATION TESTING | | | | | | | | | | | | |
| (Joint and CAF Interoperability) | | | | | | | | | | | | |
| - MCE P3I | | | | | | | | | | | | |
| CAF | | | | | | | | X | | | | |
| Joint | X | | | | | | | | | X | | |
| - IADS | | | | | | | | | | | | |
| CAF | | | | | | | | | | | | |
| Joint | X | | | | | | | | | | | |
| - JSTARS | | | | | | | | | | | | |
| CAF | | | X | | | | | | X | | | |
| Joint | | | | | | X | | | | | X | |
| - E-3 AWACS | | | | | | | | | | | | |
| CAF | | | | | | X | | | X | | | |
| Joint | | | | | | | X | | | X | | |
| - F-15C | | | | | | | | | | | | |
| CAF | | | | | | X | | | | | | |
| joint | | | | | | | | | | | X | |
| - CSCS | | | | | | | | | | | | |
| CAF | | | | | | X | | | | | | |
| joint | | | | | | | | | | | | |
| - ABCCC | | | | | | | | | | | | |
| CAF | | | | | | | | | | | | |
| joint | | | | | | | X | | | | | |
| - ADSI | | | | | | | | | | | | |
| CAF | | | | | | | | X | | | | |
| joint | | | | | | | | | | X | | |
| (U) OPFAC INSTALL/INTEGRATION | | | | | | | | | | | | |
| - F-15E | | | | | | | | | | | | |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE: February 1998 |
|---|---|
| BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE: 0604779F Joint Interoperability Tactical Command/Control |
| | PROJECT: Project |

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Begin | | | | | | X | | | | | | |
| Complete | | | | | | | | | | | X | |
| - JSTARS | | | | | | | | | | | | |
| Begin | | | | | | | | | | | | |
| Complete | | | | | | | X | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604779F Joint Interoperability Tactical Command/Control |
| | PROJECT<br>Project |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Certification Testing | 1,388 | 1,661 | 1,944 |
| (U) Message Text Formats | 706 | 706 | 1,151 |
| (U) TADILs Management | 2,603 | 2,605 | 2,728 |
| (U) Total | 4,697 | 4,972 | 5,823 |

Above categories have been changed beginning in FY97 to more accurately reflect program content.

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | FY 1997 | FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| NONE | | | | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604779F Joint Interoperability Tactical Command/Control

PROJECT: Project

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Support and Management Organizations | | | | | | | | |
| MITRE | CPAF | OCT 72 | 30,900 | 2,050 | 2,230 | 2,288 | Continuing | TBD |
| B3H | CPFF | MAY 97 | 0 | 1,162 | 1,040 | 1,489 | Continuing | TBD |
| COMPTEK | CPAF | OCT 92 | 2,600 | 566 | 600 | 600 | Continuing | TBD |
| HTI | CPAF | OCT 94 | 1,300 | 0 | 0 | 0 | 0 | 1,300 |
| Prog Office | Various | Various | | 243 | 187 | 248 | Continuing | TBD |
| AF Participating Test Unit (PTU) | PO/616 | OCT 97 | | 676 | 915 | 1,198 | Continuing | TBD |

Test and Evaluation Organizations

NONE

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | | | | | | DATE: February 1998 | |
|---|---|---|---|---|---|---|---|---|
| BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development | | | PE NUMBER AND TITLE: 0604779F Joint Interoperability Tactical Command/Control | | | | PROJECT: Project | |
| **Government Furnished Property:** None | | | | | | | | |
| Subtotal Product Development | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | TBD |
| Subtotal Support and Management | 0 | 0 | 34,800 | 4,697 | 4,972 | 5,823 | Continuing | TBD |
| Subtotal Test and Evaluation | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | 0 | 0 | 34,800 | 4,697 | 4,972 | 5,823 | Continuing | TBD |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604805F Commercial Operations and Support Savings Initiative (COSSI)

PROJECT: 4771

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4771 Commercial Operations and Support Savings Initiative (COSSI) | 0 | 0 | 27,937 | 31,040 | 31,013 | 30,777 | 30,740 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) A. **Mission Description and Budget Item Justification:** This Engineering and Manufacturing Development (EMD) program aims at achieving operations and support (O&S) savings through insertion of commercial products and processes into fielded military systems. These savings are expected to result by reducing the costs of parts and maintenance, reducing the need for specialized equipment, increasing reliability, and increasing efficiency of subsystems. COSSI projects will be performed in two stages. In Stage I, each competitively selected, flexible cost share proposal will create the Non-Recurring Engineering (NRE) required to create a kit that can be used in a fielded military system and perform the testing needed to verify that inserted kits will produce O&S cost savings while at least maintaining the current system level of performance of the fielded system. Based on the results of a Stage I project, the Air Force will decide whether to proceed to Stage II. The goal in Stage II is to purchase a reasonable production quantity of kits without recompetition. This will be based on a fair and reasonable price (i.e., the value of the kits vice the cost of the kits to the Air Force under a Federal Acquisition Regulation (FAR) vehicle). Dual use technology was previously funded by the Defense Advanced Research Projects Agency (DARPA), first under the Technology Reinvestment Program (TRP) and then under DUAP. In FY 1997, the decision was made to begin transferring responsibility for DUAP from DARPA to the Services. The two existing DUAP efforts, DUAP S&T and the Commercial Operations and Support Savings Initiative (COSSI), were split and transferred into Service 6.2 and 6.4 PEs, respectively. This PE is the COSSI effort for the Air Force.

(U) **Acquisition Strategy:** Funding will be released to the SPDs for those projects that have been selected in that year for which they are the OPR. Other Transactions (OTs) for prototypes will be used during Stage I. OTs offer more flexibility and fewer regulatory requirements than a typical FAR contract. The authority to use OT was given by Section 804 of the Fiscal Year 1997 Defense Authorization Act.

(U) FY 1997: Not Applicable.

(U) FY 1998: Not Applicable.

(U) FY 1999 ($ in Thousands):
- (U) $27,937 Solicit projects that will reduce O&S costs of fielded military systems by insertion of commercial products and processes.
- (U) $27,937 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604805F Commercial Operations and Support Savings Initiative (COSSI) |
| | PROJECT<br>4771 |

(U) B. **Program Change Summary ($ in Thousands):**

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 0 | 0 | 0 | 0 |
| (U) Appropriated Value | 0 | 0 | 0 | 0 |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | | | | |
| b. SBIR | | | | |
| c. Omnibus/Other Above Threshold Reprogrammings | | | | |
| d. Below Threshold Reprogrammings | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 27,937 | |
| (U) Current Budget Submit/FY 1999 PB | | | 27,937 | Continuing |

(U) **Change Summary Explanation:**

Funding: Dual use technology was previously funded by the Defense Advanced Research Projects Agency (DARPA), first under the Technology Reinvestment Program (TRP) and then under DUAP. In FY 1997, the decision was made to begin transferring responsibility for DUAP from DARPA to the Services. The two existing DUAP efforts, DUAP S&T and Commercial Operations and Support Savings Initiative (COSSI), were split and transferred into Service 6.2 and 6.4 PEs, respectively. This PE is the COSSI effort for the Air Force.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) C. **Other Program Funding Summary ($ in Thousands):** Not Applicable.

(U) D. **Schedule Profile:**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) RFP Release | | | | | | | | | X | | | |
| (U) Contract Awards | | | | | | | | | | | | X |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604805F Commercial Operations and Support Savings Initiative (COSSI) |
| | PROJECT<br>4771 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Solicits projects to reduce O&S costs of fielded military systems | 0 | 0 | 27,937 |
| (U) Total | 0 | 0 | 27,937 |

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

Performing Organizations:

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| TBD | TBD | TBD | TBD | TBD | 0 | 0 | 0 | 27,937 | Cont | Cont |

Support and Management Organizations: Not Applicable.

Test and Evaluation Organizations: Not Applicable.

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604805F Commercial Operations and Support Savings Initiative (COSSI) |
| | PROJECT<br>4771 |

Government Furnished Property: Not Applicable.

Product Development Organization: Not Applicable.

Support and Management Organizations: Not Applicable.

Test and Evaluation Organizations: Not Applicable.

| | | | | | | |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 0 | 0 | 0 | 27,937 | Cont | Cont |
| Subtotal Support and Management | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal Test and Evaluation | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | 0 | 0 | 0 | 27,937 | Cont | Cont |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604851F ICBM EMD

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 199,219 | 143,913 | 81,546 | 38,418 | 0 | 0 | 0 | 0 | 911,432 |
| 3085 Guidance Replacement Program (GRP) | 113,027 | 77,455 | 20,578 | 7,808 | 0 | 0 | 0 | 0 | 561,209 |
| 4210 Propulsion Replacement Program (PRP) | 83,434 | 66,458 | 60,968 | 30,610 | 0 | 0 | 0 | 0 | 347,465 |
| 13C4 Strategic C4 Program* | 2,758 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,758 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

* Project funding for FY98 and beyond is included in the Minimum Essential Emergency Communications Network (MEECN) Program Element (PE 0303131F)

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

(U) ICBM modernization efforts will extend the operational life of the Minuteman ICBM weapon system. The Guidance Replacement Program (GRP) will replace failing Minuteman guidance system electronics. The Propulsion Replacement Program (PRP) will remanufacture all three Minuteman solid fuel stages to correct age-related degradations and maintain existing weapon system reliability. The Strategic C4 (Command, Control, Communications, and Computers) Program will modernize the command, control, communications, and computer systems associated with assured force execution/termination of the ICBM forces. These efforts were defined and validated in DoD's Nuclear Posture Review.

(U) This program is in Budget Activity 5 - Engineering and Manufacturing Development because the projects are being developed for the Air Force but have not received production approval. Program control is exercised at the project level.

(U) **Acquisition Strategy:**

(U) The ICBM System Program Office (SPO) awarded a Prime Integration Contract (PIC) to TRW on 22 Dec 97. All future efforts will be conducted under the ICBM PIC unless other strategies are deemed more appropriate.

(U) Guidance Replacement Program. An EMD contract was awarded in Aug 93 to develop, test, and replace selected guidance electronics and software. This cost plus-award-fee (CPAF) contract was issued following full and open competition. The GRP contract will transfer to the PIC after Low Rate Initial Production (LRIP) contract award now planned for 2nd Qtr, FY1998.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604851F ICBM EMD |

(U) Propulsion Replacement Program. Planned acquisition will consist of all hardware and software modifications; integration and flight test support; delivery of remanufactured Stage 1, 2, and 3 motors; nuclear certification analysis tasks; and independent software certification. The PRP contract transfer to the PIC in Jan 98.

(U) Strategic C4. Work on this program in this Program Element was completed in FY97. Project funding for FY98 and beyond is budgeted in the Minimum Essential Emergency Communications Network (MEECN) Program Element (PE 0303131F).

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget FY1998 PB | 202,153 | 137,944 | 86,990 | 1,198,096 |
| (U) Appropriated Value | 212,295 | 152,944 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -4,675 | -5,433 | | |
| b. SBIR | -5,467 | -3,598 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | -2,600 | | | |
| e. Rescissions | -334 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -5,444 | |
| (U) Current Budget Submit/FY 1999 PB | 199,219 | 143,913 | 81,546 | 911,432 |

(U) Change Summary Explanation: See individual projects for specifics changes.

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

PE 0101213F, Minuteman Squadrons, MMIII Modifications (APPN 14, BA-07, P-13)

(U) D. **Schedule Profile:** See individual programs.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | | | | | | | DATE February 1998 |
|---|---|---|---|---|---|---|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604851F ICBM EMD | | | | | | | PROJECT<br>3085 |

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3085 Guidance Replacement Program (GRP) | 113,027 | 77,455 | 20,578 | 7,808 | 0 | 0 | 0 | 0 | 561,209 |

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

(U) Ongoing upgrades are required to extend the service life of the Minuteman weapon system. The Joint Requirements Oversight Council validated the Mission Need Statement for a Future Guidance System for Intercontinental Ballistic Missiles (ICBM) on 5 November 1992. GRP replaces failing guidance system electronics, and preserves the option to configure the missiles with the Peacekeeper Mk 21 reentry vehicle and an advanced inertial measurement unit. The Engineering and Manufacturing Development (EMD) contract was awarded to Rockwell International in August 1993. GRP includes the EMD, production, and installation of replacement guidance components to extend the life of the operational Minuteman force. Funding reflected here is for EMD.

(U) FY 1997 ($ in Thousands):

- (U) $97,718 Hardware/software development.
- (U) $4,991 Nuclear safety cross check analysis and independent validation and verification.
- (U) $1,400 ICBM codes development.
- (U) $4,960 Systems engineering and technical support.
- (U) $3,185 Labs and support agencies.
- (U) $773 Testing and other engineering support.
- (U) $113,027 Total

(U) FY 1998 ($ in Thousands):

- (U) $38,483 Continue hardware/software development.
- (U) $4,997 Continue Nuclear Safety Cross Check Analysis and Independent Validation And Verification.
- (U) $315 Complete ICBM codes development.
- (U) $4,174 Continue systems engineering and technical support.
- (U) $10,958 Continue labs and support agencies efforts.
- (U) $17,957 Continue testing and other engineering support.
- (U) $571 Pending reprogramming to fund higher priorities.
- (U) $77,455 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604851F ICBM EMD<br>PROJECT 3085 |

(U) FY 1999 ($ in Thousands):

- (U) $11,045 Continue hardware/software development.
- (U) $1,400 Continue Nuclear Safety Cross Check Analysis and Independent Validation And Verification.
- (U) $160 Continue labs and support agencies efforts.
- (U) $7,973 Continue testing and other engineering support.
- (U) $20,578 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 115,961 | 66,943 | 20,993 | 547,731 |
| (U) Appropriated Value | 121,911 | 81,943 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -2,783 | -2,888 | | |
| b. SBIR | -3,167 | -1,600 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | -2,600 | | | |
| e. Rescissions | -334 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -415 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 113,027 | 77,455 | 20,578 | 561,209 |

(U) Change Summary Explanation ($ in Thousands):

Funding: Congress added $15,000 to FY98 PB request to preserve the option of incorporating the Mk-21 reentry vehicle on Minuteman III.

Schedule: EMD phase extended to accomplish closeout actions.

Technical: No significant impact.

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

PE 0101213F, Minuteman Squadrons, MMIII Modifications (APPN 14, BA-07, P-13)

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604851F ICBM EMD<br>PROJECT<br>3085 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Program Milestones | | | | | | | | | | | | |
| Milestone III AFSARC | | | | | | | | | X | | | |
| (U) Engineering Milestones | | | | | | | | | | | | |
| CDR | | | | X* | | | | | | | | |
| (U) T&E Milestones | | | | | | | | | | | | |
| Combined DT&E/IOT&E Start | | | | | | | X | | | | | |
| First Flight Test | | | | | | | X | | | | | |
| (U) Contract Milestones | | | | | | | | | | | | |
| (U) Low Rate Initial Production | | | | | | X | | | | | | |

* Started/Completed

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604851F ICBM EMD<br>PROJECT 3085 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Hardware/Software Development | 97,718 | 38,483 | 11,045 |
| (U) ICBM Codes Contract | 1,400 | 315 | 0 |
| (U) Nuclear Safety Cross Check Analysis Contract | 4,991 | 4,997 | 1,400 |
| (U) Labs/Agencies | 3,185 | 10,958 | 160 |
| (U) SETA | 4,960 | 4,174 | 0 |
| (U) Other Engineering Support & Testing | 773 | 17,957 | 7,973 |
| (U) Other - Pending Reprogramming | | 571 | |
| (U) Total | 113,027 | 77,455 | 20,578 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Boeing-North American | C/CPAF | 31 Aug 93 | 425,128 | 425,128 | 282,200 | 97,718 | 38,483 | 0 | 0 | 418,401 |
| Codes Contract | | | 4,662 | 4,662 | 2,947 | 1,400 | 315 | 0 | 0 | 4,662 |
| TRW (Prime) | C/CPAF | Dec 97 | 11,045 | 11,045 | 0 | 0 | 0 | 11,045 | 0 | 11,045 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604851F ICBM EMD

PROJECT: 3085

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Support and Management Organizations | | | | | | | | | | |
| NSCCA/IV&V | SS/CPAF | 31 Mar 94 | 20,306 | 20,306 | 8,918 | 4,991 | 4,997 | 1,400 | 0 | 20,306 |
| TRW | SS/CPAF | 4 Jan 94 | 43,275 | 43,275 | 34,111 | 4,960 | 4,174 | 0 | 0 | 43,245 |
| CSDL | SS/FFP | 30 Jun 94 | 5,264 | 5,264 | 5,264 | 0 | 0 | 0 | 0 | 5,264 |
| Other Engineering Support | Various | 31 Aug 93 | 43,195 | 43,195 | 7,763 | 885 | 18,225 | 7,973 | 7,808 | 42,654 |
| Other - Pending Reprogramming | | | | | | | 571 | | | 571 |
| Test and Evaluation Organizations | | | | | | | | | | |
| AGMC | PO | | 160 | 160 | 160 | 0 | 0 | 0 | 0 | 160 |
| White Sands | PO | Annual | 649 | 649 | 317 | 207 | 125 | 0 | 0 | 649 |
| VAFB | PO/MIPR | Annual | 11,180 | 11,180 | 587 | 1,101 | 9,492 | 0 | 0 | 11,180 |
| Maxwell | MIPR | | 27 | 27 | 27 | 0 | 0 | 0 | 0 | 27 |
| Sandia | MIPR | | 2,985 | 2,985 | 0 | 1,765 | 1,060 | 160 | 0 | 2,985 |
| Physics Int | MIPR | | 22 | 22 | 22 | 0 | 0 | 0 | 0 | 22 |
| Little Mountain | PO | | 33 | 33 | 25 | 0 | 13 | 0 | 0 | 38 |

**Government Furnished Property:** None.

| | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 285,147 | 99,118 | 38,798 | 11,045 | | 434,108 |
| Subtotal Support and Management | 56,056 | 10,836 | 27,967 | 9,373 | 7,808 | 112,040 |
| Subtotal Test and Evaluation | 1,138 | 3,073 | 10,690 | 160 | | 15,061 |
| Total Project | 342,341 | 113,027 | 77,455 | 20,578 | 7,808 | 561,209 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604851F ICBM EMD

PROJECT: 4210

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4210 Propulsion Replacement Program (PRP) | 83,434 | 66,458 | 60,968 | 30,610 | 0 | 0 | 0 | 0 | 347,465 |

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

(U) The Propulsion Replacement Program will remanufacture all three solid fuel stages to correct age-related degradations, maintain existing weapon system reliability, and support Minuteman life extension. Any of the degradations (propellant cracking, case corrosion, liner deterioration, inhibitor deterioration, and liner debond) can cause catastrophic motor failure and, in turn, mission failure. RDT&E efforts will identify replacement materials that are no longer available or which have become environmentally unacceptable, reduce life cycle costs, and identify corrections to age-related degradations. This project incorporates only changes that can be demonstrated in an appropriate time frame to ensure the Minuteman propulsion system continues to meet existing performance capabilities and remains viable and supportable. The project entered Phase 2 (Engineering Manufacturing and Development) in FY94.

(U) FY 1997 ($ in Thousands):

- (U) $20,568 Continued component reuse and materials replacement studies; continued stage design and development to include refurbishment.
- (U) $20,610 Integrated program activities such as system engineering, program management, range support, Arnold Engineering Development Center (AEDC) testing, booster disassembly/assembly, booster transportation.
- (U) $22,257 Continued fabrication, tooling and waste disposal for change verification motors.
- (U) $3,402 Began software modification.
- (U) $1,304 Began ordnance development effort.
- (U) $15,293 Other
- (U) $83,434 Total

(U) FY 1998 ($ in Thousands):

- (U) $51,776 Continue component reuse and materials replacement studies, continue stage design and development to include refurbishment. Continue fabrication, tooling, and waste disposal for change verification motor testing.
- (U) $8,292 Continue integration of program activities such as system engineering, program management, range support, AEDC testing, booster disassembly/assembly, booster transportation.
- (U) $4,038 Continue software modification.
- (U) $1,924 Continue ordnance development effort.
- (U) $428 Pending reprogramming to fund higher priorities.
- (U) $66,458 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604851F ICBM EMD | PROJECT<br>4210 |

(U) FY 1999 ($ in Thousands):

- (U) $39,316 Continue component reuse and materials replacement studies, continue stage design and development to include refurbishment. Continue fabrication, tooling, and waste disposal for change verification motor testing.
- (U) $17,260 Continue integration of program activities such as system engineering, program management, range support, AEDC testing, booster disassembly/assembly, booster transportation.
- (U) $3,887 Continue software modification.
- (U) $505 Continue ordnance development effort.
- (U) $60,968 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 83,434 | 71,001 | 65,997 | 353,627 |
| (U) Appropriated Value | 87,567 | 71,001 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -1,833 | -2,545 | | |
| b. SBIR | -2,300 | -1,998 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -5,029 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 83,434 | 66,458 | 60,968 | 347,465 |

(U) Change Summary Explanation:

Funding: FY99 funding reduced due to savings from the ICBM Prime Integrating Contract and transfers to fund higher priority needs.

Schedule: No significant impact.

Technical: No significant impact.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604851F ICBM EMD<br>PROJECT 4210 |

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

PE 0101213F, Minuteman Squadrons, MMIII Modifications (APPN 14, BA-07, P-13)

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Engineering Milestones | | | | | | | | | | | | |
| (U) Stage PDR | X* | | | | | | | | | | | |
| (U) Stage CDR | | | | | | | X | | | | | |
| (U) T&E Milestones | | | | | | | | | | | | |
| (U) Motor Testing | X* | X* | X* | X* | X* | X | X | X | X | X | X | X |
| (U) Contract Milestones | | | | | | | | | | | | |
| (U) Software Contract Award | X* | | | | | | | | | | | |
| (U) Begin DT&E/IOT&E | | | | | | X | | | | | | |

* Started/Completed

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604851F ICBM EMD<br>PROJECT 4210 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Technology Insertion | 54,115 | 56,165 | 50,098 |
| (U) Software | 3,402 | 4,038 | 3,887 |
| (U) Other Program Costs | 3,312 | 3,812 | 6,983 |
| (U) SETA | 7,312 | 2,015 | 0 |
| (U) Other | 15,293 | 0 | 0 |
| (U) Other - Pending Reprogramming | | 428 | 0 |
| (U) Total | 83,434 | 66,458 | 60,968 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Thiokol | SS/CPAF | Aug 94 | 64,160 | 64,160 | 26,475 | 21,206 | 16,479 | 0 | 0 | 64,160 |
| Aerojet | SS/CPAF | Jul 94 | 58,425 | 58,425 | 29,893 | 13,709 | 14,833 | 0 | 0 | 58,435 |
| CSD | SS/CPAF | Jul 94 | 75,537 | 75,537 | 35,873 | 19,200 | 20,464 | 0 | 0 | 75,537 |
| Thiokol | C/CPAF | Feb 97 | 3,228 | 3,228 | 0 | 1,304 | 1,924 | 0 | 0 | 3,228 |
| Boeing NA | C/CPAF | Oct 96 | 3,406 | 3,406 | 0 | 1,399 | 2,007 | 0 | 0 | 3,406 |
| Logicon | C/CPAF | Oct 96 | 5,437 | 5,437 | 0 | 1,482 | 1,526 | 1,604 | 825 | 5,437 |
| GTE | C/CPAF | Oct 96 | 1,027 | 1,027 | 0 | 522 | 505 | 0 | 0 | 1,027 |
| TRW (Prime) | C/CPAF | Dec 97 | 71,135 | 71,135 | 0 | 0 | 2,369 | 52,380 | 16,386 | 71,135 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604851F ICBM EMD

PROJECT: 4210

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Support and Management Organizations | | | | | | | | | | |
| TRW | SS/CPAF | Oct 94 | n/a | 21,020 | 11,828 | 7,177 | 2,015 | 0 | 0 | 21,020 |
| Program Integration | | | n/a | 8,161 | 412 | 472 | 1,719 | 4,585 | 973 | 8,161 |
| Other | | | | 15,967 | 222 | 15,293 | 150 | 152 | 150 | 15,967 |
| Other - Pending Reductions | | | | | | | 428 | | | 428 |
| Test and Evaluation Organizations | | | | | | | | | | |
| AEDC | PO | Periodic | n/a | 9,533 | 1,276 | 1,670 | 1,960 | 2,247 | 2,380 | 9,533 |
| Range (VAFB) | PO | Nov 99 | n/a | 9,975 | 0 | 0 | 79 | 0 | 9,896 | 9,975 |
| Phillips Lab | PO | | | 15 | 15 | 0 | 0 | 0 | 0 | 15 |

**Government Furnished Property:** None.

| | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 92,241 | 58,822 | 60,107 | 53,984 | 17,211 | 282,365 |
| Subtotal Support and Management | 12,462 | 22,942 | 4,312 | 4,737 | 1,123 | 45,576 |
| Subtotal Test and Evaluation | 1,291 | 1,670 | 2,039 | 2,247 | 12,276 | 19,523 |
| Total Project | 105,994 | 83,434 | 66,458 | 60,968 | 30,610 | 347,464 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604851F ICBM EMD

PROJECT: 13C4

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 13C4 Strategic C4 Program* | 2,758 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,758 |

* Project funding for FY98 and Beyond is included in the Minimum Essential Emergency Communications Network (MEECN) Program Element (PE 0303131F)

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

(U) Effective in FY98, MMRT development was transferred to PE 0303131F, Minimum Essential Emergency Communications Network (MEECN), BPAC 2832, VLF/LF System Improvements.

(U) FY 1997 ($ in Thousands):

- (U) $2,758 Initiated MMRT modification and integration into ICBM LCCs. (Only task.)
- (U) $2,758 Total

(U) FY 1998 ($ in Thousands): Transferred to MEECN (PE 0303131F)

- (U) $0 Total

(U) FY 1999 ($ in Thousands): Transferred to MEECN (PE 0303131F)

- (U) $0 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 2,758 | 0 | 0 | 2,758 |
| (U) Appropriated Value | 2,817 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -59 | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | | |
| (U) Current Budget Submit/FY 1999 President's Budget | 2,758 | 0 | 0 | 2,758 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604851F ICBM EMD<br>PROJECT<br>13C4 |

(U) Change Summary Explanation:

Funding: No changes.

Schedule: No changes.

Technical: No changes.

(U) C. **Other Program Funding Summary ($ in Thousands):** See Minimum Essential Emergency Communications Network (MEECN) Program Element, PE 0303131F.

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) MMRT development for ICBM LCCs | X* | | | X* | | | | | | | | |

* Started/Completed - (Transferred to MEECN (PE 0303131F) in FY98)

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604851F ICBM EMD<br>PROJECT<br>13C4 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Development of MMRTs for ICBM LCCs | 2,758 | 0 | 0 |
| (U) Total | 2,758 | 0 | 0 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Rockwell International | C/CPAF | Feb 97 | | 2,758 | 0 | 2,758 | 0 | 0 | 0 | 2,758 |

Support and Management Organizations: None

Test and Evaluation Organizations: None

**Government Furnished Property:** None.

| | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|
| Subtotal Product Development | | 2,758 | | | | 2,758 |
| Subtotal Support and Management | | | | | | |
| Subtotal Test and Evaluation | | | | | | |
| Total Project | | 2,758 | | | | 2,758 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604853F Evolved Exp Launch Veh - EMD (Space)

PROJECT: 0004

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 0004 Evolved Expendable Launch Vehicle | 0 | 26,572 | 280,297 | 338,319 | 305,557 | 244,450 | 14,822 | 0 | 1,210,017 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) A. **Mission Description and Budget Item Justification:**
The Evolved Expendable Launch Vehicle (EELV) program is a space launch system development program. The mission of the EELV program is to partner with industry to develop a national launch capability that satisfies the Government's National Mission Model (NMM) requirements and reduces the cost of space launch by at least 25%. The EELV system includes the launch vehicles, infrastructure, support systems, and interfaces. EELV will provide up to two families of launch vehicles that will launch the Government portion of the NMM currently serviced by Titan II, Delta II, Atlas II, and Titan IV. Evolved from current expendable launch systems or components thereof, EELV will support military, intelligence, and civil mission requirements. This program element is in Budget Activity 5, Engineering and Manufacturing Development, because it supports engineering and manufacturing development of the EELV concept leading to deployment of a lower cost expendable launch vehicle system.

(U) **Acquisition Strategy:**
The EELV concept of a family of launch vehicles emphasizes commonality of hardware and infrastructure and economies of scale to enhance production, operations, and support efficiencies. Cost improvements will be achieved through commonality; leveraging the commercial market place; reduction of supporting infrastructure (launch pads, manufacturing facilities, workforce); and optimization of production and launch operations, processes, and rates. EELV is an ongoing competitive program that initially used a rolling downselect acquisition strategy. In August 1995 four initial contracts were awarded for the Low Cost Concept Validation (LCCV) phase. In December 1996 the Air Force downselected to two contractors – Lockheed Martin and Boeing (originally McDonnell Douglas) – for the Pre-Engineering and Manufacturing Development (Pre-EMD) phase. In the summer of 1998, contracts will be awarded for the Engineering and Manufacturing Development (EMD) and Initial Launch Services (ILS) phase. The EMD/ILS approach maintains competition throughout the life of the program, leverages the growing commercial launch market, caps the Government's EMD costs, and allows partnership with industry, while still reducing the program's overall cost to launch the NMM by at least 25% over existing systems. The EELV system will launch the government portion of the NMM through 2020.

(U) **FY 1997 ($ in Thousands)**
(U) $0 EELV funded in PE 0603853F in FY 1996, FY 1997, and FY 1998.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604853F Evolved Exp Launch Veh - EMD (Space) |
| | PROJECT<br>0004 |

(U) **FY 1998 ($ in Thousands)**

- (U) $22,800 System development
- (U) $ 3,000 Systems Engineering
- (U) $ 772 Program management and other support costs
- (U) $26,572 Total

(U) **FY 1999 ($ in Thousands)**

- (U) $264,000 Continue system development
- (U) $ 12,200 Systems Engineering
- (U) $ 4,097 Program management and other support costs
- (U) $280,297 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 0 | 28,376 | 293,950 | 1,718,485 |
| (U) Appropriated Value | 0 | 28,376 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional General Reductions | | - 1,132 | | |
| b. Small Business Innovative Research | | - 672 | | |
| c. Omnibus or other above threshold reprogramming | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY98 PB | | | - 13,653 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 0 | 26,572 | 280,297 | 1,210,017 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604853F Evolved Exp Launch Veh - EMD (Space)

PROJECT: 0004

(U) **Change Summary Explanation:**

- Funding: The FY98 changes involved Congressional and SBIR reductions. FY99 funding reduced to fund higher priority AF projects. This funding implements the new EELV acquisition strategy which caps the two EMD contracts and moves the two test launches from EMD into ILS.
- Schedule: Not Applicable.
- Technical: Not Applicable.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Comp | Total |
|---|---|---|---|---|---|---|---|---|---|
| (U) NRO (non-AF budget) | 18,600 | 4,200 | | | | | | | 95,100* |
| (U) Missile Procurement, AF (PE 0305953F) | | | | 204,576 | 360,818 | 359,442 | 559,717 | Cont. | Cont. |
| (U) DARPA (Non-AF budget) (PE 0603226E) | | | | | | | | | 9,845** |
| **Related RDT&E:** | | | | | | | | | |
| (U) EELV Demonstration and Validation (PE 0603853F) | 44,263 | 60,437 | 0 | 0 | 0 | 0 | 0 | 0 | 173,153*** |
| (U) EELV Operational System Development (PE 0305953F) | | | 3,316 | 3,397 | 3,477 | 2,320 | 766 | Cont. | Cont. |

* Total includes funding in FY96.
** Total includes funding in FY94.
** Total includes funding in FY95 and FY96.

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| **EMD Module** | | | | | | | | | | | | |
| (U) Defense Acquisition Board - Milestone II | | | | | | | X | | | | | |
| (U) Development/Initial Launch Services contract awards | | | | | | | X | | | | | |
| (U) Tailored Critical Design Review completed No Later Than Dec 98 | | | | | | | | | X | | | |
| (U) Launch vehicle production start planned for 1st quarter FY00 | | | | | | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0604853F Evolved Exp Launch Veh - EMD (Space)

PROJECT: 0004

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) EMD Contracts | 0 | 22,800 | 264,000 |
| (U) Systems Engineering | 0 | 3,000 | 12,200 |
| (U) Program management and other support costs | 0 | 772 | 4,097 |
| (U) Total | 0 | 26,572 | 280,297 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Lockheed Martin | C/FFP | Jun 98 | 500,000 | | 0 | 0 | 11,400 | 132,000 | 416,600 | 560,000 |
| Boeing | C/FFP | Jun 98 | 500,000 | | 0 | 0 | 11,400 | 132,000 | 416,600 | 560,000 |
| Support and Management Organizations | | | | | | | | | | |
| SPO Mission Spt | Various | Various | N/A | N/A | 0 | 0 | 472 | 2,697 | 11,048 | 14,217 |
| FFRDC | SS/CPAF | Annual | N/A | N/A | 0 | 0 | 3,000 | 12,200 | 51,400 | 66,600 |
| Ranges | Various | Various | N/A | N/A | 0 | 0 | 100 | 400 | 3,100 | 3,600 |
| Other Cntr Spt | Various | Various | N/A | N/A | 0 | 0 | 200 | 1,000 | 4,400 | 5,600 |
| Test and Evaluation Organizations | | | | | | | | | | |
| Not Applicable | | | | | 0 | 0 | 0 | 0 | 0 | 0 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0604853F Evolved Exp Launch Veh - EMD (Space) | PROJECT<br>0004 |

**Government Furnished Property:** Not Applicable

| | | | | | | |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 0 | 0 | 22,800 | 264,000 | 833,200 | 1,120,000 |
| Subtotal Support and Management | 0 | 0 | 3,772 | 16,297 | 69,948 | 90,017 |
| Subtotal Test and Evaluation | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | 0 | 0 | 26,572 | 280,297 | 903,148 | 1,210,017 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 5 - Engineering and Manufacturing Development

PE NUMBER AND TITLE: 0605011F RDT&E FOR AGING AIRCRAFT

PROJECT: 4685

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4685 Aging Aircraft | 0 | 0 | 4,901 | 4,978 | 14,583 | 29,035 | 43,364 | 0 | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) A. **Mission Description and Budget Item Justification:** This program is comprised of multiple efforts which will transition needed technologies from laboratory research and commercial technology development into fieldable tools or capabilities. Projects will target critical needs of the aging fleet such as corrosion, structural integrity, and improved non-destructive inspection (NDI) methods. Corrosion-related projects include hidden corrosion detection (NDI methods such as eddy current and thermography) and developing a corrosion prediction capability. Structural integrity projects will include the development of alternate repair capabilities and capability to predict widespread fatigue damage. In addition to the NDI projects addressing corrosion detection, other NDI projects will address multi-layer crack detection and detection of cracks under composite patches. These projects are focused on developing tools (NDI equipment, computer models) and capabilities (alternate repair processes) for Air Logistics Centers (ALCs) use in extending useful aircraft service life, resolving flight safety problems, or replacing components no longer procurable. Projects will typically yield a single, validated prototype system or capability that is production ready; final depot or field implementation (equipment purchases, tech order updates, training, etc.) will be the responsibility of the Major Commands (MAJCOMs) and ALCs. There is strong emphasis on developing solutions that will benefit multiple weapon systems, thereby reducing or eliminating stovepipe development of platform-specific solutions. This program is in Budget Activity 5, Engineering and Manufacturing Development, because projects/capabilities will be developed in this program then made available for procurement by already operational systems.

(U) **Acquisition Strategy:** Funding will be released to the ALCs for the projects they are OPR for in that year. OPR will determine the most appropriate contract vehicle, DEP contract or full and open competition, to accomplish the project. However, since this is an FY 1999 new start, the Air Force is still refining the acquisition strategy.

(U) FY 1997: Not Applicable.

(U) FY 1998: Not Applicable.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0605011F RDT&E FOR AGING AIRCRAFT<br>PROJECT 4685 |

(U) FY 1999 ($ in Thousands):

- (U) $3,159 Develop improved capabilities for corrosion prevention and control which will ultimately reduce the associated maintenance burden. Improve corrosion detection capabilities to decrease inspection times and/or detect corrosion earlier. Develop a corrosion prediction model which will allow the maintainer to better make repair decisions and improve future scheduling of corrosion maintenance actions.
  - (U) Improve reliability of eddy current inspections for the detection of corrosion in large aircraft lap joints.
  - (U) Improve usability of the D-Sight optical scanning system to provide a quick initial assessment of corrosion damage when an aircraft first enters the depot which will identify areas requiring a more detailed inspection.
  - (U) Evaluate thermography and dripless bubbler to determine effectiveness in detecting corrosion around wing skin fasteners, thus eliminating the need to remove fasteners to do inspection and to implement improvements to the initial prototype to improve usability in a depot.
  - (U) Optimize a lamb-wave ultrasound system to detect hidden corrosion within the shadow of installed wing skin fasteners.
  - (U) Develop a corrosion prediction model which will allow tailoring of depot work requirements.
- (U) $855 Develop improved non-destructive inspection techniques that will reduce the time required to detect flaws and damage, such as fatigue cracking, corrosion, disbonds, and trapped moisture and/or allow the damage to be found earlier, thus allowing for less extensive or costly repairs.
  - (U) Optimize a low-frequency eddy current system to be able to detect smaller flaws beneath relatively thick structure, particularly around fasteners.
  - (U) Evaluate non-destructive techniques to determine most effective methods to inspect repair patch bond integrity and to monitor crack growth underneath the patch.
  - (U) Characterize key eddy current parameters, such as center frequency and lift-off curves, to optimize non-destructive inspection methodologies and improve the reliability of the inspections.
- (U) $887 Develop technologies to ensure the continued structural integrity of aging weapon systems.
  - (U) Evaluate the applicability of an acoustic emission monitoring system to detect fatigue crack initiation and monitor crack growth.
- (U) $4,901 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0605011F RDT&E FOR AGING AIRCRAFT |
| | PROJECT<br>4685 |

(U) B. Program Change Summary ($ in Thousands):

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 0 | 0 | 0 | Continuing |
| (U) Appropriated Value | 0 | 0 | 0 | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | | | | |
| b. SBIR | | | | |
| c. Omnibus/Other Above Threshold Reprogrammings | | | | |
| d. Below Threshold Reprogrammings | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 4,901 | |
| (U) Current Budget Submit/FY 1999 PB | 0 | 0 | 4,901 | Continuing |

(U) Change Summary Explanation:

Funding: New start program.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) C. **Other Program Funding Summary:** Not Applicable.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0605011F RDT&E FOR AGING AIRCRAFT<br>PROJECT 4685 |

(U) D. **Schedule Profile:**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) RFP Release | | | | | | | | | X | | | |
| (U) Contract Award | | | | | | | | | | X | | |
| (U) Large Area Optical Corrosion Detection Project Complete | | | | | | | | | | | | X |
| (U) Crack Propagation Monitoring Under Composite Patches Project Complete | | | | | | | | | | | | X |
| (U) Aircraft Crack Monitoring System Project Complete | | | | | | | | | | | | X |
| (U) Lamb Wave Ultrasonic Project Complete | | | | | | | | | | | | X |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>5 - Engineering and Manufacturing Development | PE NUMBER AND TITLE<br>0605011F RDT&E FOR AGING AIRCRAFT |
| | PROJECT<br>4685 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Corrosion prevention and control techniques | | | 3,159 |
| (U) Improved non-destructive inspection capabilities | | | 855 |
| (U) Technologies to enhance structural integrity | | | 887 |
| (U) Total | 0 | 0 | 4,901 |

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

Performing Organizations:

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | FY 1997 | FY 1998 | FY 1999 | To Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Numerous | Various | Various | None | None | 0 | 0 | 0 | 4,901 | Cont | Cont |
| Support and Management Organizations - In-House Support. | | | | | | | | | | |
| Test and Evaluation Organizations - Not Applicable. | | | | | | | | | | |
| Government Furnished Property - Not Applicable. | | | | | | | | | | |
| Subtotal Product Development | | | | | 0 | 0 | 0 | 4,901 | Cont | Cont |
| Subtotal Support and Management | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal Test and Evaluation | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | | 0 | 0 | 0 | 4,901 | Cont | Cont |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0603402F Space Test Program (Space)

PROJECT: 2617

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2617 Free-Flyer Spacecraft Missions | 46,367 | 38,696 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Note: Program was not terminated. Space Test Program (Space) PE 0603402F changes to PE 0605864F in FY99. Future year funding is in the new PE 0605864F.

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

(U) The Space Test Program (STP) provides support to the DoD space research community by centrally financing acquisition of a host satellite or launch vehicle, the launch, and initial operations costs for experiments with military relevance whose scope ranges from basic research to advanced development. STP missions are the most cost effective way to flight test new space systems technologies, concepts and designs, providing an inexpensive way to:

- Demonstrate the feasibility of new space systems and technologies
- Improve operational design by characterizing the space environment, event, or sensor physics proposed for an operational system/system upgrade
- Provide early operational capabilities to evaluate usefulness or quickly react to new developments
- Perform operational risk reduction through direct flight test of prototype components
- Develop the knowledge base from which to plan new and improved operational systems and system upgrades
- Develop and test advanced small launch vehicle technology and capabilities

This DoD program provides the primary spaceflight capability to perform fly-before-buy, risk-reducing demonstrations of advanced technologies in operational space environments. The Secretary of Defense issued a policy statement in November 1995 reaffirming STP's role as the primary provider of spaceflight for the entire DoD space research community. Space Test Program is a Budget Activity 6 RDT&E Management and Support program.

**(U) Acquisition Strategy**

(U) The space research experiments that STP supports are justified, developed, financed, and delivered by various Service laboratories and DoD agencies, with the goal of improving DoD's current and future operational space systems' performance. Experiments are considered for spaceflight based on the priority that they are assigned by the annual DoD Space Experiments Review Board, a group that is independent of the STP Program Office, and is comprised of Air Force, Army, Navy, BMDO and other representatives with expertise in DoD operational space requirements. The Board gives the prioritized list of experiments to STP, who then seeks out the most cost effective means of spaceflight to maximize the number of experiments flown within the constraints of priority, opportunity and available funding. The most common spaceflight opportunities include piggybacking on military or commercial satellites, both foreign and domestic, and the various payload modes of the Space Shuttle. For those experiments whose requirements cannot be satisfied with these "secondary" opportunities, dedicated STP spacecraft and launch vehicle hardware are procured within the constraints of available funding and according to experiment requirements. These include Small and Medium Launch Vehicle class satellites, as well as Small Launch Vehicle class boosters (such as Pegasus, Taurus, and Lockheed Martin Athena). Medium Launch Vehicle class boosters are provided as required by PE 35119F and PE 35953F. If a particular manifested experiment fails to materialize or is deemed impractical to fly given current

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0603402F Space Test Program (Space) |
| | PROJECT<br>2617 |

funding, or if the appropriate spaceflight opportunity becomes unavailable, STP shifts what resources remain to provide spaceflight support for the next highest priority experiments.

(U) The Air Force requires a stable funding level and the flexibility necessary to take advantage of whatever means of spaceflight is deemed to be most cost effective for a given experiment or complement of experiments. This flexibility is essential to take advantage of inexpensive "target of opportunity" space hardware, including operational spacecraft, where margin is usually firmly identified during the later stages of spacecraft development. This assures that the greatest amount of DoD space research is accomplished with the limited funds available. Without the requested funding, DoD would lose its most successful and most cost-effective capability to launch and test new technologies prior to their incorporation into our nation's very expensive and demanding operational space systems. Insufficient funding would also force each of the Services and DoD agencies to create individual launch capabilities in an attempt to duplicate STP's current low-cost, risk mitigating capability. Such a redundancy would result in the loss of the contractual economy of scale that a single space test organization provides, as well as the filtering function of the DoD Space Experiments Review Board in assuring quality experiments and minimum duplication.

(U) FY 1997 ($ in Thousands)

- (U) $11,171 Piggyback/secondary payload missions, mission planning, Aerospace Corp support, mission support.
- (U) $26,381 Complete STEP-4 satellite and Pegasus Launch Vehicle; continue ARGOS and TSX-5 satellites, TSX-5 launch service; FORTE and STEP- 4 launch processing.
- (U) $ 2,582 Space Shuttle payload engineering, analysis, pre- and post-launch processing, and launch support.
- (U) $ 3,233 Start Taurus Launch Vehicle for Multispectral Thermal Imager (MTI) mission.
- (U) $ 3,000 Pending reprogramming to fund higher priorities.
- (U) $46,367 Total

(U) FY 1998 ($ in Thousands)

- (U) $ 8,441 Piggyback/secondary payload missions, mission planning, Aerospace Corp support, mission and program support.
- (U) $23,855 Complete ARGOS satellite; STEP-4 and ARGOS launch/operations support; start JAWSAT; continue MTI Taurus Launch Vehicle.
- (U) $ 2,900 Space Shuttle payload engineering, analysis, pre- and post-launch processing, and launch support.
- (U) $ 3,500 Initiate reusable upper stage/bus development activities for spaceflight of SERB approved experiments.
- (U) $38,696 Total

(U) FY 1999 ($ in Thousands)

- (U) $0 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 6 - Management and Support | PE NUMBER AND TITLE: 0603402F Space Test Program (Space) / PROJECT: 2617 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 43,439 | 42,241 | 56,157 | Continuing |
| (U) Appropriated Value | 44,752 | 42,241 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | -1,174 | -2,556 | | |
| b. SBIR | -139 | -989 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | 3,000 | | | |
| e. Rescission | -72 | | | |
| (U) Adjustments to Budget Years Since FY1998 PB | | | -56,157 | |
| (U) Current Budget Submit/FY1999 President's Budget | 46,367 | 38,696 | 0 | Continuing |

(U) Change Summary Explanation:

Funding: $3,000K added to program in FY97. This funding was subsequently reprogrammed to fund higher priorities. FY98 $268K is pending reprogramming to fund higher priorities and for additional SBIR reduction. Space Test Program (Space) PE 0603402F changes to PE 0605864F in FY99. Future year funding is in the new STP PE 0605864F. $9,300K FY99 funding rephased into FY00/01 due to FY97 execution. Remaining $45,933K transferred to PE 0605864F.

Schedule: STP EELV mission moved from FY01 to FY02.

Technical: Not Applicable.

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

Not Applicable.

**Related RDT&E:**

(U) PE 0305119F, Medium Launch Vehicles
(U) PE 0305953F, Evolved Expendable Launch Vehicle
(U) PE 0605864F, STP funding for FY99 and beyond

Experiments are funded by many Science and Technology (S&T) PEs in Air Force, Army, Navy, DARPA, BMDO, DoE, NASA, and other programs.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0603402F Space Test Program (Space) |
| | PROJECT<br>2617 |

(U) D. **Schedule Profile** These are anticipated launch dates. (Current projection. Experiments are added as new spaceflight opportunities and budget permits).

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) STS-80 CCM-A, MSX | X | | | | | | | | | | | |
| (U) STS-81 CREAM, MSX | | X | | | | | | | | | | |
| (U) STS-82 MSX | | X | | | | | | | | | | |
| (U) STS-83 CRYOFD, MSX | | X | | | | | | | | | | |
| (U) STS-84 RME-III, CREAM, MSX, SIMPLEX | | | X | | | | | | | | | |
| (U) STS-94* CRYOFD, PLUMES | | | X | | | | | | | | | |
| (U) MPTB (Classified Host) (S96-1) | | | | X | | | | | | | | |
| (U) FORTE (P94-1) | | | | X | | | | | | | | |
| (U) STS-85 CFE, MSX, MAHRSI (S96-5) | | | | X | | | | | | | | |
| (U) STS-86 SIMPLEX, CREAM, CCM-A | | | | X | | | | | | | | |
| (U) STEP4-EMPE, OOAM, DIDM (P95-1) | | | | | X | | | | | | | |
| (U) STS-87 MSX, SIMPLEX | | | | | X | | | | | | | |
| (U) POAM III (SPOT IV) (S96-2) | | | | | | X | | | | | | |
| (U) STS-89 CREAM, MSX, SIMPLEX | | | | | | X | | | | | | |
| (U) STS-91* CREAM, MSX, SIMPLEX | | | | | | X | | | | | | |
| (U) ARGOS - ESEX, USA, GIMI, CIV, SPADUS, HIRAAS, HTSSE II, EUVIP, CERTO (P91-1) | | | | | | | | X | | | | |
| U) STS-88 MightySat I, MSX, SIMPLEX | | | | | | | | X | | | | |

*New spaceflight opportunity since FY98PB.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604256F Threat Simulator Development

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 56,456 | 51,501 | 32,582 | 37,400 | 39,561 | 37,535 | 38,272 | Continuing | TBD |
| 3321 Electronic Warfare Ground Test Resources | 43,355 | 50,030 | 30,658 | 30,593 | 31,285 | 28,418 | 28,947 | Continuing | TBD |
| 2907 Electronic Combat Intel Support | 1,724 | 1,471 | 1,924 | 1,974 | 2,022 | 1,936 | 1,972 | Continuing | TBD |
| 7500 Foreign Materiel Acquisition/Exploitation | 0 | 0 | 0 | 4,833 | 6,254 | 7,181 | 7,353 | Continuing | TBD |
| 6510 Flight Test Resources | 9,506 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2900 Radar Target Scatter (RATSCAT) Upgrade | 1,871 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) A. **Mission Description and Budget Item Justification:** This PE provides funding for the elements necessary to support the AF Electronic Warfare (EW) Test Process. This test process provides a scientific methodology to ensure the effective disciplined and efficient testing of AF 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. This PE provides funding for the management and technical oversight of implementation activities, the Air Force-led tri-Service effort to establish a common modeling and simulation architecture, 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 to the Air Force for corporate-level implementation of the Electronic Warfare (EW) Test Process and for improvement and modernization (I&M) 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, beginning in FY 00. In FY 98, Projects 6510, Flight Test Resources, and 2900, RATSCAT Upgrade, were combined into Project 3321, Electronic Warfare Ground Test Resources, as part of consolidation and simplification efforts in T&E investment accounts. Contracts funded from this program are predominately awarded on the basis of full and open competition. 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.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604256F Threat Simulator Development

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 53,496 | 51,846 | 36,238 | Continuing |
| (U) Appropriated Value | 55,435 | 54,346 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Adjustments | -1,203 | -2,139 | | |
| b. SBIR | -736 | -706 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | 3,100 | | | |
| e. Rescissions | -140 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -3,656 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 56,456 | 51,501 | 32,582 | Continuing |

(U) Change Summary Explanation:

Funding:

FY 99:

Terminated AAIS (-5,119), JMASS models (3,300), minor adjustments (-1,837).

Schedule: None.

Technical: None.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0604256F Threat Simulator Development |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Appropriation: Military Construction, Budget Activity: Defense-Wide Mission Support, 6 Program Title: Electronic Combat Integrated Test (ECIT) | 4,900 | | | | | | | N/A | 16,000 |
| Appropriation: RDT&E Budget Activity: Defense-Wide Mission Support, 6 Program Title: Central Test and Evaluation Investment Program (CTEIP) | 37,600 | 39,643 | 26,100 | | | | | N/A | 124,557 |

Related RDT&E:
(U) PE 0604759F, Major T&E Investment
(U) PE 0604735F, Combat Training Ranges

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Real Time Electromagnetic Digitally Controlled Analyzer (REDCAP) Surveillance Radar Integration (Option C) Complete | | | X | | | | | | | | | |
| (U) JMASS Releases | X | | | | X | | | | | | | |
| (U) ECIT Infrastructure and Generic Test Capability IOC | | | | | | | | | | | X | |
| (U) Digital Integrated Air Defense System Baseline IOC | | | | | | | | | | | X | |
| (U) AAIS Program Terminated | | | | | X | | | | | | | |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604256F Threat Simulator Development

PROJECT: 3321

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3321 Electronic Warfare Ground Test Resources | 43,355 | 50,030 | 30,658 | 30,593 | 31,285 | 28,418 | 28,947 | Continuing | TBD |

(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 that program risk can be managed effectively throughout the weapon system acquisition process, and test and evaluation (T&E) be conducted effectively and efficiently, a spectrum of T&E capabilities from modeling and simulation through open-air ranges 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 Joint Modeling and Simulation System (JMASS) is an Air Force-led, tri-service project to establish a common, DoD-wide, digital simulation architecture in support of T&E. The current JMASS program supports model development to meet the needs of the B-1B Defensive System Upgrade Program (DSUP). The JMASS project includes development of a limited set of threat and environment models to support acquisition and test of multiple programs including the B-1B, F-22, and Joint Strike Fighter (JSF). The Radar Target Scatter (RATSCAT) upgrade project provides improvements to the RATSCAT measurement facility at Holloman AFB, NM, to support radar cross section (RCS) measurement requirements of DoD customers. The Hardware in the Loop (HITL) test facilities evaluate electronic support and countermeasures effectiveness prior to installation on the aircraft. Together, the two AF HITL facilities, the Air Force Electronic Warfare Evaluation Simulator (AFEWES) and the Real Time Electromagnetic Digitally Controlled Analyzer and Processor (REDCAP), provide the ability to realistically evaluate hardware components against manned hardware threat representations early enough to affect final system design. FY98 is the last year of T&E infrastructure funding for operations at the government-owned-contractor-operated REDCAP facility in Buffalo, NY. In subsequent years, REDCAP test functions will transition to the Digital Integrated Air Defense System (DIADS) HITL at Edwards AFB, CA. The Electronic Combat Integrated Test (ECIT) project upgrades the AF Installed System Test Facility (ISTF) at Edwards AFB, CA. This ISTF consists of a large, instrumented, anechoic chamber which provides for evaluation of an EW system when installed on its host aircraft, both prior to and throughout the flight test program. The Advanced Airborne Interceptor Simulator (AAIS) is a project to develop an advanced signal system to represent airborne threats for EW open-air testing. In FY 98, Projects 6510, Flight Test Resources, and 2900, RATSCAT Upgrade, were combined into Project 3321, Electronic Warfare Ground Test Resources.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0604256F Threat Simulator Development |
| | PROJECT<br>3321 |

(U) FY 1997 ($ in Thousands):

- (U) $1,900 EW Test Process Support. Began implementation of the EW test facilities network. Continued the analysis and planning of upgrades to the network to improve implementation of the EW Test Process and support emerging EW technologies. Conducted assessment of AF test and training range requirements and capabilities.
- (U) $8,558 JMASS. Improved model and scenario development tools, such as visual programming, graphical user interface, hardware-in-the-loop and man-in-the-loop, and data management capabilities. Increased simulation speed. Increased the number of hardware platforms that JMASS can support. Supported a growing library of models, and provided user training, support and documentation. Released Generic Aircraft and Electronic Countermeasures (ECM) models along with upgraded surface-to-air missile (SAM) flyout models.
- (U) $2,832 AFEWES Operation and Upgrade. Continued AFEWES operation in support of Air Force, Army, Navy, and non-DoD test customers. Completed Infrared/Ultraviolet (IR/UV) laboratory upgrades. Began work on the Advanced Simulator Modification and the Track-While-Scan (TWS) 5 simulation.
- (U) $6,527 REDCAP Operation and Upgrade. Continued operation in support of Air Force, Army, Navy, and non-DoD test customers. Integrated Option C radar signature simulations into the Digital Integrated Air Defense System (DIADS) model. Developed Advanced C3 Upgrade and KC3 Upgrade. Began Advanced Command, Control and Communications (C3) Upgrade and KC3 Upgrade.
- (U) $18,792 ECIT. Continued development of infrastructure and generic EW and avionics installed system test capabilities. Completed preliminary design of the ECIT Infrastructure and Generic Test Capability (I&GTC).
- (U) $4,746 EC Test and Training Range Operations and Upgrade. Funded development of threat system simulators (emitters, signal sources, real world threat systems with instrumentation) and intelligence upgrades of existing systems to support Air Force Special Operations Command requirements.

-(U)$43,355 Total

(U) FY 1998 ($ in Thousands):

- (U) $1,501 EW Test Process Support. Continue implementation of the EW test facilities network.
- (U) $9,469 JMASS. Improve JMASS capability by initiating and achieving IOC of Version 4. Adapt JMASS to a wider variety of computer platforms, including personal computers (PC). Increase JMASS efficiency by optimizing the architecture. Adapt commercial off-the-shelf (COTS) tools for front-end model development and post-processing viewing and analysis. Operate and maintain EW model library. Begin development and implementation of JMASS compliant models of surface-to-air missiles (SAMs), Air-to-Air Missiles (AAMs) and Airborne Interceptors (AIs) to support acquisition and test of multiple programs including the B-1, F-22, and Joint Strike Fighter (JSF).
- (U) $1,973 RATSCAT Upgrades. Integrate mobile Bistatic Coherent Measurement System (BICOMS) radar with BICOMS control and instrumentation infrastructure. Procure and begin integration of RATSCAT Advanced Measurement System (RAMS) radar replacement hardware.
- (U) $3,525 AFEWES Operation and Upgrade. Continue AFEWES operation in support of Air Force, Army, Navy, and non-DoD test customers. Continue Advanced RF and IR/UV HITL Simulator modifications. Upgrade the RF clutter environment to better simulate the open air range and integrate a semi-active SAM simulation into AFEWES.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 6 - Management and Support | PE NUMBER AND TITLE: 0604256F Threat Simulator Development / PROJECT: 3321 |

- (U) $4,912 REDCAP/DIADS. Transition Integrated Air Defense System (IADS) HITL capability from REDCAP, Buffalo, NY, to the Air Force Flight Test Center (AFFTC) and establish Digital IADS (DIADS) HITL capability for support of Air Force, Army, Navy and non-DoD test customers. Complete development of Airborne Warning Model and Advanced $C^3$ Upgrade, and begin development of additional IADS configurations. Begin integration with ECIT.

- (U) $20,844 ECIT. Continue development and start procurement of infrastructure and generic EW and avionics installed system test capabilities. Complete Critical Design Review (CDR) of major I&GTC subsystems, including Network and Controls, Simulation, Radio Frequency (RF) Generation and Injection, RF Free Space Excitation, and Instrumentation.

- (U) $7,806 AAIS. Terminate program.

-(U) $50,030 Total

(U) FY 1999 ($ in Thousands):

- (U) $400 EW Test Process Support. Conduct requirements analyses in support of Air Force investments in EW test infrastructure. Complete cost-benefit analysis of digital modeling and simulation (M&S) in support of the EW Test Process.

-(U) $11,436 JMASS. Complete development and achieve follow-on capability (FOC) of Version 4, which affords compatibility with the DoD High-Level Architecture (HLA). Complete transition of JMASS to PCs and other computer platforms. Complete architecture modification. Complete adaptation of COTS tools. Operate and maintain EW model library. Complete development and integration of JMASS-compliant SAM, AAM, and AI models to support the needs of a single customer. Develop additional threat models to support other DoD customers.

-(U) $1,928 RATSCAT Upgrades. Achieve IOC of BICOMS Mobile Radar. Integrate and achieve IOC of RAMS Radar Replacement.

-(U) $2,609 AFEWES Operation. Continue AFEWES operation in support of Air Force, Army, Navy, and non-DoD test customers. Complete development of semi-active SAM simulations, and begin development of Advanced Simulator Modifications.

-(U) $1,409 DIADS HITL. Begin DIADS support to Air Force, Army, Navy, and non-DoD test customers. Complete Verification and Validation (V&V) efforts required to achieve IOC of DIADS baseline. Begin development of external linking and BLUE IADS capabilities.

-(U) $12,876 ECIT. Complete development of the infrastructure and generic test capability. Begin integration with CTEIP-funded Generic Radar Target Generator (GRTG), Infrared Sensor Stimulator (IRSS), and Communications-Navigation-Identification (CNI) simulator.

-(U) $30,658 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 6 - Management and Support | PE NUMBER AND TITLE: 0604256F Threat Simulator Development — PROJECT: 3321 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 38,917 | 50,305 | 34,275 | Continuing |
| (U) Appropriated Value | 40,856 | 52,805 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Adjustments | -601 | -2,089 | | |
| b. SBIR | | -686 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | 3,100 | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -3,617 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 43,355 | 50,030 | 30,658 | Continuing |

(U) Change Summary Explanation:

Funding:

FY 99:

Terminated AAIS (-5,119), JMASS models (3,300), minor adjustments (-1,798).

Schedule: None.

Technical: None.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0604256F Threat Simulator Development<br>PROJECT 3321 |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Appropriation: Military Construction<br>Budget Activity: Defense-Wide Mission Support, 6<br>Program Title: Electronic Combat Integrated Test (ECIT) | 4,900 | | | | | | | N/A | 16,000 |
| Appropriation: RDT&E<br>Budget Activity: Defense-Wide Mission Support, 6<br>Program Title: Central Test and Evaluation Investment Program (CTEIP) | 37,600 | 39,643 | 26,100 | | | | | N/A | 124,557 |

Related RDT&E:
(U) PE 0604759F, Major T&E Investment
(U) PE 0604735F, Combat Training Ranges

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) REDCAP Surveillance Radar Integration (Option C) Complete | | | X | | | | | | | | | |
| (U) JMASS Releases. | X | | | | X | | | | | | | |
| (U) ECIT Infrastructure and Generic Test Capability (I&GTC) IOC | | | | | | | | | | | X | |
| (U) Digital Integrated Air Defense System Baseline IOC | | | | | | | | | | | X | |
| (U) AAIS Program Terminated | | | | | X | | | | | | | |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0604256F Threat Simulator Development<br>PROJECT 2907 |

| COST *($ In Thousands)* | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2907 Electronic Combat Intel Support | 1,724 | 1,471 | 1,924 | 1,974 | 2,022 | 1,936 | 1,972 | Continuing | TBD |

(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) and tactics. Funds are required for: deployment of blue systems to test facilities, travel for personnel to the test sites to evaluate and validate test results real-time, reimbursement for industrial-funded range and laboratory costs; costs for instrumentation of blue systems; 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).

(U) FY 1997 ($ in Thousands):
- (U) $1,400 Funded fighter and bomber testing for foreign material operational exploitation. Extensive evaluations and reporting was accomplished.
- (U) $ 280 Funded transport aircraft for foreign material operational exploitation. Extensive evaluations and reporting was accomplished.
- (U) $ 44 Funded classified assessments for foreign material operational exploitation. Extensive evaluations and reporting was accomplished.
- (U) $1,724 Total

(U) FY 1998 ($ in Thousands):
- (U) $1,180 Funds fighter and bomber testing for foreign material operational exploitation. Extensive evaluations and reporting to be accomplished.
- (U) $ 250 Funds transport aircraft for foreign material operational exploitation. Extensive evaluations and reporting to be accomplished.
- (U) $ 41 Funds classified assessments for foreign material operational exploitation. Extensive evaluations and reporting was accomplished.
- (U) $1,471 Total

(U) FY 1999 ($ in Thousands):
- (U) $1,561 Funds fighter and bomber testing for foreign material operational exploitation. Extensive evaluations and reporting to be accomplished.
- (U) $ 300 Funds transport aircraft for foreign material operational exploitation. Extensive evaluations and reporting to be accomplished.
- (U) $ 63 Funds classified assessments for foreign material operational exploitation. Extensive evaluations and reporting was accomplished.
- (U) $1,924 Total

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604256F Threat Simulator Development

PROJECT: 2907

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 1,795 | 1,541 | 1,963 | Continuing |
| (U) Appropriated Value | 1,795 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -71 | -50 | | |
| b. SBIR | | -20 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -39 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 1,724 | 1,471 | 1,924 | Continuing |

(U) Change Summary Explanation:

Funding: Minor adjustments in FY 1998 and in FY 1999.

Schedule: None.

Technical: None.

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

(U) D. **Schedule Profile:** Not applicable.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | | DATE February 1998 |
|---|---|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0604256F Threat Simulator Development | | PROJECT<br>7500 |

| COST *($ In Thousands)* | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 7500 Foreign Materiel Acquisition/Exploitation | 0 | 0 | 0 | 4,833 | 6,254 | 7,181 | 7,353 | Continuing | TBD |

(U) A. **Mission Description and Budget Item Justification:** This project is established for the specific purpose of supporting the USAF Foreign Materiel Program in 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 Foreign Materiel Acquisition (FMA) list established each year and are not eligible for OSD FMA&E funds. The USAF FMA list is established annually by Major Command representatives using specific criteria and a well-established process. The draft list is then approved by each Major Command and final approval comes from the Air Force Vice Chief of Staff. Exploitations are based on and driven by acquisitions.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604256F Threat Simulator Development

PROJECT: 6510

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 6510 Flight Test Resources | 9,506 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) A. **Mission Description and Budget Item Justification** The AF requires a comprehensive set of test facilities to implement the Air Force Electronic Warfare (EW) Test Process. In order that program risk can be managed effectively throughout the weapon system acquisition process, and test and evaluation (T&E) be conducted effectively and efficiently, a spectrum of T&E capabilities from modeling and simulation through open-air ranges is required. The Advanced Airborne Interceptor Simulator (AAIS) project initiated development of an advanced signal system to represent airborne threats for EW open-air testing. In FY 98, Projects 6510, Flight Test Resources, and 2900, RATSCAT Upgrade, were combined into Project 3321, Electronic Warfare Ground Test Resources.

(U) FY 1997 ($ in Thousands):
- (U) $5,800 Completed AAIS radar and communication equipment design.
- (U) $2,606 Began AAIS radar and communication equipment fabrication
- (U) $1,100 Began preparation for AAIS integration/testing phases.
- (U) $9,506 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 Not applicable.

(U) FY 1999 ($ in Thousands):
- (U) $0 Not applicable.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0604256F Threat Simulator Development |
| | PROJECT<br>6510 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 10,836 | | | N/A |
| (U) Appropriated Value | 10,836 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -454 | | | |
| b. SBIR | -736 | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | -140 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | | |
| (U) Current Budget Submit/FY 1999 President's Budget | 9,506 | | | N/A |

(U) Change Summary Explanation:
Funding: None.
Schedule: None.
Technical: None.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Appropriation: RDT&E | 6,400 | | | | | | | N/A | 6,400 |
| Budget Activity: Defense-Wide Mission Support, 6 | | | | | | | | | |
| Program Title: Central Test and Evaluation Investment Program (CTEIP) | | | | | | | | | |

(U) **D. Schedule Profile:** Not applicable

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604256F Threat Simulator Development

PROJECT: 2900

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2900 Radar Target Scatter (RATSCAT) Upgrade | 1,871 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) A. **Mission Description and Budget Item Justification** This project provides improvements to the Radar Target Scatter (RATSCAT) facility in order to assure support to address radar cross section (RCS) measurement requirements of DoD customers. Key areas of improvement complement and support the existing stand-alone Central Test and Evaluation Improvement Program (CTEIP) funded program and include radar upgrades standardization of data processing equipment and techniques, bistatic testing, pylon background reduction, low frequency measurement capability upgrades, and efficiency related equipment. The DoD continues an aggressive R&D program to achieve low observable technology. This project provides a continuous effort to allow test technology to keep pace with these activities. In FY 98, Projects 6510, Flight Test Resources, and 2900, RATSCAT Upgrade, were combined into Project 3321, Electronic Warfare Ground Test Resources.

(U) FY 1997 ($ in Thousands):

- (U) $1,871 RATSCAT Upgrades. Completed procurement of DAPS for Mainsite. Continue design and procurement of BICOMS radar systems.
- (U) $1,871 Total

(U) FY 1998 ($ in Thousands):

– (U) Not applicable.

(U) FY 1999 ($ in Thousands):

– (U) Not applicable.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0604256F Threat Simulator Development |
| | PROJECT<br>2900 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 1,948 | | | Continuing |
| (U) Appropriated Value | 1,948 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -77 | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | | |
| (U) Current Budget Submit/FY 1999 President's Budget | 1,871 | | | Continuing |

(U) Change Summary Explanation:
Funding: None.
Schedule: None.
Technical: None.

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

(U) **D. Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) DAPS Procured | | | | X | | | | | | | | |
| (U) BICOMS Mobile Radar Procured | | | | X | | | | | | | | |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604258F Target Systems Development

PROJECT: 2459

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2459 Target Payloads | 4,626 | 4,491 | 1,666 | 195 | 196 | 198 | 199 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

Aerial Targets are used to determine air-to-air weapons effectiveness and mission proficiency of our tactical systems against enemy aircraft. The overall objective is to improve air-to-air weapons systems accuracy and reliability by developing improved aerial target systems for Air Force weapons system test and evaluation. Specialized target payload subsystems are developed for full-scale and subscale targets for missile scoring, electronic and infrared (IR) countermeasures, and radar and IR signature augmentation. An Interim Vector Scoring (IVS) system is being produced to provide missile path and position relative to the target at point of closest approach, essential to accurately calculate the probability of a kill. Electronic and infrared countermeasures being developed include chaff and flare dispenser systems. IR signature augmentation systems are developed for subscales to provide a signature representative of threat military jet engines. The Drone Radio Frequency (RF) Electronic Enhancement Mechanism (DREEM) is being developed to provide subscale radar cross section (RCS) enhancement to replicate full size threat aircraft, and will be used for Developmental Test and Evaluation/Initial Operational Test and Evaluation of air-to-air missiles, air-to-air Weapons System Evaluation Program (WSEP). This program also provided for the development of the QF-4E Full Scale Aerial Target. This program is in budget activity 6 - Management Support because it provides overall support to research and development activities.

(U) **Acquisition Strategy:**

The acquisition strategy is competitive, cost plus contracts.

(U) FY 1997 ($ in Thousands):

- (U) $16 IVS Contractor Support
- (U) $33 IVS International Range Instrumentation Group (IRIG) Timing Card Upgrade
- (U) $15 IVS Encryption Upgrade
- (U) $30 BQM-34 NICAD Battery Development
- (U) $1,785 Continued DREEM Demonstration/Validation (DEMVAL)
- (U) $208 Continued MQM-107E Signal Processor Vehicle Interface/Digital Autopilot (SPVI/DAP) Integrated Flight Controller (IFC) Development / Advanced Maneuvers
- (U) $152 SPVI/DAP Integrated Flight Controller (IFC) Software Development
- (U) $467 Integrated POD Capabilities
- (U) $ 5 Hardware/Software for Tech Order Writing

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 6 - Management and Support | PE NUMBER AND TITLE: 0604258F Target Systems Development / PROJECT: 2459 |

- (U) $128 QF-106 Canceled Year Liability
- (U) $35 Adapt MQM-107E to carry Electronic Countermeasures/Infra-red Countermeasures (ECM/IRCM) Payloads
- (U) $200 Vector Doppler Scorer (VDOPS) Ground Standard Processor Upgrade
- (U) $70 Non-linear Trajectory Upgrade
- (U) $34 Gulf Range Drone Control Upgrade System (GRDCUS) Pod II Global Positioning System (GPS) Software Upgrade
- (U) $120 AF Development Test Center (AFDTC/DR) - Target Requirements Support
- (U) $76 Test and Acquisition Management Support (TAMS) - Test Support
- (U) $50 Super MQM Demonstration
- (U) $1 MQM-107D Water Recovery Demonstration
- (U) $20 DREEM Development Test and Evaluation (DT&E)
- (U) $1,181 Support & Management
- (U) $4,626 Total

(U) FY 1998 ($ in Thousands):

- (U) $2,113 Continue DEMVAL for DREEM
- (U) $80 Continue to Adapt MQM-107E to carry ECM/IRCM Payloads
- (U) $282 IFC Advanced Maneuver
- (U) $188 DREEM Feasibility Study (Near Field)
- (U) $188 AFDTC/DR - Target Requirements Support
- (U) $1,170 Support & Management
- (U) $94 TAMS Test Support
- (U) $376 DREEM DT&E
- (U) $4,491 Total

(U) FY 1999 ($ in Thousands):

- (U) $200 Target Reliance Technical Support
- (U) $120 DREEM Feasibility Study (Near Field)
- (U) $1006 Support & Management
- (U) $50 TAMS Test Support
- (U) $290 DREEM DT&E
- (U) $1,666 Total

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604258F Target Systems Development

PROJECT: 2459

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 4,762 | 4,780 | 4,818 | Cont |
| (U) Appropriated Value | 4,966 | 4,780 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -119 | -228 | | |
| b. SBIR | -85 | -61 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | -128 | | | |
| e. Rescissions | -8 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -3,152 | |
| (U) Current Budget Submit/1999 Presidents Budget | 4,626 | 4,491 | 1,666 | Cont |

(U) Change Summary Explanation:

Funding: FY97 (-$128K) used to source an FY89 cancelled year bill
FY99 decreased to fund higher Air Force priorities (-$3,118K) and due to an inflation adjustment (-$34K)

Schedule: None

Technical: None

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) PE35116F: Appropriation: Missile Procurement, AF Budget Activity: 2 Program Title: Target Drones | | | | | | | | | |
| WSC: MQM107 (MQM-107E) | 13,303 | 4,472 | 13,821 | 20,545 | 22,084 | 22,440 | 22,692 | Cont | Cont |
| WSC: M04AQF (QF-4) | 17,717 | 20,540 | 22,442 | 17,237 | 16,735 | 16,645 | 16,831 | Cont | Cont |
| Spares: BQM-34, QF-4, MQM-107, QF-106 | 1,904 | 1,089 | 2,570 | 3,412 | 3,451 | 3,590 | 3,647 | Cont | Cont |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0604258F Target Systems Development |
| | PROJECT<br>2459 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| **(U) Full-Scale Aerial Target Systems** | | | | | | | | | | | | |
| (U) QF-4 | | | | | | | | | | | | |
| - IOC | * | | | | | | | | | | | |
| - First Delivery (Lot 2) | | | * | | | | | | | | | |
| - Production Options (Lot 3) | | | * | | | | | | | | | |
| - First Delivery (Lot 3) | | | | | | | X | | | | | |
| - Follow-on QF-4 Production Options | | | | | | X | | | | X | | |
| **(U) Target Payloads** | | | | | | | | | | | | |
| (U) DREEM | | | | | | | | | | | | |
| - Contract Award 3/96 | | | | | | | | | | | | |
| - Factory Testing | | | | | | X | | X | | | | |
| - Ground Testing | | | | | | | | X | X | | | |
| - Flight Testing | | | | | | | | | X | | | |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604759F Major Test And Evaluation Investment

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 29,440 | 53,364 | 34,518 | 48,180 | 57,295 | 51,313 | 48,028 | Continuing | TBD |
| 4597 (U) Air Force Test Investments | 0 | 53,364 | 34,518 | 48,180 | 57,295 | 51,313 | 48,028 | Continuing | TBD |
| 3120 Air Force Development Test Center | 8,306 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | TBD |
| 3285 Arnold Engineering Development Center | 5,125 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | TBD |
| 3620 Air Force Flight Test Center | 16,009 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

This program element provides planning, improvements, and modernization for test capabilities at three Air Force Test Centers: Arnold Engineering Development Center (AEDC), Air Force Development Test Center (AFDTC), and Air Force Flight Test Center (AFFTC). The purpose is to help test centers keep pace with emerging weapon system technologies. Test investment activities are also funded at the Space and Missile Systems Center Test Directorate (SMC/TE) and the Joint Program Office (JPO) for Test and Evaluation (T&E). 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. 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 the Test Capability Master Plans. 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 centers 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 three test centers have over $10 billion worth of unique test facilities/capabilities. They 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. Beginning in FY98, T&E investments are consolidated into one project (4597) to properly reflect that Air Force investments are determined at the component and DoD level. Prior to FY98 investments were reflected by test center and led to misperceptions that investment planning was geographically determined. 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.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0604759F Major Test And Evaluation Investment |

(U) **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.

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB): | 32,340 | 47,336 | 43,809 | Continuing |
| (U) Appropriated Value | 33,529 | 56,336 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -735 | -2,197 | | |
| b. SBIR | -454 | -775 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | -2,900 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -9,291 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 29,440 | 53,364 | 34,518 | Continuing |

(U) Change Summary Explanation:

Funding: FY 99: Program content reduced or slipped due to budget constraints.
Schedule: In some cases program(s) was delayed from three months to one year.
Technical: None.

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

Related RDT&E:
(U) PE 0604940D, Central Test & Evaluation Improvement Program
(U) PE 0604256F, Threat Simulator Development
(U) PE 0604735F, Combat Training Ranges

(U) **D. Schedule Profile: This PE contains multiple schedule profiles which are available upon request.**

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0604759F Major Test And Evaluation Investment

PROJECT: 4597

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4597 (U) Air Force Test Investments | 0 | 53,364 | 34,518 | 48,180 | 57,295 | 51,313 | 48,028 | Continuing | TBD |

(U) A. **Mission Description and Budget Item Justification** AFDTC, located at Elgin AFB, FL, conducts and supports developmental test and evaluation and operational test and evaluation of non-nuclear air armaments, $C^4I$ systems, and target acquisition and weapon delivery systems; provides a climatic simulation capability; and determines target/test item spectral signatures. The Guided Weapon Evaluation Facility (GWEF) provides a full spectrum, multifunctional seeker/sensor laboratory test capability for all guided weapons. Common Airborne Instrumentation System (CAIS) Integration provides standardized airborne test instrumentation to enhance interoperability and commonality. Global Positioning System (GPS) Range Systems will provide a major improvement for Time-Space-Position-Information (TSPI) at all Major Range and Test Facility Bases (MRTFB) and specifically at the Eglin Ranges for munitions testing. Command, Control, Communications, Computers and Intelligence ($C^4I$) Test Capabilities Upgrade will provide connectivity to existing capabilities and add needed networks and hardware to develop a $C^4I$ test bed. The Preflight Integration of Munitions and Electronic Systems (PRIMES) facility conducts preflight test and evaluation of total integrated weapon systems in a secure anechoic chamber. The Armament Systems Test Environment (ASTE) Range Systems effort upgrades instrumentation of the major data collection systems supporting open air testing. The Climatic Test Facility modernization of instrumentation and environmental capabilities supports the military construction upgrade, extending its useful life to 2015. Mission Control/Data Analysis provides for real-time central mission control and analysis. Multispectral Missile Engagement Hardware-in-the-Loop (HITL) Test provides a capability to support multiple and wide field-of-view missile engagements incorporating multispectral stimulations. The Santa Rosa Island Reconstitution effort will provide hardware-in-the-loop equipment for three focus sites to support armament/munitions and C4I testing. These projects ensure test center technology is compatible with weapon systems to be tested such as AMRAAM, JDAM, AGM-130, ASRAAM, 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 AEDC Data Acquisition and Processing System (DAPS) provides processing capability for advanced turbine engine testing on programs like the F-22. This effort also upgrades data systems for the arc heaters and hypervelocity gun facility for Theater High Altitude Air Defense (THAAD) testing. Inefficiencies in these current data systems result in increased program costs and schedule delays. The Computer Aided Modernization Project (CMP) will provide increased capability for data processing and storage and provide wider availability of workstations. The Propulsion Wind Tunnel (PWT) Sustainment project sustains 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.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0604759F Major Test And Evaluation Investment<br>PROJECT 4597 |

AFFTC, located at Edwards AFB, CA conducts and supports developmental test and evaluation and operational test and evaluation of aircraft and aircraft systems, aerospace research vehicles, unmanned miniature vehicles, cruise missiles, parachutes delivery/recovery systems, and cargo-handling systems. The AF Common Airborne Instrumentation System (CAIS) Integration & Support (I&S) supports DoD objectives for interoperability/commonality. The goal of CAIS I&S is to integrate CAIS equipment and supporting instrumentation equipment and systems to provide a full airborne instrumentation operational capability. The Advanced Data Acquisition and Processing Systems (ADAPS) project provides an integrated capability to satisfy real-time first generation post-test data processing, archival, and display requirements of the next decade. The developmental approach is directed towards providing a high degree of interoperability between systems and components by adherence to Air Force and DoD guidelines. The technologies being developed under ADAPS have the potential to satisfy data processing and display needs at various multi-service test ranges. The Space Based Data Relay (SBDR) project provides the capability for Advanced Range Instrumentation Aircraft (ARIA) to fulfill customer needs for real time, high-speed data, and greatly improve the overall range data relay capability. The Flight Simulator Modernization project will upgrade the Test and Evaluation Modeling and Simulation (TEMS) facility to meet future man-in-the loop simulator requirements. The Linked Interactive T&E Networking (LITENING) project will provide the network infrastructure necessary to support inter-range simulations and support the efficient transmission of flight test data to various facilities for processing and analysis.

SMC/TE located at Kirtland AFB, NM is responsible for test planning and implementation for all space and ballistic missile systems. The Combined Space Test Task Force project will provide the capability to develop and test new satellites and ground control systems.

Beginning in FY98, T&E investments are consolidated into one project (4597) to properly reflect that Air Force investments are determined at the component and DoD level. Prior to FY98 investments were reflected by test center and led to misperceptions that investment planning was geographically determined.

**(U) 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.

(U) FY 1997 ($ in Thousands):

- (U) $0 Not applicable.

(U) FY 1998 ($ in Thousands):

**Air Force Development Test Center (AFDTC)**

- (U) $4,924 Continue CAIS integration, procure CAIS production units, and continue procurement of support equipment.
- (U) $1,854 $C^4I$ Test Capabilities Upgrade. Continue the acquisition of workstations, network connections, and processing hardware/software. Begin secure facility upgrades.
- (U) $3,484 GWEF. Continue development of the expanded radar simulator and the midwave infrared (IR) simulator. Begin aircraft/munitions modeling and simulation.
- (U) $1,123 Continue GPS integration on the range and Central Control Facility. Begin acquisition of a translator/processor system.
- (U) $1,643 PRIMES. Acquire a Communication-Navigation-Identification(CNI) simulator, upgrade the GPS simulator and begin the munitions interface simulations.
- (U) $1,371 ASTE Range Systems. Begin upgrades to TSPI systems, timing, telemetry, microwave, communications, arenas, gun test, photo-optics, and fiber optics.

- (U) $9,300 Santa Rosa Island Reconstitution. Begin development of three focus sites to provide open air Hardware-in-the-Loop (HITL) capability.

**Arnold Engineering Development Center (AEDC)**

- (U) $2,440 Continue AEDC DAPS with acquisition and installation of additional workstations/processors in engine test cells. IOC of C1/C2 test cells.
- (U) $1,263 Continue purchase of CMP workstations (design fourth increment). Continue to implement the AEDC Reengineering Computer Base.
- (U) $8,270 Begin PWT Sustainment projects. Begin design and procurement of PWT data acquisition and processing systems. Start requirements planning for flow quality and electric motor repower improvements.
- (U) $1,890 Begin Hypersonic Wind Tunnel Design Study. Issue study contracts for requirements definition and program planning.

**Air Force Flight Test Center (AFFTC)**

- (U) $6,087 CAIS I&S development. Purchase CAIS components for AFFTC use. Continue TIMS development with automated setup of systems, automated diagnostics, and simulation capability. Begin development of an on-board processing capability.
- (U) $3,346 ARIA Space Based Data Relay. Complete the communications portion of the SBDR program for 3 aircraft. Continue hardware/software integration of the SBDR subsystems upgrades for a 3 aircraft fleet.
- (U) $6,034 Continue integration of ADAPS with ground test simulation capabilities. Begin marketing capabilities to support multiple flight test missions including Tri-Service Operational flight tests. Develop capability to increase test data flow throughput and decrease flight test mission turnaround time. IOC of AFFTC Post Test Analysis System and Auxiliary Processing and Analysis System.

**Other Projects**

- (U) $ 335 Continue Joint Program Office T&E support activities.
- (U) $53,364 Total

(U) FY 1999 ($ in Thousands):

**Air Force Development Test Center**

- (U) $2,254 Continue CAIS integration, procure CAIS production units, and continue procurement of support equipment.
- (U) $ 724 $C^4I$ Test Capabilities Upgrade. Continue the acquisition of workstations, network connections, and processing hardware/software. Complete secure facility upgrades.
- (U) $2,553 GWEF will complete the expanded radar simulator and midwave IR simulator. Begin development of the multispectral man-in-the-loop and the active laser simulator. Continue aircraft/munitions modeling and simulation.
- (U) $2,228 Continue GPS integration and complete the acquisition of translator/processor system.
- (U) $1,656 PRIMES. Begin the aircraft/munitions interface simulations. Complete the CNI simulator data link and acquire an F-15/APG 63-V1 radar interface.
- (U) $1,789 ASTE Range Systems. Continue upgrades to TSPI systems, telemetry, microwave, communications, arenas, gun test, and photo-optics.
- (U) $1,053 Mission Control/Data Analysis. Begin procurement of data acquisition equipment and real-time TM equipment.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 6 - Management and Support | PE NUMBER AND TITLE: 0604759F Major Test And Evaluation Investment / PROJECT: 4597 |

- (U) $1,972 The Multispectral Missile Engagement HITL Test Capacity. Begin acquisition of a target generator and development of target and clutter models.

**Arnold Engineering Development Center**

- (U) $1,084 AEDC DAPS. Complete installation of the J4 rocket test cell DAPS. IOC of J1/J2 test cell portion of DAPS.
- (U) $1,078 Continue purchase of CMP workstations. Continue to implement the AEDC Reengineering Computer Base.
- (U) $4,560 PWT Sustainment. Continue installation of data acquisition and processing system in 16T and 16S tunnels. Continue installation of 16T/16S pre-test checkout system. Begin design of plant control systems. Continue planning for flow quality and electric motor repower improvements.
- (U) $ 871 Improve Turbine Engine Structural Integrity. Begin design and procurement of aeromechanical test hardware and development of data analysis techniques.

**Air Force Flight Test Center**

- (U) $3,820 CAIS I&S development. Finish rehost of Test Instrumentation Management System (TIMS) to Windows NT platform and improve TIMS with automated setup of systems, automated diagnostics, and simulation capability. Continue development of an on-board processing capability. Begin development of an advanced solid state recorder.
- (U) $5,541 ADAPS. Continue to integrate simulation system with real-time data analysis capability. Begin development of desktop simulation capability. Continue to provide the traditional structures & flutter post-test analysis capability in near real-time in the Ridley Mission Control Rooms. Continue to provide post test analysis capabilities for flight testing. Provide avionics data processing in near real-time in the Ridley Mission Control Rooms. Finish real-time development.
- (U) $1,225 Flight Simulation Modernization. Begin the upgrade of the Test and Evaluation Modeling and Simulation (TEMS) facility to meet future man-in-the-loop simulator requirements for programs such as the Joint Strike Fighter (JSF). Procure hardware to support the development of a reconfigurable Air Warfare Mission Simulator (AWMS) cockpit simulator.
- (U) $ 780 Linked Interactive T&E Networking. Begin development of AFFTC high-speed network to link test capabilities such as Electronic Combat Integrated Test (ECIT). Develop connectivity to the Defense Research Engineering Network (DREN).

**Other Projects**

- (U) $ 350 Continue Joint Project Office T&E support activities.
- (U) $ 980 Combined Space Test Task Force. Begin procurement of hardware and software to complete evaluations of on-orbit R&D satellites and technologies. Begin development of a satellite command and control database and models.
- (U) $34,518 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0604759F Major Test And Evaluation Investment |
| | PROJECT<br>4597 |

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB): | 0 | 47,336 | 43,809 | Cont |
| (U) Appropriated Value | | 56,336 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | | -2,197 | | |
| b. SBIR | | -775 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -9,291 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 0 | 53,364 | 34,518 | Cont |

(U) Change Summary Explanation:

Funding:

| | |
|---|---|
| Funding: FY 99: | |
| Climatic Test Facility upgrade cancellation | -797 |
| Advanced Range Instrumentation Aircraft Space-based Data Relay/Recording and Timing System Upgrade cancellation | -1,731 |
| Common Airborne Instrumentation System (reduced quantity) | -1,376 |
| Guided Weapon Evaluation Facility (delayed instrumentation upgrade one year) | - 631 |
| C4I Test Capability Upgrade (delayed instrumenation development) | -1,215 |
| Computer-aided modification program (delayed development one year) | - 911 |
| Improved Turbine Engine Structural Integrity | -1,521 |
| Miscellaneous T&E reductions to thirteen other T&E investment programs | -1,109 |

Schedule: Each affected program was delayed from three months to one year.

Technical: None.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0604759F Major Test And Evaluation Investment |
| | PROJECT<br>4597 |

(U) C. Other Program Funding Summary ($ in Thousands): None

Related RDT&E:
(U) PE 0604256F, Threat Simulator Development
(U) PE 0604940D, Central Test and Evaluation Investment Program

(U) D. Schedule Profile: This PE contains multiple schedule profiles which are available upon request.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0604759F Major Test And Evaluation Investment<br>PROJECT 3120 |

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3120 Air Force Development Test Center | 8,306 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

(U) A. **Mission Description and Budget Item Justification:** AFDTC, located at Elgin AFB, FL, conducts and supports developmental test and evaluation and operational test and evaluation of non-nuclear air armaments, $C^4I$ systems, and target acquisition and weapon delivery systems; provides a climatic simulation capability; and determines target/test item spectral signatures. The Guided Weapon Evaluation Facility (GWEF) provides a full spectrum, multifunctional seeker/sensor laboratory test capability for all guided weapons. Common Airborne Instrumentation System (CAIS) Integration provides standardized airborne test to enhance interoperability and commonality. GPS Range Systems will provide a major improvement for Time-Space-Position-Information (TSPI) at all MRTFBs and specifically at the Elgin Ranges for munitions testing. Command, Control, Communications, Computers and Intelligence ($C^4I$) Test Capabilities Upgrade will provide connectivity to existing capabilities and add needed networks and hardware to develop a $C^4I$ test bed. These projects ensure test center technology is compatible with weapon systems to be tested such as AMRAAM, JDAM, AGM-130, ASRAAM, JTIDS, JSTARS, Combat Talon, etc.

(U) FY 1997 ($ in Thousands):
- (U) $2,505 Continued CAIS integration, procure CAIS production units, and continue procurement of support equipment for bench, laboratory, and preflight.
- (U) $1,410 $C^4I$ Test Capabilities Upgrade. Began procurement of workstations, network connections, and hardware/software for a classified $C^4I$ test capability.
- (U) $2,965 GWEF. Completed the multimode project and continued the expanded radar simulator.
- (U) $1,426 Continued procurement of GPS instrumentation for surface and airborne TSPI.
- (U) $8,306 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 Not applicable.

(U) FY 1999 ($ in Thousands):
- (U) $0 Not applicable.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0604759F Major Test And Evaluation Investment<br>PROJECT 3120 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 9,206 | 0 | 0 | Continuing |
| (U) Appropriated Value | 9,405 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -199 | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | -900 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | | |
| (U) Current Budget Submit: FY 1999 PB | 8,306 | 0 | 0 | Continuing |

(U) Change Summary Explanation:

Funding: None.
Schedule: None.
Technical: None.

(U) C. **Other Program Funding Summary ($ in Thousands): None**

(U) D. **Schedule Profile: This PE contains multiple schedule profiles which are available upon request.**

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0604759F Major Test And Evaluation Investment | PROJECT<br>3285 |

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3285 Arnold Engineering Development Center | 5,125 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) A. **Mission Description and Budget Item Justification** AEDC, 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 AEDC Data Acquisition and Processing System (DAPS) provides processing capability for advanced turbine engine testing on programs like the F-22. This effort also upgrades data systems for the arc heaters and hypervelocity gun facility for Theater High Altitude Air Defense (THAAD) testing. Inefficiencies in these current data systems result in increased program costs and schedule delays. The Computer Aided Modernization Project (CMP) will provide increased capability for data processing and storage and provide wider availability of workstations. The Fighter Engine Test Capability will upgrade turbine engine test cells to accommodate higher thrust engines, and upgrade J-2 test cell with Exhaust Gas Management System for axisymmetric vectored exhaust nozzles.

(U) FY 1997 ($ in Thousands):
- (U) $3,583 Continued AEDC DAPS with acquisition and installation of additional work stations/processors in the engine test cells. IOC ASTF and J4 rocket test cell portions of DAPS.
- (U) $1,304 Continued purchase of CMP workstations (design third increment). Continued training of personnel.
- (U) $ 238 Completed fighter engine test capability upgrade.
- (U) $5,125 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 Not applicable.

(U) FY 1999 ($ in Thousands):
- (U) $0 Not applicable.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0604759F Major Test And Evaluation Investment | PROJECT<br>3285 |

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 5,626 | 0 | 0 | Continuing |
| (U) Appropriated Value | 5,745 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -120 | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | -500 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | | |
| (U) Current Budget Submit/FY 1999 President's Budget | 5,125 | 0 | 0 | Continuing |

(U) Change Summary Explanation:

Funding: None.

Schedule: None.

Technical: None.

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

(U) D. Schedule Profile: N/A

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | | DATE February 1998 |
|---|---|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0604759F Major Test And Evaluation Investment | | PROJECT<br>3620 |

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3620 Air Force Flight Test Center | 16,009 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) A. **Mission Description and Budget Item Justification** AFFTC, located at Edwards AFB, conducts and supports developmental test and evaluation and operational test and evaluation of aircraft and aircraft systems, aerospace research vehicles, unmanned miniature vehicles, cruise missiles, parachutes delivery/recovery systems, and cargo-handling systems. The AF Common Airborne Instrumentation System (CAIS) Integration & Support (I&S) supports DoD objectives for interoperability/commonality. The goal of CAIS I&S is to integrate CAIS equipment and supporting instrumentation equipment and systems to provide a full airborne instrumentation operational capability. The Advanced Data Acquisition and Processing Systems (ADAPS) project provides an integrated capability to satisfy real-time first generation post-test data processing, archival, and display requirements of the next decade. The developmental approach is directed towards providing a high degree of interoperability between systems and components by adherence to Air Force and DoD guidelines. The technologies being developed under ADAPS have the potential to satisfy data processing and display needs at various multi-service test ranges. The AF Global Positioning System Range Applications Joint Program Office (GPS RAJPO) Equipment project provides funding for the purchase of production GPS equipment developed by the RAJPO (OSD funded) for tri-service application. The Space Based Data Relay (SBDR) project provides the capability for ARIA to fulfill customer needs for real time, high-speed data, and greatly improve the overall range data relay capability. The ARIA Extended S-Band Telemetry upgrade ensures the compatibility of the ARIA with the Expendable Launch Vehicles (ELV) and major DoD ranges.

(U) FY 1997 ($ in Thousands):

- (U) $5,941 Continued ARIA Space Based Data Relay program. Continued equipment installation/fabrication and #2 aircraft modification.
- (U) $3,210 Continued CAIS I&S development. Purchased CAIS components for AFFTC use. Continued TIMS development with automated setup of systems, automated diagnostics, and simulation capability. Began development of a CAIS optical bus interface unit.
- (U) $ 880 Completed purchase of RAJPO GPS equipment.
- (U) $5,329 IOC of ADAPS Real-Time /Post-Flight Processing (RT/PFP). Conducted user, operator, & maintenance training. Continued development of the AFFTC Post Test Analysis System (APTAS) and the Auxiliary Processing and Analysis System (APAS). Began GTI requirements studies and analysis.
- (U) $ 649 Completed the ARIA Extended S-Band equipment installation and modification project.
- (U) $16,009 Total

(U) FY 1998 ($ in Thousands):

- (U) $0 Not applicable.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0604759F Major Test And Evaluation Investment |
| | PROJECT<br>3620 |

(U) FY 1999 ($ in Thousands):

– (U) $0 Not applicable.

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 17,509 | 0 | 0 | Continuing |
| (U) Appropriated Value | 18,379 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -416 | | | |
| b. SBIR | -454 | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | -1500 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | | |
| (U) Current Budget Submit/FY 1999 President's Budget | 16,009 | 0 | 0 | Continuing |

(U) Change Summary Explanation:

Funding: None.

Schedule: None.

Technical: None.

**(U) C. Other Program Funding Summary ($ in Thousands): None**

**(U) D. Schedule Profile: N/A**

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605101F RAND Project Air Force

PROJECT: 1110

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 1110 Project Air Force | 21,236 | 18,370 | 21,168 | 20,934 | 20,680 | 20,947 | 21,415 | Continuing | Continuing |

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

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 directly 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. The principle focus of PAF research is the transition of the Air Force to the 21st Century: to provide for the projection of air and space power across the spectrum of conflict in an era of declining budgets, personnel and force structure. These programs address organizational cross-cutting issues encompassing the future security environment, strategy, doctrine, force development and force application, operational sustainment, applications of new technology, advances in modeling, simulation and analytical methods, resource management and system acquisition policies and processes.

(U) In FY 97, principal research efforts included studies on Chinese defense modernization and the USAF, air and space power in the service of national security in the 21st century, terrorism and counter-terrorism: implications for strategy and USAF planning, integrating USAF space operations, implications of unmanned air vehicles for the future shape of the Air Force, enhancing the effectiveness of air expeditionary forces, investment strategy for information operations, implementation of lean logistics, improved access to private sources of support, enhanced use of the commercial industrial base, and improved ways of measuring and forecasting air force readiness. Two major integrative efforts included assessing USAF roles in a joint context as support for USAF participation in the Quadrennial Defense Review (QDR) and analysis of the impact of specific force structure options considered by the Deep Attack Weapons Mix Study (DAWMS) on U.S. air superiority capability.

(U) During FY98 and FY99, research undertaken by Project AIR FORCE (PAF) will be driven by specific focus areas developed through the USAF long-range planning process, QDR / NDP (national defense panel) initiatives, and enduring areas of concern to USAF leadership. The research agenda is being designed to drive a specific 2-year, FY98/99, strategy. This 2-year strategy will establish major research activities in support of themes which focus on major external challenges and opportunities affecting USAF operations; institutionalization of the USAF vision and long range planning within doctrine, concepts and plans; integration of air and space operations; power projection forces; and, force mix and infrastructure.

(U) PAF research spans functional and organizational boundaries and is managed in a manner to facilitate independence and freedom from organizational bias providing perspectives and deliberative thought to senior Air Force leaders which may otherwise reflect parochial spins not necessarily in the best interest of the Air Force at large. As a result, the research conducted relates to a wide spectrum of Air Force activities and emerging issues.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 6 - Management and Support | PE NUMBER AND TITLE: 0605101F RAND Project Air Force |
| | PROJECT: 1110 |

(U) Benefits of independent non-Department of Defense analysis of complex present day and emerging issues are enjoyed beyond the immediacy of the Air Force. PAF study results are given wide dissemination within the DOD on a routine basis and 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) **Acquisition Strategy:** The RAND Project Air Force contract is a 5 year (base + 4 option yrs) Cost Plus / Award Fee contract

(U) FY 1997 ($ in Thousands):
- (U) $4,000 Strategy and Doctrine
- (U) $6,400 Force Employment and Modernization
- (U) $6,636 Resource Management and Systems Acquisition
- (U) $4,200 Integrative Research / Direct Support
- (U) $21,236 Total

(U) FY 1998 ($ in Thousands):
- (U) $4,100 Strategy and Doctrine
- (U) $6,400 Force Employment and Modernization
- (U) $5,770 Resource Management and Systems Acquisition
- (U) $2,100 Integrative Research / Direct Support
- (U) $18,370 Total

(U) FY 1999 ($ in Thousands):
- (U) $4,800 Strategy and Doctrine
- (U) $6,800 Force Employment and Modernization
- (U) $6,568 Resource Management and Systems Acquisition
- (U) $3,000 Integrative Research / Direct Support
- (U) $21,168 Total

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605101F RAND Project Air Force

PROJECT: 1110

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget FY1998 PB | 21,061 | 21,768 | 21,594 | Continuing |
| (U) Appropriated Value | 23,292 | 21,768 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -1,655 | -3,398 | | |
| b. SBIR | -576 | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | 175 | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -426 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 21,236 | 18,370 | 21,168 | Continuing |

(U) Change Summary Explanation (Funding):

- FY97 increase: $175K BTR to fund RAND support to a USAF Infrastructure analysis project
- FY99 reprogrammed $426K to fund higher priorities

(U) C. **Other Program Funding Summary ($ in Thousands)** Not Applicable

(U) D. **Schedule Profile**

| | FY1997 | | | | FY1998 | | | | FY1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Approve FY97 Research Plan | X | | | | | | | | | | | |
| (U) Draft FY98/99 Research Plan | | | | X | | | | | | | | |
| (U) Approve FY98/99 Research Plan | | | | X | | | | | | | | |
| (U) Annual Evaluation - FY97 | | | | | X | | | | | | | |
| (U) Adjust FY99 Research Plan | | | | | | | | X | | | | |
| (U) Annual Evaluation - FY98 | | | | | | | | | X | | | |
| (U) Draft FY00 Research Plan | | | | | | | | | | | | X |
| (U) Approve FY00 Research Plan | | | | | | | | | | | | X |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605306F Ranch Hand II Epidemiology Study

PROJECT: 2767

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2767 Ranch Hand II Epidemiology Study | 8,827 | 10,285 | 4,408 | 4,527 | 4,570 | 11,592 | 11,175 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) A. **Mission Description and Budget Item Justification:** This RDT&E Management Support program was directed in 1980 by the Assistant to the President of the United States for Domestic Affairs and Policy upon the recommendation of the Interagency Working Group on the Possible Long-Term Effects of Phenoxy Herbicides and Contaminants. As a result of this Presidential direction, PE 0605306F was established to conduct a 20-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. Dioxin is an unwanted by-product from manufacturing Herbicide Orange.

This project involves a 20-year study that compares United States Air Force (USAF) Ranch Hand personnel to other USAF crew members and support personnel who were not exposed to herbicides while serving in Vietnam. Approximately 2,200 individuals (exposed personnel group plus control group) are participating in the study. Analyses of yearly mortality rates and the past and present health status of the study population were begun in 1982 with follow-up health examination schedules 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.

(U) FY 1997 ($ in Thousands):

- (U) $6,196 Initiated fifth cycle of physical examinations, questionnaires, and participant data base; 1,078 examinations completed.
- (U) $ 241 Conducted assays and data searches in support of ongoing epidemiologic study.
- (U) $2,390 Processed and documented examination data.
  - (U) Began initial archiving of previous cycles' examination data and digitized the 1997 data as received.
  - (U) Conducted medical records coding and initiated verification of examination data base.
  - (U) Performed annual mortality analysis.
- (U) $8,827 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0605306F Ranch Hand II Epidemiology Study |
| | PROJECT<br>2767 |

(U) FY 1998 ($ in Thousands):

- (U) $7,732 Complete fifth cycle of physical examinations, questionnaires, and participant data base.
- (U) $ 376 Analyze laboratory specimens and conduct statistical research studies.
  - (U) Conduct serum dioxin assay.
  - (U) Analyze fat biopsies.
  - (U) Produce mathematical model to integrate mortality and morbidity data for analyses.
- (U) $2,177 Process and document examination data.
  - (U) Continue to verify physical examination data base.
  - (U) Accelerate archiving previous cycles' examination data and digitize the 1998 data as received.
  - (U) Conduct medical records coding.
  - (U) Perform annual mortality analysis.
  - (U) Conduct data analysis for journals and reports.
- (U) $10,285 Total

(U) FY 1999 ($ in Thousands):

- (U) $1,339 Complete examination data base and conduct statistical analyses of examination data.
- (U) $ 561 Analyze laboratory specimens and conduct statistical research studies.
  - (U) Conduct serum dioxin assays.
  - (U) Complete analyses of fat biopsies.
  - (U) Complete mathematical model to integrate mortality and morbidity data for analyses.
- (U) $2,508 Process and document examination data.
  - (U) Update participant data base.
  - (U) Continue archiving of examination data.
  - (U) Conduct medical records coding.
  - (U) Perform annual mortality analysis.
  - (U) Conduct data analysis for journals and reports.
- (U) $4,408 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0605306F Ranch Hand II Epidemiology Study |
| | PROJECT<br>2767 |

(U) B. **Program Change Summary ($ in Thousands):**

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 8,842 | 10,933 | 4,488 | Cont |
| (U) Appropriated Value | 9,212 | 10,933 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -200 | -451 | | |
| b. SBIR | -170 | -197 | | |
| c. Omnibus/Other Above Threshold Reprogrammings | | | | |
| d. Below Threshold Reprogrammings | | | | |
| e. Rescissions | -15 | | | |
| (U) Adjustments to Budget Year Since FY 1998 PB | | | -80 | |
| (U) Current Budget Submit/FY 1999 PB | 8,827 | 10,285 | 4,408 | Cont |

(U) Change Summary Explanation:

Funding: Funding levels vary due to timing of patient physical exams.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) C. **Other Program Funding Summary:** Not Applicable.

(U) D. **Schedule Profile:** Not Applicable.

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605712F Initial Operational Test & Eval

PROJECT: 0191

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 0191 Initial Operational Test & Evaluation (IOT&E) | 21,744 | 27,153 | 24,541 | 28,244 | 29,228 | 30,111 | 30,683 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) A. **Mission Description and Budget Item Justification:** IOT&E 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 (Milestone III). For major systems designated for use in combat, the law requires IOT&E be completed under realistic field conditions before proceeding beyond low rate initial production. As an essential element of IOT&E, this PE will fund major Operational Utility Evaluations (OUE), Early Operational Assessments (EOA) and Operational Assessments (OA) which support major milestones and decision points prior to Milestone III. IOT&E programs are identified in five categories: aircraft/support; space; missile/munitions; computer, communication, command and control and information (C4I); and general. This PE funds the costs of the test (e.g., data reduction, range costs, etc.), not the development of test resources or the maintenance of test infrastructure. 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.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 6 - Management and Support | PE NUMBER AND TITLE: 0605712F Initial Operational Test & Eval / PROJECT: 0191 |

(U) FY 1997 ($ in Thousands):

– (U) $ 5,998 (U) Category: Aircraft/Support. Conducted IOT&E on the F-22; Joint Strike Fighter (JSF); F- 15C/E TEWS; B-1 CMUP BLK D; B-1 CMUP BLK E; B-1B CMUP BLK F; CV-22; and other numerous systems.
- F-22: Developed and gained approval for the Operational Assessment Plan to support Low Rate Initial Production (LRIP). Conducted F-22 FMS Review. Developed modeling/simulation plan, F-15C Comparison Test Plan, Roll-up Methodology Model, and Integrated Data Processing Plan.
- JSF: Developed and implemented initial AFOTEC Test Concept. Initiated the development of Critical Operational Issues (COIs), Measures of Effectiveness (MOEs), and Measures of Performance (MOPs) with US Navy, US Marine Corps, and Air Combat Command.
- F-15 TEWS: The system provides self protection for F-15 aircraft. TEWS consists of four federated subsystems; the ALR-56 Radar Warning Receiver (RWR), the ALQ-135 Internal Countermeasures Set (ICS-a jammer), the ALQ-128 Electronic Warfare Warning Set (EWWS), and the ALE-45 Countermeasures Dispenser (CMD). The ALR-56C provides threat warning for F-15C/E aircraft. The Band 3 provides countermeasures for F-15C/E aircraft. Neither the ALR-56C, Band 3, or Bank 1.5 have ever undergone an IOT&E. All of the ALR-56Cs and Band 3s have been produced.
- B-1 CMUP Block D: Conducted Operational Assessment.
- B-1 CMUP Blocks E/F: Conducted advance planning.
- CV-22: Conducted Operational Assessment.

– (U) $ 5,498 (U) Category: Space. Conducted IOT&E on CMU-CMU; ICBM Minuteman III GRP; MILSTAR; Evolved Expendable Launch Vehicle (EELV); Space Based Infrared System (High); Space Based Infrared System-LOW ( SBIRS-LEO) and other numerous systems.
- CMU: Conducted Granite Shield and Air Mission Testing.
- ICBM GRP: Conducted Operational Assessment and modeling/simulation.
- MILSTAR: Complete Low Data Rate IOT&E and pre-test planning for MILSTAR II IOT&E
- EELV: Conducted Operational Assessment, IOT&E Pre-test planning and Modeling/Simulation.
- SBIRS (High): Conducted pre-test planning, modeling/simulation, validation verification & accreditation (VV&A) effectiveness model, ground and space segment survivability analysis, and manning, workload and performance assessment.
- SBIRS (Low): Conducted OT&E program readiness assessment, monitoring design and test activities, infrared sensor stimulation/risk reduction analysis (IRSS), hardware/software integration for flight test demo, hardbody radiation analysis, and pre-test planning.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 6 - Management and Support | PE NUMBER AND TITLE: 0605712F Initial Operational Test & Eval / PROJECT: 0191 |

| | |
|---|---|
| – (U) $ 2,452 | (U) Category: Missile/Munitions. - Conducted IOT&E on Joint Direct Attack Munitions (JDAM); Joint Standoff Weapon (JSOW); AIM-9X Air-to-Air (AIM-9X); and Joint Air-to Surface Stand-OFF Missile (JASSM).<br>- JDAM: Conducted test planning, operational assessment and IOT&E contractor support, target build-up, and range support.<br>- JSOW: Conducted test planning, test execution, contractor support, and range support.<br>- AIM-9X: Conducted Modeling/Simulation.<br>- JASSM: Oct 96 - Mar 97. Completed Evaluation Concept and started OT&E Test Plan including: test design matrix, refinement of test scenarios, development of JASSM survivability, damage and reliability methodology. Outlined preliminary Data Management Analysis Plan (DMAP). |
| – (U) $ 3,203 | (U) Category: Computer, Communication, Command and Control and Information System (C4 I). Conducted IOT&E on JTIDS Class 2 Terminal Multiservice (JTIDS CL2).<br>- JTIDS Class 2 Terminal: Conducted Multi-service IOT&E and range support. |
| – (U) $ 4,593 | (U) Category: General. Conducted IOT&E on Wind Corrected Munitions Dispenser (WCMD) and Chemical Hardened Air Transportable Hospital (CHATH) and other numerous systems.<br>- WCMD: System is a new tail kit designed to correct for launch transients, ballistic error from lofts, medium-and high altitude deliveries, and unknown winds between release point and function altitude for CBU (CEM/Gator/SFW) munitions. The combined DT/IOT&E supports an initial LRIP decision in Nov 97, a B-52 required assets available (RAA) data in Feb 97 and Milestone III in FY99.<br>- CHATH: Program is a modification to the currently-fielded Air Transportable Hospital (ATH). The additional configuration includes currently-fielded M-28 chemical liners and airlocks, and the developed chemically hardened air management plan (CHAMP), a four-to-one replacement for the ECU. The CHAMP provides the over-pressurization and filtered air needed to chemically harden the ATH. DT&E completed in Dec 96, system certification in Feb. 97, IOT&E testing 3 Mar - 7 Apr 97, and Milestone III decision in May 97. |
| – (U) $21,744 | Total |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 6 - Management and Support | PE NUMBER AND TITLE: 0605712F Initial Operational Test & Eval / PROJECT: 0191 |

(U) FY 1998 ($ in Thousands):

– (U) $ 9,743 (U) Category: Aircraft/Support. Conduct IOT&E on the F-22; Joint Strike Fighter (JSF); F-15 TEWS; B-1 CMUP BLK D; B-1 CMUP BLK E; B-1B CMUP BLK F; CV-22 and other numerous systems.
- F-22: Implement Operational Assessment plan and reporting results to LRIP. Finalize Roll-up Methodology Model and F-15C Comparison Test Plan and coordinate required range and aircraft requirements.
- JSF: Develop, coordinate with USN/USMC, and gain approval of Early Operational Assessment Plan. Prepare resource requirement plan and initiate resource acquisition.
- F-15 TEWS: Conduct suitability assessment, and type 1 training
- B-1B CMUP Block D: Conduct IOT&E testing.
- B-1B CMUP Block E: Conduct advance planning, contractor support modeling simulation
- B-1B CMUP Block F: Conduct advance planning, contractor support, fuze model development, Joint Modeling and Simulation System (JMASS), and end game interface work.
- CV-22: Conduct operational test.

– (U) $ 5,745 (U) Category: Space. Conduct IOT&E on CMU-CMU; ICBM-Minuteman III Guidance Program (ICBM-MMIII GRP); MILSTAR; Evolved Expendable Launch Vehicle (EELV); Space Based Infrared System-High; Space Based Infrared System-LOW ( SBIRS-LEO) and other numerous systems.
- CMU: Finish air mission testing, and Cheyenne Mountain testing.
- ICBM GRP: Modeling/Simulation, range support, and guidance replacement testing.
- MILSTAR: Participate in combined DT/OT.
- EELV: Conduct Operational Assessment, IOT&E pre-test planning, modeling/simulation
- SBIRS (HIGH): Modeling/simulation, Validation Verification and Accreditation (VV&A) Effectiveness models, ground and space segment survivability analysis, operational assessment of ground consolidation, hardware/software integration, and planning for FY99 IOT&E.
- SBIRS (LOW): OT&E Program Readiness Assessment, Modeling and Simulation, Test and Evaluation Planning; and pre-test planning.

– (U) $ 3,228 (U) Category: Missile/Munitions. Conduct IOT&E on Joint Direct Attack Munitions (JDAM); Joint Standoff Weapon (JSOW); AIM-9X Air-to-Air (AIM-9X); and Joint Air-to Surface Stand-OFF Missile (JASSM).
- JDAM: Conduct IOT&E testing, contractor support, and range support
- JSOW: IOT&E testing, phase II test planning and contract support
- AIM-9X: Data Reduction, DMAP production and modeling/simulation
- JASSM: Oct 97 - Jan 98 - Complete OT&E Test Plan; develop and provide program introduction document to test ranges; complete and brief Milestone II operational assessment; finalize CDT/OT plan with JPO and contractors, range costs including simulator initial checkout and possible simulator deployments.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 6 - Management and Support | PE NUMBER AND TITLE: 0605712F Initial Operational Test & Eval / PROJECT: 0191 |

– (U) $ 2,939 (U) Category: Computer, Communication, Command and Control and Information System (C4I). Conduct IOT&E on Region/Sector Air Operations Center (R/SAOC); and Joint Precision Approach and Landing System (JPALS) and other numerous systems.
- R/SAOC (formerly R/SOCC): Concept development and test plan developments.
- JPALS: Conducting Operational Test, contractor support, data analysis, data reduction, and range support.

– (U) $ 5,498 (U) Category: General. Conduct IOT&E on Wind Corrected Munitions Dispenser (WCMD) and other numerous systems.
- WCMD: IOT&E test continues at Eglin AFB FL, and Utah Test and Training Range. Dedicated IOT&E will employ inert munitions to evaluate multiple-wean deliveries and to measure CEP to an 80% confidence level.

– (U) $27,153 Total

(U) FY 1999 ($ in Thousands):

– (U) $ 8,720 (U) Category: Aircraft/Support. Conduct IOT&E on the F-22; Joint Strike Fighter (JSF); F-15C/E TEWS; B-1 CMUP BLK E; B-1B CMUP BLK F; CV-22 and other numerous systems.
- F-22 : Conduct F-15C Comparison Test open-air Testing; Conduct Operational Assessment to Support Certification Ready for IOT&E.
- JSF: Conduct Early Operation Assessment.
- F-15 TEWS: Conduct IOT&E testing.
- B-1B CMUP Block E: Advance planning, contractor support, and modeling/simulation.
- B-1B CMUP Block F: Advance Planning, contractor support, and fuze model development.
- CV-22: Contractor support for operational evaluation (OPEVAL)

– (U) $ 5,185 (U) Category: Space. Conduct IOT&E on CMU-CMU; MILSTAR; Evolved Expendable Launch Vehicle (EELV) and other numerous systems.
- CMU: Complete Cheyenne Mountain Testing.
- MILSTAR: Participate in combined DT/OT.
- EELV: Conduct Operational Assessment #2.

– (U) $ 2,961 (U) Category: Missile/Munitions. Conduct IOT&E for Joint Standoff Weapon (JSOW); AIM-9X Air-to-Air (AIM-9X); and Joint Air-to Surface Stand-OFF Missile (JASSM).
- JSOW: Conduct IOT&E testing, phase II testing planning, and contractor support.
- AIM-9X: Conduct data reduction, DMAP Production, and modeling/simulation.
- JASSM: Participate and accomplish CDT/OT; prepare for IOT&E (planned start Feb ). Provide manpower and equipment, and range cost including possible simulator deployment and early CDT/OT testing.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0605712F Initial Operational Test & Eval<br>PROJECT 0191 |

– (U) $ 2,705 (U) Category: Computer, Communication, Command and Control and Information System (C4I). Conduct IOT&E on Region/Sector Air Operation Center (R/SACC) and other numerous systems.
- R/SAOC (formerly R/SOCC): Conduct IOT&E testing

– (U) $ 4,970 (U) Category: General. Conduct IOT&E Casualty Care Systems; Base Intrusion Security Systems (BISS); Chemical Warfare Defense, Next Generation Generators and External Control Unit and other numerous systems.
- CCS: Test all newly developed flyaway transportable medical care systems.
- BISS: Conduct on-going tests of various commercial off-the-shelf and other personnel and asset protection techniques.
- CWD: AF focus of chemical protection programs.
- Next Generation Generator and External Control Units: Support the Airbase Operability Concept.

– (U) $24,541 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 6 - Management and Support | PE NUMBER AND TITLE: 0605712F Initial Operational Test & Eval / PROJECT: 0191 |

(U) B. **Program Change Summary ($ in Thousands):**

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 21,454 | 28,319 | 25,035 | Cont |
| (U) Appropriated Value | 21,921 | 28,319 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -467 | -1,166 | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogramming | | | | |
| d. Below Threshold Reprogramming | 290 | | | |
| e. Rescissions | | | | |
| (U) Adjustment to Budget Years Since FY 1998 PB | | | -494 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 21,744 | 27,153 | 24,541 | Cont |

(U) **Change Summary Explanation:**

Funding: FY97 general reductions of $467 thousand and below threshold reprogramming of $290 thousand for Precision Landing System Receiver. FY98 general reductions of $1,166 thousand. FY99 adjustment of $494 thousand due to revised inflation indices.

Schedule: None.

Technical: None.

(U) C. **Other Program Funding Summary ($ in Thousands):** Not applicable.

(U) D. **Schedule Profile:** IOT&E is not an acquisition program. There are dozens of IOT&E programs in any one fiscal year. The AFOTEC automated test resource plan database does not provide quarterly IOT&E test schedules. However, specific IOT&E schedules can be made available on a case-by-case basis through the appropriate AFOTEC test resource management office.

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605807F Test And Evaluation Spt

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 413,892 | 372,496 | 370,168 | 393,523 | 375,245 | 389,363 | 406,804 | Continuing | TBD |
| 06TS Test and Evaluation Support (1,4) | 307,564 | 351,502 | 348,933 | 370,339 | 353,860 | 365,017 | 382,042 | Continuing | TBD |
| 06TG 46 Test Group | 19,828 | 20,994 | 21,235 | 23,184 | 21,385 | 24,346 | 24,762 | Continuing | TBD |
| 06AS Aircraft Support (2) | 11,431 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | TBD |
| 06MC Minor Construction (3,4) | 3,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | TBD |
| 06MR Maintenance and Repair (3,4) | 71,569 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(1) Beginning in FY98, all test support mission requirements and their associated funding are consolidated in projects 06TS and 06TG of PE 0605807F. All test support aircraft requirements and funding were realigned to 06TS for FY98-03 (formerly in project 06AS for FYs 96 and 97). Also consolidated in project 06TS starting in FY98 are the test facility maintenance, repair and minor construction requirements formerly funded in projects 06MR and 06MC. Those two projects captured both test and non-test requirements in FYs 96 and 97. In FY98, the non-test maintenance and repair and minor construction requirements (i.e., in support of non-test general installation infrastructure such as dormitories, general purpose buildings) were transferred to PE 0605878F (Maintenance and Repair) and PE 0605876F (Minor Construction), respectively, thus carving out the non-test requirements and placing them in PEs whose nomenclature mirrors the rest of the Air Force's base support functions.

(2) Aircraft Support requirements and funding moved to Test and Evaluation Support, project 06TS, for FYs 98-03.

(3) In FY98, funding for Minor Construction, 06MC was transferred to PE 0605876F, and funding for Maintenance and Repair, project 06MR was transferred to PE 0605878F. The total program content and funding transfer from PE 0605807F to these PE's was approximately 75% through FY98-03. The remaning 25% was transferred to project 06TS for specific test mission support requirements.

(4) In FY99 and outyears, the non-test maintenance and repair and minor construction requirements were transferred from RDT&E to O&M (PEs 0702878F, AFMC Maintenance and Repair; and PE 0702876F, Minor Construction) to support DoD's policy revision to fund base operating non-test functions in the O&M appropriation. This FY99 and outyear transfer did not affect this program element's content or funding because of the reasons stated above in notes (1) and (3).

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0605807F Test And Evaluation Spt |

(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, maintenance and repair of test facilities, 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 predominately awarded on the basis of full and open competition. This program element is in Budget Activity 6, RDT&E Management Support, because it funds 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. **Program Change Summary ($ in Thousands)**:

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 414,901 | 389,348 | 389,527 | Cont |
| (U) Appropriated Value | 425,195 | 387,848 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -8,998 | -15,352 | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | -1,689 | | | |
| e. Rescissions | -616 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -19,359 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 413,892 | 372,496 | 370,168 | Cont |

(U) Change Summary Explanation:

Funding: FY97 below threshold reprogramming of $1,689 thousand for Base Operations Support requirements at Eglin, Edwards and Arnold AFBs. FY98 changes are due to general reductions. FY99 budget reduction reflects a revised test infrastructure maintenance, repair and base support program in order to meet only the most critical and urgent requirements needed to sustain FY99 operations.

Schedule: None.

Technical: None.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0605807F Test And Evaluation Spt |

(U) C. **Other Program Funding Summary ($ in Thousands):** Not applicable.

Related RDT&E:
(U) PE 0604759F, Major T&E Investment (Technical capability improvement and modernization)
(U) PE 0604256F, Threat Simulator Development
(U) PE 0604940D, Central Test & Evaluation Improvement Program (T&E investments for new tri-service test capabilities)

(U) D. **Schedule Profile:** Most all T&E support requirements are continuous and are not driven by discrete start/end dates.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605807F Test And Evaluation Spt

PROJECT: 06TS

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 06TS Test and Evaluation Support (1,4) | 307,564 | 351,502 | 348,933 | 370,339 | 353,860 | 365,017 | 382,042 | Continuing | TBD |

(1) FY98 requirements and funding increased for Test and Evaluation Support, project 06TS, to reflect a transfer of test mission maintenance and repair and minor construction requirements formerly identified in projects 06MR and 06MC, respectively. Likewise, all content in PE 0605896F (RDT&E Base Operations Support) that was more accurately identified as test support has been transferred to this project effective starting in FY98. In addition, all aircraft support requirements and funding (FYs 98-03) are now reflected in this project for FY98-03 (formerly in project 06AS). The cumulative effect of these changes carves out test from non-test, aligns test vs non-test requirements in their appropriate PEs, and shows a more accurate accounting for both test support and base support functions.

(U) A. **Mission Description and Budget Item Justification:** This project provides resources to operate the Air Force test activities which are included in the Department of Defense (DoD) Major Range and Test Facility Base (MRTFB). Test facilities/capabilities operated through this program include wind tunnels, rocket and jet engine test cells, limited space environmental simulation chambers, armament test ranges, climatic test facilities, avionics test facilities, aircraft testbeds, dry lakebed landing sites, instrumented test ranges, and test aircraft maintenance. T&E Support funds test infrastructure overhead activities including: Command and supervisory staffs; supply stocks; maintenance, repair, and replacement of worn or obsolete test equipment and facilities; test infrastructure for data collection, transmission, reduction, and analysis; civilian salaries; temporary duty travel; support contract costs for hardware and software engineering and maintenance; and minor improvement and modernization projects. It also funds overhead test aircraft depot level maintenance such as: Programmed Depot Maintenance (PDM), the calendar-based cyclic scheduling of aircraft into depots for update/inspection; modifications and any other depot level repairs required by the aircraft System Program Directors (SPD); engine overhauls; depot-provided area assistance; and assorted ground support equipment overhauls. Three major Air Force test centers are supported by this project: (1) Arnold Engineering and Development Center (AEDC), located at Arnold Air Force Base, TN, whose test infrastructure overhead supports operations for the largest complex of ground test facilities in the free world (includes transonic, supersonic, and hypersonic wind tunnels; rocket motor and turbine engine test cells; space environmental test chambers, hyperballistic ranges; and other specialized facilities). (2) Air Force Flight Test Center (AFFTC), located at Edwards AFB, CA, whose test infrastructure overhead supports weapons system development and operational test and evaluation for aircraft, aircraft subsystems and aircraft weapon systems, aerospace research vehicles, unmanned miniature vehicles, cruise missiles, parachute delivery/recovery systems, cargo handling systems, and Electronic Warfare (EW) systems for DoD and allied forces. The AFFTC mission includes the USAF Test Pilot School. (3) Air Force Development Test Center (AFDTC), located at Eglin AFB, FL, whose test infrastructure overhead supports development testing of non-nuclear air armaments (including aircraft guns, ammunition, bombs, and missiles). AFDTC provides a scientific test process that supports the development and enhancement of munitions systems. T&E support services contracts are severable and are awarded on the basis of full and open competition.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 6 - Management and Support | PE NUMBER AND TITLE: 0605807F Test And Evaluation Spt / PROJECT: 06TS |

(U) FY 1997 ($ in Thousands):

**Arnold Engineering and Development Center**

- (U) $ 111,625 Provided test infrastructure overhead support to enable ground testing for classified programs, and unclassified programs (F-22, Joint Direct Attack Munition (JDAM), F-15, F-16, Joint Strike Fighter (JSF), B-1B, B-2, C-130, Advanced Medium Range Air to Air Missile (AMRAAM), AIM 9X, Minuteman, Evolutionary Expendable Launch Vehicle (EELV), Titan IV and F-18).

**Aircraft Modification Directorate**

- (U) $ 2,000 Funded indirect labor and supporting expenses (training, travel, office supplies, etc.) and support services required for the aircraft modification mission.

**Air Force Flight Test Center**

- (U) $ 96,250 Provided test infrastructure overhead support enabling testing of the B-1B, B-2, F-16, F-15, F-15E, F-22, Advanced Fighter Technology Integration (AFTI)/F-16, C-17, Avionics Test and Integration Complex (ATIC), Advanced Range Instrumentation Aircraft (ARIA), Electronic Combat Countermeasures (ECCM), Electronic Warfare (EW) (B-1B ALQ-161, F-16 AN/ASQ-213, C-130 ALQ-172, etc.), and classified programs.
- (U) $ 18,600 USAF Test Pilot School operating costs.

**Air Force Development Test Center**

- (U) $ 68,239 Provided test infrastructure support for non-nuclear air armaments (AMRAAM, SEEK EAGLE, Theater Missile Defense (TMD), JDAM, Joint Stand-Off Weapon (JSOW), Wind Corrected Munitions Dispenser (WCMD), Joint Air to Surface Standoff Missile (JASSM) etc.); Command, Control, Communications, Computers and Information (C4I) / Command and Control Consolidated Test Force (C2CTF) (Joint Targeting Information Display System (JTIDS), Base and Installation Security System (BISS), TMD, Theater Battle Management Core System (TBMCS), and aircraft software upgrades (Air Force Mission Support System (AFMSS).

**Service Requirements**

- (U) $9,900 DFAS financial reporting services payment
- (U) $ 450 Federal Workforce Restructuring Act (FWRA) payment
- (U) $ 500 Vision 21 Support
- (U) $307,564 Total

(U) FY 1998 ($ in Thousands):

**Arnold Engineering and Development Center**

- (U) $110,209 Continue test infrastructure overhead support to enable ground testing for classified programs, and unclassified programs (F-22, JDAM, F-15, F-16, JSF, B-1B, B-2, C-130, AMRAAM, AIM 9X, Minuteman, EELV, Titan IV and F-18). Begin test infrastructure overhead support for Tunnel 9 that was transferred from the Navy to the USAF effective 1 Oct 97.
- (U) $ 13,331 T&E specific Base Operating Support (BOS) requirements
- (U) $ 15,922 Maintenance, repair and minor construction for test infrastructure requirements.

- (U) $ 15 Federal Workforce Restructuring Act (FWRA) payment

**Air Force Flight Test Center**

- (U) $ 99,078 Continue to provide test infrastructure overhead support enabling testing of the B-1B, B-2, F-16, F-15, F-15E, F-22, AFTI/F-16, C-17, ATIC, ARIA, ECCM, EW (B-1B ALQ-161, F-16 AN/ASQ-213, C-130 ALQ-172, etc.), and classified programs.
- (U) $ 18,900 USAF Test Pilot School operating costs.
- (U) $ 3,464 T&E specific BOS requirements
- (U) $ 10,541 Programmed Depot Maintenance and engine overhauls for aircraft assigned to AFFTC.
- (U) $ 1,460 Maintenance, repair and minor construction for test infrastructure requirements.
- (U) $ 148 Federal Workforce Restructuring Act (FWRA) payment

**Air Force Development Test Center**

- (U) $ 66,775 Continue test infrastructure overhead support for non-nuclear air armaments (AMRAAM, SEEK EAGLE, TMD, JDAM, JSOW, WCMD, etc.); C4I (JTIDS, BISS, TMD), and aircraft software upgrades.
- (U) $ 6,901 T&E specific BOS requirements
- (U) $ 3,220 Programmed Depot Maintenance and engine overhauls for aircraft assigned to AFDTC.
- (U) $ 1,430 Maintenance, repair and minor construction for test infrastructure requirements.
- (U) $ 108 Federal Workforce Restructuring Act (FWRA) payment
- (U) $351,502 Total

(U) FY 1999 ($ in Thousands):

**Arnold Engineering and Development Center**

- (U) $111,080 Continue test infrastructure overhead support to enable ground testing for classified programs, and unclassified programs (F-22, JDAM, F-15, F-16, JSF, B-1B, B-2, C-130, AMRAAM, AIM 9X, Minuteman, EELV, Titan IV and F-18). Continue Tunnel 9 infrastructure support.
- (U) $ 13,436 T&E specific BOS requirements
- (U) $ 16,376 Maintenance, repair and minor construction for test infrastructure requirements.

**Air Force Flight Test Center**

- (U) $ 99,264 Continue to provide test infrastructure overhead support enabling testing of the B-1B, B-2, F-16, F-15, F-15E, F-22, AFTI/F-16, C-17, ATIC, ARIA, ECCM, EW (B-1B ALQ-161, F-16 AN/ASQ-213, C-130 ALQ-172, etc.)
- (U) $ 19,200 USAF Test Pilot School operating costs.
- (U) $ 11,456 Programmed Depot Maintenance and engine overhauls for aircraft assigned to AFFTC.
- (U) $ 3,569 T&E specific BOS requirements
- (U) $ 1,760 Maintenance, repair and minor construction for test infrastructure requirements.

**Air Force Development Test Center**

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 6 - Management and Support | PE NUMBER AND TITLE: 0605807F Test And Evaluation Spt / PROJECT: 06TS |

- (U) $ 60,572 Continue test infrastructure support for non-nuclear air armaments (AMRAAM, SEEK EAGLE, TMD, JDAM, JSOW, WCMD, JASSM etc.); C4I/C2CTF (JTIDS, BISS, TMD,TBMCS), and aircraft software upgrades (AFMSS).
- (U) $ 2,632 Programmed Depot Maintenance and engine overhauls for aircraft assigned to AFDTC.
- (U) $ 7,778 T&E specific BOS requirements
- (U) $ 1,810 Maintenance, repair and minor construction for test infrastructure requirements.
- (U) $348,933 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0605807F Test And Evaluation Spt | PROJECT<br>06TS |

(U) B. Program Change Summary ($ in Thousands):

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 306,651 | 367,175 | 366,258 | Cont |
| (U) Appropriated Value | 314,101 | 366,045 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -4,834 | -14,543 | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | -1,248 | | | |
| e. Rescissions | -455 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -17,325 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 307,564 | 351,502 | 348,933 | Cont |

(U) Change Summary Explanation:

Funding: FY97 below threshold reprogramming of $1,248 thousand for Base Operations Support requirements at Eglin, Edwards and Arnold AFBs.

Funding FY98:

AFDTC: Reductions to Management Support funds will result in 1) deferment of purchasing Depot Level Reparables to support test proficiency training; 2) level of effort for the Eglin Range support contract has been decreased to provide support only for priority T&E programs causing delays to customer test schedules; 3) decrease to funding of the Precision Measurement Equipment Laboratory (PMEL) will result in backlog of equipment calibration for test programs and for AFDTC tenant organizations including the 33rd Fighter Wing, 16th Special Operations Wing, 20th Space Surveillance Squadron, and the Eglin Regional Hospital; 4) decrease in funding to Transient Alert services resulting in reduction from 24 hour support to 8 hours per day. FY98 reductions were also taken by reducing the level of effort in T&E BOS and MR/MC. The permanent fix to the roof of lean-to offices of Hangar 71 will be deferred. These offices house program offices, test engineers, and computer systems. Continuous leaks are causing continuing power outages and water damage. Building 73 Fire Detection System upgrade and installation will be deferred. Unfunded T&E BOS and MR./MC requirements are deferred to FY99 and out..

Funding FY99:

AFDTC: Reductions to Management Support funding resulted in: 1) the elimination of AFDTC two test support helicopters resulting in the loss of a low velocity sensor test bed, the loss of capability to support programs in remote parts of the Eglin Range, and elimination of instantaneous support for emergency situations on Eglin Range; 2) reduction of T&E munitions support to Foreign Military technology evaluation programs will result in delays to and decreases in the level of support to joint AF-Foreign Military munitions development programs and foreign technology evaluation programs; 3) deferment of the replacement of computer workstations supporting test programs and AFDTC support operations . Funding to support DLRs, PMEL, and Transient Alert will continue to be decreased. Only the most critical T&E BOS and MR/MC requirements continue to be funded. Several facility projects including the installation of a fire detection system, the repair of Foreign Object Damage (FOD) prevention grates around AFDTC hangars, the repair of hangar doors and weather sealing, and repair of water damaged offices (due to leaking roofs) will be postponed. Unfunded requirements are deferred to FY00 and out.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0605807F Test And Evaluation Spt |
| PROJECT<br>06TS | |

Schedule: None.

Technical: None.

(U) **C. Other Program Funding Summary ($ in Thousands):** Not applicable.

Related RDT&E:
(U) PE 0604759F, Major T&E Investment (Technical capability improvement and modernization)
(U) PE 0604256F, Threat Simulator Development
(U) PE 0604940D, Central Test & Evaluation Improvement Program (T&E investments for new tri-service test capabilities)

(U) **D. Schedule Profile:** Most T&E test infrastructure overhead requirements are continuous and are not driven by discrete start/end dates.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605807F Test And Evaluation Spt

PROJECT: 06TG

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 06TG 46 Test Group | 19,828 | 20,994 | 21,235 | 23,184 | 21,385 | 24,346 | 24,762 | Continuing | TBD |

(U) A. **Mission Description and Budget Item Justification:** This project funds test infrastructure overhead 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 facilities: Central Inertial Guidance Test Facility (CIGTF), the High Speed Test Track (HSTT), and the Radar Target Scatter (RATSCAT) facility. CIGTF provides independent assessments of inertial components, aircraft navigation systems, and missile guidance systems. HSTT 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. RATSCAT 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 46th TG support services contracts are severable and are awarded on the basis of full and open competition.

(U) FY 1997 ($ in Thousands):

- (U) $3,598 Central Inertial Guidance Test Facility (CIGTF): FY97 supported test programs such as Advanced Inertial Concepts (AICON), continued Global Positioning System-Joint Program Office (GPS-JPO) Responsible Test Organization RTO responsibilities, Project 2000 integration support, GPS jamming and electronic countermeasures, NAVWAR, Federal Aviation Administration (FAA) Wide Area Augmentation System, GPS integrated and embedded INS programs, aircraft navigation systems, including B-2 and F-22, munitions navigation systems such as JDAM and other programs.
- (U) $4,845 Holloman High Speed Test Track (HHSTT): Provided infrastructure test support (including full-scale testing simulating in-flight environments, realistic live-fire simulations, test item and target fragment recovery, precision trajectory analysis, and high speed photography) for the F-22A Ejection System, 4th Generation Ejection Seat, Standard Missile (SM) 2 Seeker, SM 2 Live Fire T&E (LFT&E), Patriot Advanced Capability (PAC) 3 LFT&E, Theater High Altitude Area Defense (THAAD) LFT&E, Special Operation Forces (SOF) Directed Infrared Countermeasures (DIRCM), Advanced Inertial Concepts (AICON) missile navigation system, and other programs.
- (U) $4,214 Radar Target Scatter (RATSCAT) facility: Provided infrastructure test support for programs such as static RCS testing for stores, low observable testbeds, and other classified programs.
- (U) $7,171 46th Test Group Headquarters (46TG). Provided command guidance, resource management, plans and programs, protection services, information systems, logistics, liaison support and scheduling for WSMR airspace, photo and safety chase, support of air-to-air and air-to-ground live fire, life support equipment services, and aerospace ground equipment support.
- (U) $19,828 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0605807F Test And Evaluation Spt |
| | PROJECT<br>06TG |

(U) FY 1998 ($ in Thousands):

- (U) $4,411 Central Inertial Guidance Test Facility (CIGTF): Provide infrastructure test support for programs such as AICON, continued GPS-JPO RTO responsibilities, Project 2000 integration support, GPS jamming and electronic countermeasures, NAVWAR, FAA Wide Area Augmentation System, GPS integrated and embedded INS programs, aircraft navigation systems, including B-2 and F-22, munitions navigation systems such as JDAM and other programs.
- (U) $5,562 Holloman High Speed Test Track (HSTT) : Provide infrastructure test support for the F-22A Ejection System, Russion K-36 Derivative Ejection Seat, Standard Missile (SM) 2 Seeker, SM 2 Forward Looking Fuze, SM-2 Live Fire T&E (LFT&E), Patriot Advanced Capability (PAC) 3 LFT&E, Theater High Altitude Area Defense (THAAD) LFT&E, Army Tactical Infrared Countermeasure System (ATIRCMS) Phase II, Long-Range Fiber Optic Guided (LONGFOG) missile, and other programs.
- (U) $5,392 Radar Target Scatter (RATSCAT) facility: Provide infrastructure test support for programs such as static RCS testing for stores, low observable testbeds, and other classified programs.
- (U) $5,629 46th Test Group Headquarters (46TG). Provide command guidance, resource management, plans and programs, protection services, information systems, logistics, liaison support and scheduling for WSMR airspace, photo and safety chase, support of air-to-air and air-to-ground live fire, life support equipment services, and aerospace ground equipment support.
- (U) $20,994 Total

(U) FY 1999 ($ in Thousands):

- (U) $4,592 Central Inertial Guidance Test Facility (CIGTF): Provide infrastructure test support for programs such as AICON, continued GPS-JPO RTO responsibilities, Project 2000 integration support, GPS jamming and electronic countermeasures, NAVWAR, FAA Wide Area Augmentation System, GPS integrated and embedded INS programs, aircraft navigation systems, including B-2 and F-22, munitions navigation systems such as JDAM and other programs.
- (U) $5,790 Holloman High Speed Test Track (HHSTT): Provide infrastructure test support (including full-scale testing simulating in-flight environments, realistic live-fire simulations, test item and target fragment recovery, and precision trajectory analysis and high speed photography) for the F-22A Ejection System, Advanced Concepts Escape system (ACES) II continuous Improvement Program (CIP), Standard Missile (SM) 2 Seeker, SM 2 LFT&E, SM 3 LFT&E, Patriot Advanced Capability (PAC) 3 Live Fire T&E (LFT&E), Theater High Altitude Area Defense (THAAD) LFT&E, and other programs.
- (U) $5,613 Radar Target Scatter (RATSCAT) facility: Provide infrastructure test support for programs such as static RCS testing for stores, low observable testbeds, and other classified programs.
- (U) $5,240 46th Test Group Headquarters (46TG). Provide command guidance, resource management, plans and programs, protection services, information systems, logistics, liaison support and scheduling for WSMR airspace, photo and safety chase, support of air-to-air and air-to-ground live fire, life support equipment services, and aerospace ground equipment support.
- (U) $21,235 Total

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605807F Test And Evaluation Spt

PROJECT: 06TG

(U) B. Program Change Summary ($ in Thousands):

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 20,154 | 22,173 | 23,269 | Cont |
| (U) Appropriated Value | 21,094 | 21,803 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional Reductions | -1,151 | -809 | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | -84 | | | |
| e. Rescissions | -31 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -2,034 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 19,828 | 20,994 | 21,235 | Cont |

(U) Change Summary Explanation:

Funding FY97: Below threshold reprogramming of $84 thousand for Base Operations Support requirements at Eglin, Edwards and Arnold AFBs.

Funding FY98: Funding cuts push improvement of aging T&E equipment and facilities to FY99 and out. This increases the length of a standard test program. The level and quality of test products also suffer. Specifically 46 Test Group has delayed the upgrade of itsTime Space Position Information (TSPI) system. Under the new Federal Communication Commission (FCC) spectrum reallocation regulations, the range of the existing TSPI system is limited, severely impacting navigation and Global Positioning System (GPS) testing. Replacement of HHSTT video test recording system has been delayed. This new digital recording system would increase the amount of data collected while decreasing costs. The GPS Modeling and Simulation laboratory has delayed the upgrade of its VAX computer workstations. Currently the capabilitites of the lab are limited by the software available for the VAX computers.

Funding FY99: Funding cuts in FY99 will impact several upgrade projects to 46TG's aging test infrastructure. The RATSCAT Advance Measurement System will have to defer the modernization of its special access required (SAR) data room. Currently there is only one SAR data room. This greatly limits the number of SAR programs that can be accomplished. The addition of an additional SAR data room would increase the number of tests that can be simultaneously accomplished. The HHSTT currently has one aging Multi-Axis Seat Ejection (MASE) Sled. This sled supports the F-22 ejection seat program and the 4th Generation Ejection Seat Program. This is the only sled of its kind and is a single-point failure for nuimerous DoD programs. The addition of a second MASE sled will be postponed.

Schedule: None.
Technical: None.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 6 - Management and Support | PE NUMBER AND TITLE: 0605807F Test And Evaluation Spt / PROJECT: 06TG |

(U) C. **Other Program Funding Summary ($ in Thousands):** Not applicable.

Related RDT&E:
(U) PE 0604759F, Major T&E Investment (Technical capability improvement and modernization)
(U) PE 0604256F, Threat Simulator Development
(U) PE 0604940D, Central Test & Evaluation Improvement Program (T&E investments for new tri-service test capabilities)

(U) D. **Schedule Profile:** 46TG infrastructure support operations are continuous and are not driven by discrete start/end dates.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605807F Test And Evaluation Spt

PROJECT: 06AS

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 06AS Aircraft Support (2) | 11,431 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | TBD |

(U) A. **Mission Description and Budget Item Justification:** The RDT&E aircraft support program provides resources for maintaining Air Force Materiel Command (AFMC) assigned test and test support coded aircraft whose flying missions support the Department of Defense Major Range and Test Facility Base (MRTFB). This program supports a multitude of mission designs and configurations, with many prototype, preproduction, and extensively modified/instrumented one-of-a-kind aircraft. Funds pay for overhead test infrastructure depot level maintenance such as: Programmed Depot Maintenance (PDM), the calendar-based cyclic scheduling of aircraft into depots for update/inspection; modifications and any other depot level repairs required by the aircraft System Program Directors (SPD); engine overhauls; depot-provided area assistance; and assorted ground support equipment overhauls. Aircraft Support requirements and funding moved to Test and Evaluation Support, project 06TS, for FYs 98-03. This change eliminates the misunderstanding that Aircraft Support requirements are independent of Test and Evaluation Support when they are, in fact, dependent on one another, contribute to the same mission, and operate under the same reimbursable guidelines. Aircraft Support services and provided via project orders to AF Working Capital Fund (AFWCF) business areas located at the AF logistics centers.

(U) FY 1997 ($ in Thousands):
- (U) $ 8,022 AFFTC aircraft programmed depot maintenance and special purpose vehicles maintenance.
- (U) $ 2,021 AFFTC aircraft engine overhauls
- (U) $ 1,122 AFDTC aircraft programmed depot maintenance and special purpose vehicles maintenance.
- (U) $ 266 AFDTC aircraft engine overhauls
- (U) $11,431 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 Not applicable.

(U) FY 1999 ($ in Thousands):
- (U) $0 Not applicable.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0605807F Test And Evaluation Spt | PROJECT<br>06AS |

(U) B. **Program Change Summary ($ in Thousands):**

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 11,899 | 0 | 0 | Cont |
| (U) Appropriated Value | 12,161 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional Reductions | -664 | | | |
| b. Bosnia supplemental | -18 | | | |
| c. Below Threshold Reprogramming | -48 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | | |
| (U) Current Budget Submit/FY 1999 President's Budget | 11,431 | 0 | 0 | Cont |

(U) Change Summary Explanation:

Funding: Funding: FY97 below threshold reprogramming of $48 thousand for Base Operations Support requirements at Eglin, Edwards and Arnold AFBs.

Schedule: None.

Technical: None.

(U) C. **Other Program Funding Summary ($ in Thousands):** Not applicable.

Related RDT&E:
(U) PE 0604759F, Major T&E Investment (Technical capability improvement and modernization)
(U) PE 0604256F, Threat Simulator Development
(U) PE 0604940D, Central Test & Evaluation Improvement Program (T&E investments for new tri-service test capabilities)

(U) D. **Schedule Profile:** PDM schedules vary for each aircraft type every year; engine overhauls are tied to usage factors. Detailed data are available upon request.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605807F Test And Evaluation Spt

PROJECT: 06MC

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 06MC Minor Construction (3,4) | 3,500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | TBD |

(1) Approximately 50% of FY98-03 content and funding for Minor Construction, project 06MC, was transferred to PE 0605876F. This transfer provides better focus and alignment of resources for non-test, common base operations support functions at Arnold, Eglin and Edwards AFBs. The other 50% of content was identified specifically as test mission support requirements and accordingly transferred to project 06TS.

(U) A. **Mission Description and Budget Item Justification:** This project provides essential minor construction at three AFMC installations: Eglin AFB FL, Edwards AFB CA, and Arnold AFB TN. Physical plant maintained by this account covers 800,000 acres of land; over four thousand structures in excess of 30 years old encompassing fifteen million square feet; over five million square yards of airfield pavement; 1900 miles of road network; utility systems that include 120 wells, 10 sewage treatment plants, 20 substations and over 1600 miles of high voltage electrical distribution lines. Minor construction contracts are awarded on the basis of full and open competition.

(U) FY 1997 ($ in Thousands):

–(U) $3,500 Financed in-house work performed by government employees (to include supplies, materials and equipment). Finance construction of Human Resource Development Computer Laboratory, replace plenum escape system transformer and add 16KV circuit breaker to plenum escape system substation; and finance addition to equipment research laboratory and provide additional well reservoir.

– (U) $3,500 Total

(U) FY 1998 ($ in Thousands):

– (U) $0 Not applicable.

(U) FY 1999 ($ in Thousands):

– (U) $0 Not applicable.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 6 - Management and Support | PE NUMBER AND TITLE: 0605807F Test And Evaluation Spt / PROJECT: 06MC |

(U) B. **Program Change Summary ($ in Thousands):**

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 3,640 | 0 | 0 | Cont |
| (U) Appropriated Value | 3,717 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional Reductions | -197 | | | |
| b. Bosnia supplemental | -5 | | | |
| c. Below Threshold Reprogramming | -15 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | | |
| (U) Current Budget Submit/FY 1999 President's Budget | 3,500 | 0 | 0 | Cont |

(U) Change Summary Explanation:

Funding: Funding: FY97 below threshold reprogramming of $15 thousand for Base Operations Support requirements at Eglin, Edwards and Arnold AFBs.

Schedule: None.

Technical: None.

(U) C. **Other Program Funding Summary ($ in Thousands):** Not applicable.

(U) D. **Schedule Profile:** Numerous minor construction requirements are executed each year . Detailed data available upon request.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605807F Test And Evaluation Spt

PROJECT: 06MR

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 06MR Maintenance and Repair (3,4) | 71,569 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | TBD |

(1) Approximately 75% of FY98-03 content and funding for Maintenance and Repair, project 06MR, was transferred to PE 0605878F. This transfer provides better focus and alignment of resources for non-test, common base operations support functions at Arnold, Eglin and Edwards AFBs. The other 25% was identified specifically as test facility maintenance and repair requirements and was accordingly transferred to project 06TS.

(U) A. **Mission Description and Budget Item Justification:** This project provides essential Real Property Maintenance and Repair at three AFMC Bases whose host units are MRTFB activities: Eglin AFB FL, Edwards AFB CA, and Arnold AFB TN. Physical plant maintained by this account covers 800,000 acres of land; over four thousand structures in excess of 30 years old encompassing fifteen million square feet; over five million square yards of airfield pavement; 1900 miles of road network; utility systems that include 120 wells, 10 sewage treatment plants, 20 substations and over 1600 miles of high voltage electrical distribution lines. Maintenance and Repair contracts for services or projects are awarded on the basis of full and open competition.

(U) FY 1997 ($ in Thousands):
- (U) $37,195 Financed in-house work force.
- (U) $13,661 Repaired refrigerant insulation, rotor discs, gaseous helium refrigerators, heaters in air processing system and water control valves.
- (U) $12,215 Repaired various roads, underground cable, HVAC (heating, ventilation and air conditioning), airfield pavement, electrical distribution lines , and asbestos abatement, seismic studies, and re-roof buildings.
- (U) $8,498 Repaired "unsatisfactory" conditions as determined by the Commander's Facility Assessment.
- (U) $71,569 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 Not applicable.

(U) FY 1999 ($ in Thousands):
- (U) $0 Not applicable.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 6 - Management and Support | PE NUMBER AND TITLE: 0605807F Test And Evaluation Spt / PROJECT: 06MR |

(U) B. **Program Change Summary ($ in Thousands):**

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 72,557 | 0 | 0 | Cont |
| (U) Appropriated Value | 74,122 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional Reductions | -2,152 | | | |
| b. Bosnia supplemental | -107 | | | |
| c. Below Threshold Reprogramming | -294 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | | |
| (U) Current Budget Submit/FY 1999 President's Budget | 71,569 | 0 | 0 | Cont |

(U) Change Summary Explanation:

Funding: Funding: FY97 below threshold reprogramming of $294 thousand for Base Operations Support requirements at Eglin, Edwards and Arnold AFBs.

Schedule: None.

Technical: None.

(U) C. **Other Program Funding Summary ($ in Thousands):** Not applicable.

(U) D. **Schedule Profile:** Maintenance and repair of real property is level of effort and not tied to discrete start/end dates.

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605808F Development Planning

PROJECT: 3361

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3361 Mission & System Planning | 6,401 | 4,270 | 6,075 | 5,800 | 5,860 | 5,951 | 6,103 | TBD | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

This Program Element (PE) supports the Air Force Modernization Planning Process (MPP), which receives front-end guidance from Air Force long-range, strategic planning. Consistent with DoD 5000 series direction, the PE enables rigorous identification and substantiation of current/future operational deficiencies and needed capability, as well as associated migration plans. Such modernization planning efforts can be categorized according to three phases. First, a "strategies-to-task", Mission Area Assessment (MAA) is conducted to identify operational tasks. These operational tasks must relate directly to currently assigned or future Air Force roles and missions as derived from a number of sources including the Air Force Vision and Strategic Plan. Second, a Mission Needs Analysis (MNA) is conducted to assess current and programmed force capabilities against operational tasks and ultimately identify specific deficiencies and needs. The third phase of the MPP is Mission Solution Analysis (MSA), which identifies potential cost effective, non-materiel (i.e. doctrine, tactics, training) and materiel alternatives that address the deficiencies/needs, or simply represent new organizational, operational, and/or technological opportunities. This program is in budget activity 6, Management Support, because supported studies and analyses provide inputs for Air Force Mission Area and/or Support Plans and future Air Force investment decisions. However, Phase 0 concepts studies and Analysis of Alternatives (AOAs) are not normally conducted in this program element.

(U) **Acquisition Strategy**

Annually, an Air Force-wide corporate board reviews, prioritizes, and screens proposed studies to ensure warfighter relevance and no unnecessary duplication of effort.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0605808F Development Planning |
| | PROJECT<br>3361 |

(U) FY 1997 ($ in Thousands):

- (U) $1,264 Continued surveillance and reconnaissance mission area study to identify architecture alternatives to support the battlefield commander.
- (U) $427 Initiated analysis of the Aeromedical Evacuation mission and environment during contingency operations.
- (U) $446 Continued effort to adapt existing air mobility modeling and simulation tools to distributed interactive simulation (DIS) standards to support mobility MAAs.
- (U) $56 Continued effort to identify comprehensive measures of merit and effectiveness of space and missile systems to support analyses.
- (U) $995 Developed analytical baseline of life cycle cost of ownership of weapon systems to support Air Combat Command's (ACC) mission area planning.
- (U) $710 Performed study to support MNA for the Special Operations Forces Provide Mobility in Denied Territory mission area.
- (U) $282 Provided assessment of deficiencies in various fleet mixes of intratheater airlift aircraft and the impact of the deficiencies on a campaign.
- (U) $493 Continued effort to project sizing requirements for the communications pipeline to and from Air Mobility Command bases and deployed sites.
- (U) $207 Performed analysis of combat identification architectures to address correlating off board sensor data with shooter on-board fire control data.
- (U) $440 Initiated establishment of objective and quantifiable methodology to examine integrated warfighting concepts across ACC mission areas.
- (U) $263 Developed a methodology to analyze and optimize airpower allocations within a theater campaign.
- (U) $141 Developed a family of optimized mixes of space and missile systems/concepts over a 25-year horizon.
- (U) $305 Identified and analyzed AF Medical Service casualty management requirements from future biowarfare or directed energy weaponry.
- (U) $372 Continued Air Education and Training Command's (AETC) Training Throughput Model project.
- (U) $6,401 Total

(U) FY 1998 ($ in Thousands):

- (U) $457 Complete study to support MNA for AF Special Operation Command's (AFSOC) Provide Mobility in Denied Territory mission area.
- (U) $140 Initiate efforts to identify opportunities to streamline, consolidate, and automate AF Modernization Planning processes.
- (U) $1,002 Continue surveillance and reconnaissance mission area study to identify architecture alternatives to support the battlefield commander.
- (U) $1,119 Continue analysis of optimized space and missile capabilities, and force structure trades across all space mission areas.
- (U) $653 Initiate analysis of integration and interdependencies of land and sea transportation to allow determination and optimal mix of mobility resources.
- (U) $899 Continue efforts to base line and forecast operations and support, modernization and infrastructure costs for combat aircraft and training systems.
-
-
-
- (U) $4,270 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0605808F Development Planning | PROJECT<br>3361 |

(U) FY 1999 ($ in Thousands):

| | | |
|---|---|---|
| – | (U) $300 | Continue efforts to identify opportunities to streamline, conslidate, and automate AF Modernization Planning processes. |
| – | (U) $1,400 | Continue surveillance and reconnaissance mission area study to identify architecture alternatives to support the battlefield commander. |
| – | (U) $600 | Continue analysis of optimized space and missile capabilities, including force structure trades, across all space mission areas |
| – | (U) $495 | Continue to strengthen linkages between ACC mission area deficiencies and modernization investment. |
| – | (U) $410 | Continue analysis of the Aeromedical Evacuation mission and environment during contingency operations. |
| – | (U) $2,870 | Initiate/continue specific efforts in support of AF Modernization Planning. |
| – | (U) | Further definitization subsequent to FY 99 program spring review scheduled for February 1998. |
| – | (U) $6,075 | Total |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998) PB | 6,194 | 6,049 | 6,197 | Continuing |
| (U) Appropriated Value | 6,531 | 4,549 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -185 | -171 | | |
| b. SBIR | -152 | -108 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming (BTR) | +218 | | | |
| e. Recissions | -11 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -122 | |
| (U) Current Budget Submit/1999 President's Budget | 6,401 | 4,270 | 6,075 | Continuing |

(U) Change Summary Explanation:

Funding: FY97 BTR supports additional study efforts. FY 99 adjustment reflects revised inflation estimates.

Schedule: Not Applicable.

Technical: Not Applicable.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605808F Development Planning

PROJECT: 3361

(U) C. Other Program Funding Summary ($ in Thousands) None.

| (U) | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Execute projects | X | X | X | X | X | X | X | X | X | X | X | X |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605854F Pollution Prevention

PROJECT: 1007

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 1007 Pollution Prevention | 19,723 | 9,251 | 1,673 | 2,600 | 2,615 | 2,751 | 2,818 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

For FY97-98 this program element funds pollution prevention efforts required to accomplish the objectives and subobjectives of the Air Force Pollution Prevention Strategy to include installation level programs at Air Force Material Command Major Range and Test Facility bases (Eglin, Arnold, and Edwards AFBs) and cross-cutting weapons systems pollution prevention tools. It also funds efforts to validate and qualify environmentally acceptable materials and processes to replace existing common hazardous materials and processes. The account provides funds for Class 0 (recurring work to keep the gates open) and Class 1 (work required to eliminate dependence on ozone depleting chemicals, work to correct current non-compliance with federal, state or local environmental laws, and work required to satisfy pollution prevention Executive Orders). Typical services and projects include: eliminating ozone depleting chemicals and hazardous materials; reducing the generation of hazardous waste, air emissions, and solid wastes; establishing and operating recycling and composting programs; and establishing and operating hazardous material pharmacies and centralized hazardous material tracking programs.

Beginning in FY99, all funds for Test Facility base operations support (RDT&E) will be transferred to operations and maintenance. Remaining RDT&E funds will be used for development and test efforts to validate and qualify environmentally acceptable materials and processes to replace existing common hazardous materials and processes, cross-cutting weapons systems pollution prevention tools, and management and support costs in direct support of development efforts to meet compliance problems. This program is in Budget Activity 6, Management and Support, because most of the funding is directed toward support of test facilities required for general research and development use.

(U) **Acquisition Strategy:**
Funds for this PE are associated to many acquisition projects in other programs, thus acquisition strategy is not applicable.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0605854F Pollution Prevention<br>PROJECT 1007 |

(U) **FY 1997 ($ in Thousands):**

| | | |
|---|---|---|
| – (U) | 662 | Manpower and Education and Training |
| – (U) | 1,396 | Class 0 Projects: Opportunity assessments, contractor support, management action plan updates, computer support, hazardous material pharmacy supplies and equipment, and community awareness activities. |
| – (U) | 356 | Resource Conservation and Recovery Act (RCRA) Subtitle C - Hazardous Waste |
| – (U) | 84 | RCRA Subtitle D - Solid Waste |
| – (U) | 251 | Clean Air Act |
| – (U) | 21 | Clean Water Act |
| – (U) | 1,277 | Hazardous Material Reduction |
| – (U) | 105 | Other |
| – (U) | 15,571 | Class I Dem/Val Projects: Validation and qualification of commercially available material, equipment, and processes to support the Montreal Protocol and Air Force Pollution Prevention Strategy objectives and subobjectives in accordance with the Environmental Research and Development Strategic Plan. The demonstration/validation phase is system specific and includes advanced technology demonstrations that help expedite technology transition from the laboratory to operational use to meet compliance problems. |
| – (U) | 19,723 | Total |

(U) **FY 1998 ($ in Thousands):**

| | | |
|---|---|---|
| – (U) | 583 | Manpower and Education and Training |
| – (U) | 791 | Class 0 Projects: Opportunity assessments, contractor support, management action plan updates, computer support, hazardous material pharmacy supplies and equipment, and community awareness activities. |
| – (U) | 580 | RCRA Subtitle C - Hazardous Waste |
| – (U) | 245 | RCRA Subtitle D - Solid Waste |
| – (U) | 142 | Clean Air Act |
| – (U) | 192 | Clean Water Act |
| – (U) | 724 | Hazardous Material Reduction |
| – (U) | 3,084 | Other |
| – (U) | 2,910 | Class I Dem/Val Projects: Validation and qualification of commercially available material, equipment, and processes to support the Montreal Protocol and Air Force Pollution Prevention Strategy objectives and subobjectives in accordance with the Environmental Research and Development Strategic Plan. The demonstration/validation phase is system specific and includes advanced technology demonstrations that help expedite technology transition from the laboratory to operational use to meet compliance problems. |
| – (U) | 9,251 | Total |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0605854F Pollution Prevention |
| | PROJECT<br>1007 |

(U) FY 1999 ($ in Thousands):

| | | | |
|---|---|---|---|
| – | (U) | 294 | RCRA Subtitle C - Hazardous Waste |
| – | (U) | 197 | RCRA Subtitle D - Solid Waste |
| – | (U) | 294 | Clean Air Act |
| – | (U) | 100 | Clean Water Act |
| – | (U) | 688 | Hazardous Material Reduction |
| – | (U) | 100 | Other |
| – | (U) | 1,673 | Class I Dem/Val Projects: Validation and qualification of commercially available material, equipment, and processes to support the Montreal Protocol and Air Force Pollution Prevention Strategy objectives and subobjectives in accordance with the Environmental Research and Development Strategic Plan. The demonstration/validation phase is system specific and includes advanced technology demonstrations that help expedite technology transition from the laboratory to operational use to meet compliance problems. |

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget FY1998 PB | 19,756 | 5,880 | 4,314 | TBD |
| (U) Appropriated Value | 20,628 | 9,880 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional General Reductions | -470 | -441 | | |
| b. SBIR | -402 | -188 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescission | -33 | | | |
| f. Adjustments to Budget Years since FY1998 PB | | | -2,641 | |
| (U) Current Budget Submit/1999 President's Budget | 19,723 | 9,251 | 1,673 | TBD |

(U) Change Summary Explanation:

Funding: A Congressional Add of $4M in FY98 for an automated monitoring network demonstration for in-ground real-time monitoring of aquifers is included and is undergoing reclassification to O&M. Adjustments to FY99 include a transfer of all funds for Test Facility base operations support from RDT&E to O&M.

Schedule: Not Applicable

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0605854F Pollution Prevention |
| | PROJECT<br>1007 |

Technical: Not Applicable

(U) C. **Other Program Funding Summary ($ in Thousands)** Not Applicable

(U) D. **Schedule Profile** All funds except for the Congressional Add are associated with many projects in other acquisitions programs, thus management of project schedule is not accomplished within this PE. These funds are used to ensure pollution prevention applications are developed during other Air Force acquisition programs. The following schedule tracks the Congressional Add.

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Contract Award | | | | | | | X | | | | | |
| (U) Site Monitoring Plan | | | | | | | | X | | | | |
| (U) Sensor Testing | | | | | | | | X | | | | |
| (U) Install Network | | | | | | | | | | X | | |
| (U) Long-Term Monitoring | | | | | | | | | | | X | |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605860F Rocket System Launch Program (Space)

PROJECT: 1023

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 1023 Reentry System Launch PGM (RSLP) | 32,165 | 26,348 | 7,865 | 8,057 | 8,128 | 8,249 | 8,412 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

(U) Rocket System 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 missiles assets. RSLP mission was established by the Secretary of Defense in 1972. It provides mission planning, payload integration, launch support, booster storage and disposal, 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, Ballistic Missile Defense Organization (BMDO), etc.). RSLP directly supports deactivation of Minuteman II by providing storage of these and other assets. RSLP performs research and development support operations required for general rocket system launch research and development use.

(U) This program is in Budget Activity 6 - Management and Support because RSLP provides research and development effort and/or operations support for general research and development use.

(U) **Acquisition Strategy:**

(U) Storage, refurbishment, and aging surveillance are on-going activities using either the Air Force responsible logistics center or the Arizona Army National Guard. Funding provided via military interdepartmental purchase request and/or interservice support agreement.

(U) Flight tests will be conducted by exercising task orders on the competitively awarded RSLP Sounding Rocket Program contract.

(U) FY 1997 ($ in Thousands):

- (U) $5,765 Continued storage and refurbishment of deactivated Minuteman and other missile flight test assets.
- (U) $2,000 Performed aging surveillance-related activities on stored motors; performed analyses/studies to identify and evaluate potential safety-related issues affecting stored motors.
- (U) $24,184 Initiated development of atmospheric interceptor technology, plasma attenuation, and materials demonstration flight testing for BMDO.
- (U) $216 Other
- (U) $0 Provided launch assets and technical assistance for DoD RDT&E launches. (Funded by users.)
- (U) $32,165 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0605860F Rocket System Launch Program (Space) |
| | PROJECT<br>1023 |

(U) FY 1998 ($ in Thousands):

- (U) $6,013 Continued storage and refurbishment of deactivated Minuteman and other missile flight test assets.
- (U) $2,000 Continued performing aging surveillance-related activities on stored motors; continued performing analyses/studies to identify and evaluate potential safety-related issues affecting stored motors.
- (U) $18,152 Continued development of atmospheric interceptor technology (AIT).
- (U) $183 Funding set aside for pending reprogramming to fund higher priorities.
- (U) $0 Continued providing launch assets and technical assistance for DoD RDT&E launches. (Funded by users.)
- (U) $26,348 Total

(U) FY 1999 ($ in Thousands):

- (U) $6,023 Continue storage and refurbishment of deactivated Minuteman and other missile flight test assets.
- (U) $1,842 Continue performing aging surveillance-related activities on stored motors; continue performing analyses/studies to identify and evaluate potential safety-related issues affecting stored motors.
- (U) $0 Continue providing launch assets and technical assistance for DoD RDT&E launches. (Funded by users.)
- (U) $7,865 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 32,218 | 8,013 | 8,023 | Continuing |
| (U) Appropriated Value | 33,252 | 28,013 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -705 | -1,006 | | |
| b. SBIR | -329 | -659 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | 0 | 0 | | |
| e. Rescissions | -53 | 0 | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -158 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 32,165 | 26,348 | 7,865 | Continuing |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0605860F Rocket System Launch Program (Space) |
| | PROJECT<br>1023 |

(U) Change Summary Explanation:

Funding: Congress added $20,000 to FY98 PB request to support AIT Program. Reductions in FY99 and beyond to offset higher Air Force and DOD needs.

Schedule: No significant impact.

Technical: An additional flight test added in FY99 to support AIT.

(U) C. **Other Program Funding Summary ($ in Thousands):** None.

(U) D. **Schedule Profile:**.

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Storage/Refurbishment | | | | | | On-Going | | | | | | |
| (U) Aging Surveillance | | | | | | On-Going | | | | | | |
| (U) Flight Tests | | | | | | | | X | | | X | X |

* Started and/or Completed

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 0605864F Space Test Program (Space)

PROJECT: 2617

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2617 Free-Flyer Spacecraft Missions | 0 | 0 | 45,933 | 55,099 | 56,520 | 53,580 | 55,357 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Note: This is not a new start. Space Test Program (Space) PE 0603402F changes to PE 0605864F in FY99. Prior year funding is in PE 0603402F.

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

(U) The Space Test Program (STP) provides support to the DoD space research community by centrally financing acquisition of a host satellite or launch vehicle, the launch, and initial operations costs for experiments with military relevance whose scope ranges from basic research to advanced development. STP missions are the most cost effective way to flight test new space systems technologies, concepts and designs, providing an inexpensive way to:

- Demonstrate the feasibility of new space systems and technologies
- Improve operational design by characterizing the space environment, event, or sensor physics proposed for an operational system/system upgrade
- Provide early operational capabilities to evaluate usefulness or quickly react to new developments
- Perform operational risk reduction through direct flight test of prototype components
- Develop the knowledge base from which to plan new and improved operational systems and system upgrades
- Develop and test advanced small launch vehicle technology and capabilities

This DoD program provides the primary spaceflight capability to perform fly-before-buy, risk-reducing demonstrations of advanced technologies in operational space environments. The Secretary of Defense issued a policy statement in November 1995 reaffirming STP's role as the primary provider of spaceflight for the entire DoD space research community. Space Test Program is a Budget Activity 6 RDT&E Management and Support program.

**(U) Acquisition Strategy**

(U) The space research experiments that STP supports are justified, developed, financed, and delivered by various Service laboratories and DoD agencies, with the goal of improving DoD's current and future operational space systems' performance. Experiments are considered for spaceflight based on the priority that they are assigned by the annual DoD Space Experiments Review Board, a group that is independent of the STP Program Office, and is comprised of Air Force, Army, Navy, BMDO and other representatives with expertise in DoD operational space requirements. The Board gives the prioritized list of experiments to STP, who then seeks out the most cost effective means of spaceflight to maximize the number of experiments flown within the constraints of priority, opportunity and available funding. The most common spaceflight opportunities include piggybacking on military or commercial satellites, both foreign and domestic, and the various payload modes of the Space Shuttle. For those experiments whose requirements cannot be satisfied with these "secondary" opportunities, dedicated STP spacecraft and launch vehicle hardware are procured within the constraints of available funding and according to experiment requirements. These include Small and Medium Launch Vehicle class satellites, as well as Small Launch Vehicle class boosters (such as Pegasus, Taurus, and Lockheed Martin Athena). Medium Launch Vehicle class boosters are provided as required by PE 35119F and PE 35953F. If a particular manifested experiment fails to materialize or is deemed impractical to fly given current

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 6 - Management and Support | PE NUMBER AND TITLE: 0605864F Space Test Program (Space) / PROJECT: 2617 |

funding, or if the appropriate spaceflight opportunity becomes unavailable, STP shifts what resources remain to provide spaceflight support for the next highest priority experiments.

(U) The Air Force requires a stable funding level and the flexibility necessary to take advantage of whatever means of spaceflight is deemed to be most cost effective for a given experiment or complement of experiments. This flexibility is essential to take advantage of inexpensive "target of opportunity" space hardware, including operational spacecraft, where margin is usually firmly identified during the later stages of spacecraft development. This assures that the greatest amount of DoD space research is accomplished with the limited funds available. Without the requested funding, DoD would lose its most successful and most cost-effective capability to launch and test new technologies prior to their incorporation into our nation's very expensive and demanding operational space systems. Insufficient funding would also force each of the Services and DoD agencies to create individual launch capabilities in an attempt to duplicate STP's current low-cost, risk mitigating capability. Such a redundancy would result in the loss of the contractual economy of scale that a single space test organization provides, as well as the filtering function of the DoD Space Experiments Review Board in assuring quality experiments and minimum duplication.

(U) FY 1999 ($ in Thousands)

- (U) $ 8,815 Piggyback/secondary payload missions; mission planning, Aerospace Corp support, mission and program support.
- (U) $ 3,500 Space Shuttle payload engineering, analysis, pre- and post-launch processing, and launch support.
- (U) $26,149 Begin dedicated STP EELV mission (RAIDS, WINDSAT, and ISUS satellites, etc.); TSX-5 and ARGOS ops; reusable upper stage/bus devel
- (U) $ 7,469 Continue JAWSAT and MTI Taurus Launch Vehicle development.
- (U) $45,933 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 0 | 0 | 0 | Continuing |
| (U) Appropriated Value | | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescission | | | | |
| (U) Adjustments to Budget Years Since FY1998 PB | | | 45,933 | |
| (U) Current Budget Submit/FY1999 President's Budget | 0 | 0 | 45,933 | Continuing |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>0605864F Space Test Program (Space) |
| | PROJECT<br>2617 |

(U) Change Summary Explanation:

Funding: Space Test Program (Space) PE 0603402F changes to PE 0605864F in FY99. Prior year funding is in PE 0603402F.

Schedule: STP EELV mission moved from FY01 to FY02.

Technical: Not Applicable.

(U) C. **Other Program Funding Summary ($ in Thousands):**
Not Applicable.

**Related RDT&E:**
(U) PE 0305119F, Medium Launch Vehicles
(U) PE 0305953F, Evolved Expendable Launch Vehicle
(U) PE 0603402F, Prior year STP funding

Experiments are funded by many Science and Technology (S&T) PEs in Air Force, Army, Navy, DARPA, BMDO, DoE, NASA, and other programs.

(U) D. **Schedule Profile** These are anticipated launch dates. (Current projection. Experiments are added as new spaceflight opportunities and budget permits).

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) STS-93* STL-B, CCM-A, MSX, LFSAH, SIMPLEX, MEMS | | | | | | | | | X | | | |
| (U) STS-95* CRYOTSU, MSX, MEMS, CCM-A, PANSAT, SIMPLEX, TASBE | | | | | | | | | X | | | |
| (U) TSX-5 - STRV II, CEASE (P95-2) | | | | | | | | | X | | | |
| (U) PICOSAT - PBEX, IOX, CERTO, OPPEX (P97-1)* | | | | | | | | | | X | | |
| (U) CEASE (STRV1 C/D) (S97-1)* | | | | | | | | | | | X | |
| (U) CERTO PLUS (STRV1 C/D) (S97-2)* | | | | | | | | | | | X | |
| (U) POGS-II (S92-1) | | | | | | | | | | | | X |
| (U) JAWSAT (TtANOS, IOX, CERTO)* | | | | | | | | | | | | X |

*New spaceflight opportunity since FY98PB.

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 1001004F International Activities

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 3,548 | 3,591 | 3,752 | 3,818 | 3,880 | 3,936 | 3,982 | Continuing | TBD |
| 0AH *Shape Tech Center-VKI-ICRD Sup | 3,548 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4645 *International Cooperative Research & Development | 0 | 3,591 | 3,752 | 3,818 | 3,880 | 3,936 | 3,982 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*The BPAC title was changed and a new project number assigned for administrative purposes to accurately reflect the nature of work being accomplished. FY97 and prior funding is reflected in BPAC Project 00AH, FY98 and outer years have been reassigned to BPAC Project 4645.

(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 efforts, accelerate availability of defense systems, and to deploy and sustain common or interoperable USAF and Allied equipment through international cooperative research and development.

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 Department of the Air Force 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, and negotiating international agreements; oversight of International Cooperative Research and Development (ICR&D) projects; overseas R&D liaison and coordination offices; bilateral and multilateral staff talks; and the Engineering and Scientist Exchange Program (ESEP). Funds US participation in the NATO Air Force Armaments Group (NAFAG) and NATO Research and Technology (RTO). This program is in Budget Activity 6, Management and Support, because it provides for general Research & Development Management support for all aspects of International Research & Development in the USAF.

(U) **Acquisition Strategy:**

This program element is the only source of USAF funds to identify and initiate opportunities for international armament's cooperation to (a) deploy and support common or interoperable equipment with our allies; (b) leverage USAF resources with our allies through cost sharing and economies of scale; and (c) exploit the best US and allied technologies for equipping coalition forces. We obtain these benefits only after international cooperative opportunities are identified, explored, developed, assessed and negotiated and concluded. This program element provides funds to execute up-front armaments cooperation

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>1001004F International Activities |

responsibilities, rationalize 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 in their own program elements.

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 3,554 | 3,715 | 3,827 | |
| (U) Appropriated Value | 3,633 | 3,715 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional Reductions | -76 | -121 | | |
| b. SBIR | -3 | -3 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Recission | -6 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -75 | |
| (U) Current Budget Submit/President's Budget | 3,548 | 3,591 | 3,752 | |

(U) Change Summary Explanation:
Funding: NA
Schedule: N/A
Technical: N/A

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) N/A | | | | | | | | | |

(U) **D. Schedule Profile**

(U) See Individual Projects

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | | DATE February 1998 |
|---|---|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>1001004F International Activities | | PROJECT<br>0AH |

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 0AH *Shape Tech Center-VKI-ICRD Sup | 3,548 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

The mission of this program is to gain access to our allies best defense technologies, eliminate costly duplication of research and development efforts, accelerate availability of defense systems, and to deploy and sustain common or interoperable USAF and Allied equipment through international cooperative research and development.

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 Department of the Air Force 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, and negotiating international agreements; oversight of International Cooperative Research and Development (ICR&D) projects; overseas R&D liaison and coordination offices; bilateral and multilateral staff talks; and the Engineering and Scientist Exchange Program (ESEP). Funds US participation in the NATO Air Force Armaments Group (NAFAG) and NATO Research and Technology Organization (RTO).

(U) FY 1997 ($ in Thousands):

- (U) $110 **NATO C3 Agency (formally Shape Technical Center)** - Funded US R&D coordination office and administrative support to US engineering and technical professionals assigned to the NATO C3 Agency.
- (U) $253 **ESEP** - Funded the management oversight of the Engineer and Scientist Exchange Program.
- (U) $500 **NATO Research & Technology Organization (RTO, formerly AGARD)** - Fully funded US national-level representation to the NATO R&T Board. Funded technical experts from Air Force field-level, US industry, and universities to support 7 technical panels, 21 working groups, 3 study groups, and 1 study committee sponsored by NATO RTO. FY97 program of work as endorsed by US National Delegates and approved by the AGARD National Delegates Board and NATO Military Committee included: (1) Injury Prevention In Aircraft Crashes: Investigative Techniques and Applications, (2) Manned Combat Aircraft-highlights of Future Technological Developments for Improved Affordability and Combat Effectiveness, (3) Aging Combat Aircraft Fleet-Long Term Implications, (4) Helicopter/Weapon System Integration, (5) Fully Automated Conduct Air Traffic Management, (6) Strategic Management of the Cost Problem of Future Weapon Systems, (7) Advanced Non-Intrusive Instrumentation for Propulsion Engines, (8) Multisensors Systems and Data Fusion for Telecommunications, Remote Sensing and Radar, (9) System Design Considertions for Unmanned Tactical Aircraft, (10) Sustained Hypersonic Flight: From Demonstration to Applications, (11) Propulsion, (12) Critical Technology Advances in Military Aerospace Support Systems, (13) Operational Enhancements via Human System Technologies. Continued Partnership for Peace initiative through the NATO RTO outreach program incorporating new scientist and engineers from Central Europe.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 6 - Management and Support | PE NUMBER AND TITLE: 1001004F International Activities / PROJECT: 0AH |

- (U) $268 **AFIPSA** -Fully funded AFIPSA and USAF to reduce the backlog of proposals for International Cooperative R&D Agreements. The following is a list of agreements that were signed in FY97: **Australia**: Adaptive Flexible Structures for Air Vehicle Application, GPS Ionospheric Scintillation Monitors, MOU for Loan of TASLU Phase II Aircraft Cargo; **Four Powers**: Aircraft Armament Avionic Agility, Post-2020 Armament Concepts and Technologies, Tactical Missile Propellants (Rev.1), Aircraft Battle Damage Repair (Rev. 1); **France**: Reliability of Electronic Components and Equipment; **Germany**: Free Piston Shock Tunnel, Optical Properties of the Environment; **Israel**: Strengthening of Concrete Structures for Enhanced Structural Survivability, Construction and Engineering in the Air Force, Diagnostics of Chemical Oxygen-Iodine Lasers; **Japan**: Aerodynamic Test Technology; **Poland**: Aircrew Simulation & Performance; **Russia**: Cooperate in Installing and Operating Seismic Stations for Monitoring Nuclear Weapons Tests; **Sweden**: Technology Research & Development Project; **United Kingdom**: Dense Metal Case Penetrating Weapon; Aftbody/Nozzle Aeroacoustics Project; Programmable Integrated Ordinance Suite; Penetration, Target Acquisition and Attack Technologies for Air Vehicles; Tactical Imagery Data Management and Exploitation; Atlas Aircraft Cargo Loader.
- (U) $1,183 **ICR&D** - Funded USAF overseas R&D liaison offices. Funded management support and oversight of USAF Foreign Comparative Test Program and NATO Cooperative R&D Program. Funded USAF participation at the NATO Four-power Council, NAFAG, and its six subgroups to promote NATO harmonization of requirements, standardization, and new cooperative R&D programs. Funded USAF participation at the US-Japan Systems and Technology Forum it's four sub-groups and international CALS. Funded expanded technology acquisition contacts and follow-on cooperative opportunities with Russia, Ukraine, and Eastern Europe. Partially funded technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&D programs. This PE also funded preliminary and negotiation costs associated with USAF NATO cooperative R&D funded programs. Funded support for the NATO AWACS Board of Directors and the Air Force Technology Booth at International Forums.
- (U) $1,234 **AFMC** - Fully funded Air Force Material Command activities to identify, assess, and develop support packages and project arrangements as required by statute for the above cited new candidate agreements. Funded Material Command initiatives and technical support to the Chair of the NAFAG. Supported Material Command activities for USAF Foreign Comparative Test and NATO Cooperative R&D Programs. Funded USAF participation in panel meetings of the Technical Cooperation Program, Air Standardization Coordinating Committee, Standard NATO Agreements Working Groups, and NATO Alliance Ground Surveillance Program Office. Funded exploratory visits to France, Germany, Israel, United Kingdom and other countries on new technology exchange projects. Funded the International Focal Point Offices program offices at centers and laboratories in identifying, creating and staffing new international cooperative agreements. Funded the support, management and documentation of all of the above ICR&D efforts.
- (U) $3,548 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 3,554 | | | |
| (U) Appropriated Value | 3,633 | | | |
| (U) Adjustments to Appropriated Value | | | | |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>1001004F International Activities |
| | PROJECT<br>0AH |

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| a. Congressional Reductions | -76 | | | |
| b. SBIR | -3 | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Recission | -6 | | | |
| (U) Adjustments to Budget Years Since FY1997 PB | | | | |
| (U) Current Budget Submit FY1999/President's Budget | 3,548 | | | |

(U) Change Summary Explanation:
Funding: N/A
Schedule: N/A
Technical: N/A

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) N/A | | | | | | | | | |

(U) D. **Schedule Profile**

| | FY 1997 | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| (U) | | | | |
| -NATO C3 Agency Program Review | | | | X |
| -NATO Research & Technology Board | X | | X | |
| -Aerospace Applications Studies Committee | X | X | X | X |
| -Bilateral Technology R&D Projects MOUs | X | X | X | X |
| -Cooperative R&D Projects | X | X | X | X |
| -Foreign Comparative Testing Prioritization Board | | X | | |
| -NATO Cooperative R&D Prioritization Board | | | X | |
| -R&D Loans of Defense Equipment | X | X | X | X |
| -Systems & Technology Forum (JA) | X | | X | |
| -Other Bilateral forums (CA, BZ) | X | X | X | X |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 6 - Management and Support

PE NUMBER AND TITLE: 1001004F International Activities

PROJECT: 0AH

| | FY 1997 | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| -Data/Information Exchange Annexes | X | X | X | X |
| -Engineer and Scientist Exchanges | X | X | X | X |
| -NATO Air Force Armaments Group | X | | X | |
| -Four-Power Air Senior National Representatives | X | | X | |
| -Four-Power Long-Term Technology Working Group | | X | | X |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | | DATE February 1998 |
|---|---|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>1001004F International Activities | | PROJECT<br>4645 |

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4645 *International Cooperative Research & Development | 0 | 3,591 | 3,752 | 3,818 | 3,880 | 3,936 | 3,982 | Continuing | TBD |

*FY97 and prior year funding is reflected in BPAC Project 00AH. The BPAC title was changed and a new Project Number assigned for administrative purposes to more actively reflect the nature of work being accomplished.

(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 efforts, accelerate availability of defense systems, and to deploy and sustain common or interoperable USAF and Allied equipment through international cooperative research and development.

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 Department of the Air Force 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, and negotiating international agreements; oversight of International Cooperative Research and Development (ICR&D) projects; overseas R&D liaison and coordination offices; bilateral and multilateral staff talks; and the Engineering and Scientist Exchange Program (ESEP). Funds US participation in the NATO Air Force Armaments Group (NAFAG) and NATO Research and Technology Organization (RTO).

This program element funds general R&D management for all USAF international cooperative R&D. This includes management support and execution of projects in (1) Basic Research (2) Concept Exploration (3) Demonstration and Validation and (4) Engineering and Manufacturing Development. Consequently, this program is in Budget Activity 6.

(U) **Acquisition Strategy**:

This program element is the only source of USAF funds to identify and initiate opportunities for international armament's cooperation to (a) deploy and support common or interoperable equipment with our allies; (b) leverage USAF resources with our allies through cost sharing and economies of scale; and (c) exploit the best US and allied technologies for equipping coalition forces. We obtain these benefits only after international cooperative opportunities are identified, explored, developed, assessed and after the international agreements are negotiated and concluded. This PE provides funds to execute up-front armaments cooperation responsibilities, rationalize 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 in their own program elements.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>1001004F International Activities |
| | PROJECT<br>4645 |

(U) FY 1998

- (U) $110 **NATO C3 Agency** - 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 C3 Agency.
- (U) $253 **ESEP** - Funds the Air Force execution and the management oversight of the Engineer and Scientist Exchange Program (ESEP). Funds approximately nine field level military and civilian scientists from Air Force Research Laboratory, in two year tours at selected European and Asian Government Research Laboratories or other Technical Institutions. ESEP Memoranda of Understanding are expected to be in place with 16 countries.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>1001004F International Activities |
| | PROJECT<br>4645 |

– (U) $268 **AFIPSA** - Fully funds AFIPSA and USAF to reduce the backlog of proposals for International Cooperative R&D Agreements. The following is a list of proposed candidate agreements that will be either signed or under development in FY98: **Argentina**: Seismic and Infrasonic Monitoring Agreement, **Australia**: Air Breathing Propulsion Technology, Project Refractive Turbulence, Navigation Warfare, Aging Aircraft Life Prediction/Extension, High Altitude Endurance Unmanned Aerial Vehicle Cooperative Development and Technical Demonstration; **Bolivia**: Seismic Monitoring Agreement; **Botswana**: Seismic Monitoring Agreement; **Brazil**: Ionospheric Experiments, ESEP, External Stores Flight Testing Methods and Techniques, Seismic and Infrasonic Monitoring Agreement; **Central African Republic**: Seismic Monitoring Agreement; **Chile**: Ionospheric Research Project, Infrasonic Monitoring Agreement; **China**: Seismic Monitoring Agreement; **Cote D'Ivoire**: Seismic Monitoring Agreement; **Egypt**: Seismic Monitoring Agreement, TRDP; **Ethiopia**: Seismic Monitoring Agreement; **Four Powers**: Tactical Laser Hardened Materials, Beyond Visual Range Air-to-Air Missile, Technologies for Airlift Cargo Handling, Supermaneuverability, Precision Airdrop Improvements; **France**: Effects of the Ionosphere on Communications and Surveillance Systems, Cooperative Development and Evaluation of Ducted Rockets, Advanced Oscillators, Long Range Missile Guidance Inertial Sensors, Advanced Resonators and Oscillators, Advanced Combustor Chamber Concepts Program, Integrated Tactical Aircraft Control Program; **Germany**: Observations and Modeling for Space Weather, Cooperative Space Measurements, Wind Tunnels and Flight Simulation Facilities, ESEP, Infrasonic Monitoring Agreement; **Israel**: External Composite Concrete Reinforcement for Enhanced Structural Survivability, Continuous Wave Solar Pumped IBR Laser; **Italy**: TRDP; **Japan**: ESEP, Advanced Hybrid Tactical Propulsion, ACES-II Ejection Seat Improvements, Robotics; **Kazakstan**: Seismic Monitoring Agreement; **Korea**: Seismic Monitoring Agreement, Modeling and Simulation of Multichip Avionics; **Morocco**: Seismic Monitoring Agreement; **NATO/Multilateral**: Exchange of Research & Development Information, Subminiature Data Acquisition and Telemetry Systems, Joint Airborne Navigation and Attack Technology Demonstration Program, Joint Strike Fighter Requirement Validation Cooperation, NATO AEW&C Mid-term Modernization, NATO Joint Stars Cooperative Acquisition Program, Environmental Effects of Component & Equipment Reliability, Air Command/ Control/Communication and Intelligence Capabilities, Trilateral Technology R&D Program, Multiple Warhead System, Effects on Global Positioning Systems, Agent Defeat Weapon; **Namibia**: Infrasonic Monitoring Agreement; **The Netherlands**: Anthropometric Accommodation in Crew Systems; **New Zealand**: Infrasonic Monitoring Agreement; **Norway**: ESEP; **Oman**: Seismic Monitoring Agreement; **Pakistan**: Seismic Monitoring Agreement; **Paraguay**: Seismic Monitoring Agreement; **Poland**: ESEP; **South Africa**: Seismic Monitoring Agreement; **Sweden**: Automatic Ground Collision Avoidance for Fighter Aircraft, Administrative and Professional Exchange Program; **Turkey**: Seismic Monitoring Agreement; **Turkmenistan**: Seismic Monitoring Agreement; **United Kingdom**: Air Worthiness of Aging Aircraft, Non-Acoustic Technologies, Aero Engine Altitude Testing, Development and Production of a Directional Infrared Countermeasures System, Weather Impact Decision Aids, Cosmic Radiation Environment and Activation Monitor, Air Battle Management, Metal Matrix Composites for Aerospace Applications, Joint Development and Evaluation of Electro-Optic Protection Measures, Active Control Technology and Aircraft Flying Qualities for Military Aircraft, Flight Simulation of Combat Aircraft Sensors, Visual Scenes, and Motion, Covert All Weather Landing Guidance Technology.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>1001004F International Activities |
| | PROJECT<br>4645 |

- (U) $500 **NATO Research & Technology Organization** - Funds US National Delegates participation in the NATO R&T Board and USAF, industry, and academia participation in the RTO aerospace related panel activity. The FY98 program of work will consist of studies, technical exchanges, and reports in the following areas: (1) Presentation of the Probable Changes in Information Management and Technology, (2) Hypersonic Experimental and Computational Capabilities, (3) Aeromedical Support issues in Contingency Operations, (4) Advanced Aerodynamic Measurement Technology, (5) Virtual Manufacturing, (6) Numerical Unsteady Aerodynamics and Aeroelastic Simulation, (7) Thermal Barrier Coatings, (8) Advances in Soft Computing Technologies Application in Mission Systems, (9) Effect of Rain, Icing and Deicing Systems on Wing Performance, (10) Turbulence in Compressible Flows, (11) Flight Test Instrumentation, (12) Current Concepts and New Developments in Impact and Escape System Dummy Specifications and Instrumentation, (13) Structural Optimization. Continues Partnership for Peace initiative through the R&T outreach program incorporating new scientists and engineers from Central Europe.
- (U) $1,040 **ICR&D** - Funds USAF overseas R&D liaison offices. Funds management support and oversight of USAF Foreign Comparative Test Program and NATO Cooperative R&D Program. Funds USAF participation at the NATO Four-power Council, NAFAG, and its six subgroups to promote NATO harmonization of requirements, standardization, and new cooperative R&D programs. Funds USAF participation at the US-Japan Systems and Technology Forum, its four sub-groups and the USAF participation in international CALS. Funds expanded technology acquisition contracts and follow-on cooperative opportunities with Russia, Ukraine, and Eastern Europe. Partially funds technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&D programs. Funds preliminary and negotiation costs associated with USAF AWACS NATO cooperative R&D funded programs and support for the NATO AWACS Board of Directors.
- (U) $1,420 **AFMC** - Fully funds Air Force Material Command activities to identify, assess, develop and report International Cooperative Agreements as required by statute for new and existing projects. Supports Materiel Command activities for the USAF Foreign Comparative Test, and NATO Cooperative R&D Programs. Funds USAF participation in panel meetings of the Technical Cooperation Program, Air Standardization Coordinating Committee, Standard NATO Agreements Working Groups, and other NATO forums. Funds periodic bilateral meetings to define new areas of possible cooperation, and exploratory visits to France, Germany, Israel, United Kingdom, Canada, and other countries on new technology exchange projects. Funds the project engineers at centers and Air Force Research Laboratory (AFRL) in identifying, creating and staffing new international cooperative agreements. Funds MAJCOM staff to support and promote international research and development cooperation throughout AFMC. Funds support for the Air force Technology Booth at International Forums. Funds small contracts in support of technology initiatives. This program will, in addition, fund the support, management and documentation of these ICR&D efforts.
- (U) $3,591 Total
- **(U) FY 1999**
- (U) $110 **NATO C3 Agency** - 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 NATO C3 Agency.
- (U) $253 **ESEP** - Funds the Air Force execution and the management oversight of the Engineer and Scientist Exchange Program (ESEP). Funds approximately nine field level military and civilian scientists from Air Force Research Laboratory, Product Centers, Test Centers and Air Logistics Centers in two year tours at selected European and Asian Government Research Laboratories or other Technical Institutions. ESEP Memoranda of Understanding are expected to be in place with 18 countries.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 6 - Management and Support | PE NUMBER AND TITLE: 1001004F International Activities / PROJECT: 4645 |

| | | |
|---|---|---|
| – | (U) $269 | **AFIPSA** - Fully funds AFIPSA and USAF to reduce the backlog of proposals for International Cooperative R&D Agreements. Work will continue on agreements developed during FY98 but not signed and work will be initiated on the following and other new agreements: **Australia**: Data Fusion for over the Horizon Radar, Detection and Tracking of Targets in Clutter, Structural Integrity of Aging Aircraft, Air C3I Capabilities, Virtual Air Commander; **Germany**: High Energy Laser Technology (COIL); **Israel**: Non-Linear Frequency Conversion Materials, Thulium Holmium Energy Transfer Modeling; **Italy**: Real-Time Information in the Cockpit; **Korea**: 3D Microwave Monolithic Integrated Circuits; **NATO/Multilateral**: C-130 Integrated Data Environment, Coalition Command Control and Communications Environment, Joint Airborne Navigation and Attack (JOANNA) II; **United Kingdom**: Effects of Ionization of Hydrocarbon-Air combustion, Effects of Meteor Metals on Communication and Guidance, PIOS Phase II/III, Mass and Performance Estimation Methodology, Turbine Engine Technology, Wind Tunnel Testing. |
| – | (U) $250 | **NATO Research and Technology Organization**: Funds USAF participation in the NATO Research and Technology Board and RTO panel activity. The FY99 program of work will consist of studies, technical exchanges, and reports in the following areas: (1) Computational Unsteady Aerodynamic Codes, (2) Multi-facility Wind Tunnel Testing for CFD Validation, (3) Deterministic Spectral Gust Methods, (4) Screening Protocol for Aeromedical Medications, (5) Human Consequences of Superagility, (6) Aeromedical Lessons from Acceleration and Positive Pressure Breathing Research, (7) Aircraft Weapon Compatibility, (8) Flight Control law Development, (9) Ice Accretion and Simulation Evaluation test, (10) Nonlinear Stability and Transition of Swept-Wing Boundary layers, (11) Sensor data Fusion and Integration of Human Element, (12) Integrated Mission Systems Concepts, (13) Gas Turbine Engine Combustion, Emissions and Alternative Fuels, (14) Aging and Surveillance of Solid Gun Propellants, (15) Frequency Assignment, Sparing and Conservation. Continues Partnership for Peace initiative through the R&T outreach program with scientists and engineers from the Former Soviet Union and Central Europe. |
| – | (U) $1,325 | **ICR&D** - Funds USAF overseas R&D liaison offices. Funds management support and oversight of USAF Foreign Comparative Test Program and NATO Cooperative R&D Program. Funds USAF participation at the NATO Four-power Council, NAFAG, and its subgroups to promote NATO harmonization of requirements, standardization, and new cooperative R&D programs. Funds USAF participation at the US-Japan Systems and Technology Forum, its four sub-groups and USAF participation in international CALS. Funds expanded technology acquisition contracts and follow-on cooperative opportunities with Russia, Ukraine, and Eastern Europe. Partially funds technical assessments and international agreements negotiation start-up costs associated with promising cooperative R&D programs. Funds preliminary and negotiation costs associated with USAF NATO cooperative R&D funded programs and support for the NATO AWACS Board of Directors. |
| – | (U) $1,545 | **AFMC** - Fully funds Air Force Material Command activities to identify, assess, and develop support packages and project arrangements as required by statute for new and existing candidate agreements. Supports Materiel Command activities for the USAF Foreign Comparative Test, and NATO Cooperative R&D Programs. Funds USAF participation in panel meetings of the Technical Cooperation Program, Air standardization Coordinating Committee, Standard NATO Agreements Working Groups, and other NATO forums. Funds periodic bilateral meetings to define new areas of possible cooperation, funds exploratory visits to France, Germany, Israel, United Kingdom, Canada, and other countries on new technology exchange projects. Funds support for the Air force Technology Booth at International Forums. Funds the International Focal Point Officers at Centers and Laboratories to assist program officers and project engineers in identifying, creating and staffing new international cooperative agreements. Funds HQ staff to support and promote international research and development cooperation throughout AFMC. Funds small contracts in support of technology initiatives. Funds the support, management and documentation of these ICR&D efforts. |
| – | (U) $3,752 | Total |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>6 - Management and Support | PE NUMBER AND TITLE<br>1001004F International Activities |
| | PROJECT<br>4645 |

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

| | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|
| (U) Previous President's Budget | 3,715 | 3,827 | |
| (U) Appropriated Value | 3,715 | | |
| (U) Adjustments to Appropriated Value | | | |
| a. Congressional General Reductions | -121 | | |
| b. SBIR | -3 | | |
| c. Omnibus or other above reprogramming threshold | | | |
| d. Below threshold reprogramming | | | |
| (U) Adjustments to budget years since FY98 PB | | -75 | |
| (U) Current Budget Submit/President's Budget | 3,591 | 3,752 | |

(U) **Change Summary Explanation:**

Funding: N/A
Schedule: N/A
Technical: N/A

(U) C. **Other Program Funding**

**Related RDT&E:**

(U) This program provides for USAF management oversight of the NATO Cooperative R&D funded by DoD (PE 603790D) and USAF (PE 603790F) and DoD funded Foreign Comparative Test (FCT) (PE 0605130D) programs. It also provides international agreement support for 6.1 through 6.3 programs for the Air Force Research Laboratory and for 6.4 through 6.5 programs for USAF Product and Logistics Centers.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE: February 1998 |
|---|---|---|
| BUDGET ACTIVITY: 6 - Management and Support | PE NUMBER AND TITLE: 1001004F International Activities | PROJECT: 4645 |

(U) D. Schedule Profile

| | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) | | | | | | | | |
| -NATO C3 Agency Program Review | | | | X | | | | X |
| -NATO Research & Technology Board | X | | X | | X | | X | |
| -Aerospace Applications Studies Committee | X | X | X | | | | | |
| -Bilateral Technology R&D Projects MOUs | X | X | X | X | X | X | X | X |
| -Cooperative R&D Projects | X | X | X | X | X | X | X | X |
| -Foreign Comparative Testing Prioritization Board | | X | | | | X | | |
| -NATO Cooperative R&D Prioritization Board | | | X | | | | X | |
| -R&D Loans of Defense Equipment | X | X | X | X | X | X | X | X |
| -Systems & Technology Forum (JA) | X | | X | | X | | X | |
| -Other Bilateral forums (CA, BZ, IS, SW, FR) | X | X | X | X | X | X | X | X |
| -Data/Information Exchange Annexes | X | X | X | X | X | X | X | X |
| -Engineer and Scientist Exchanges | X | X | X | X | X | X | X | X |
| -NATO Air Force Armaments Group | X | | X | | X | | X | |
| -Four-Power Air Senior National Representatives | X | | X | | X | | X | |
| -Four-Power Long-Term Technology Working Group | | X | | X | | X | | X |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 10,594 | 3,235 | 6,436 | 2,733 | 0 | 0 | 33,727 | 0 | TBD |
| 4370 Advanced Weapons Integration (AWI) | 0 | 2,340 | 3,691 | 0 | 0 | 0 | 33,727 | 0 | TBD |
| 4401 Air Force Mission Support System (AFMSS) | 5,327 | 895 | 2,745 | 2,733 | 0 | 0 | 0 | 0 | 14,501 |
| 4402 Electronic Countermeasures Improvement (ECMI) | 5,160 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,160 |
| 4493 B-61 Mod 11 Flight Tests | 107 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,152 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Note: RDT&E articles are not separately priced.

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

The B-52 is the primary nuclear roled bomber in the USAF inventory. It provides the only Air Launch Cruise Missile carriage in the USAF. The B-52 also provides theater CINCs with a long range strike capability. The B-52 is undergoing a Conventional Enhancement Modification which allows it to carry MIL-STD 1760 weapons. The current service life of the aircraft extends to 2040. The Advanced Weapons Integration (AWI) program supports the conventional enhancement of the B-52 through the addition of the Wind Corrected Munitions Dispenser (WCMD), Joint Direct Attack Munition (JDAM), Joint Stand-off Weapon (JSOW), and the Joint Air-to-Surface Stand-off Missile (JASSM). The Air Force Mission Support System supports the Air Force movement of all mission planning to a common system. Electronic Countermeasures Improvement supports a DESERT STORM identified deficiency. The B-61 Mod 11 program was added at the direction of the Nuclear Posture Review and Presidential Decision Directive-30. The ALR-20A System Replacement replaces the current Electronic Countermeasures radio frequency receiver with modern equipment. The B-52's Avionics Midlife Improvement is a phased program to replace mission critical parts of the Offensive Avionics System that controls weapons delivery on the B-52. The B-52 program management is provided by Air Force Material Command's Oklahoma Air Logistics Center. The prime contractor for these projects is Boeing, McDonnell Defense in Wichita Kansas. This program is in budget activity 7 - Operational System Development, because it supports a currently operational system.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998PB) | 10,612 | 3,427 | 3,765 | TBD |
| (U) Appropriated Value | 11,035 | 3,427 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -249 | -112 | | |
| b. SBIR | -192 | -80 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | -18 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 2,671 | |
| (U) Current Budget Submit/ FY1999 President's Budget | 10,594 | 3,235 | 6,436 | TBD |

(U) Change Summary Explanation:

Funding: FY99 adds $2.8M to AFMSS.

Schedule: None

Technical: None

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Aircraft Procurement (PE 11113F) | 20,157 | 38,428 | 38,308 | 27,793 | 69,448 | 35,416 | 6,458 | 1,000 | 237,008 |
| (U) Missile Procurement (PE 11113F) | 1,766 | 0 | 0 | 0 | 0 | 0 | 0 | n/a | 3,768 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0101113F B-52 Squadrons |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) WCMD/JDAM IOC | | | | | | | | X | | | | |
| (U) JSOW IOC | | | | | | | | | | | | |
| (U) JASSM IOC | | | | | | | | | | | | |
| (U) ECM Improvement IOC | | | | | | | | | | | | |
| (U) B-61 Mod 11 Flight Test Completed | | | | X | | | | | | | | |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0101113F B-52 Squadrons<br>PROJECT<br>4370 |

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4370 Advanced Weapons Integration (AWI) | 0 | 2,340 | 3,691 | 0 | 0 | 0 | 33,727 | 0 | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

The requirement exists for the integration of near precision and precision guided MIL-STD 1760 weapons on the B-52. This includes the Wind Corrected Munitions Dispenser (WCMD), Joint Direct Attack Munition (JDAM), Joint Stand-off Weapon (JSOW), and the Joint-Air-to-Surface Stand-off Missile (JASSM). The B-52 is designated as the threshold bomber test platform for WCMD, JDAM, and JASSM with the objective of meeting aircraft integration and weapon testing requirements. To provide complete understanding of the program and its funding, the following schedule information in section C will reflect the money received from the WCMD, JDAM, and JASSM program elements for weapons integration on the B-52.

(U) **Acquisition Strategy**

The AWI program placed Boeing, ISDS, Whichita, KS on a Cost-Plus-Fixed-Fee contract as the Product Development Organization supported by OC-ALC/LH. Due to the short notice requirement, interface development and initial software requirements definition is being accomplished under the B-52 fleet support contract; a time and materials contract. The first phase will be to support the Direct Attack Stores Management Overlay (SMO) Developmental Test and Evaluation (DT&E) and DT&E of hardware interface equipment. The Direct Attack SMO supports WCMD and JDAM. The second phase will support the DT&E of the Stand-off SMO. The Stand-off SMO supports JSOW and JASSM. Due to the need for rapid Required Assets Availability and Initial Operational Capability dates, the Single Acquisition and Management Plan directed concurrence for RDT&E of the Direct Attack SMO and the production hardware (MIL-STD 1760 umbilicals to transfer 1760 data from the weapons pylon to the weapon itself). Although production continues through development of the Stand-off SMO, development of the production materials is completed in FY 97. JSOW and JASSM will use the same umbilicals as WCMD and JDAM.

(U) FY 1997 ($ in Thousands):
- (U) $0 No activity

(U) FY 1998 ($ in Thousands):
- (U) $354 Initiate Software development for JSOW and JASSM
- (U) $125 Initiate Hardware development for JSOW and JASSM
- (U) $1,861 Initiate Flight/Ground Testing

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0101113F B-52 Squadrons | PROJECT<br>4370 |

- (U) $2,340 Total

(U) FY 1999 ($ in Thousands):

- (U) $495 Continue Software development for JSOW and JASSM
- (U) $270 Continue Hardware development for JSOW and JASSM
- (U) $2,926 Flight/Ground Testing
- (U) $3,691 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998PB) | 0 | 2,479 | 3,765 | TBD |
| (U) Appropriated Value | | 2,479 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | | -81 | | |
| b. SBIR | | -58 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -74 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 0 | 2,340 | 3,691 | TBD |

(U) Change Summary Explanation:

Funding: None

Schedule: None

Technical: None

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0101113F B-52 Squadrons | PROJECT<br>4370 |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Aircraft Procurement (PE 11113F) | 4,119 | 8,740 | 4,058 | 1,000 | 0 | 0 | 0 | 0 | 17,917 |

(U) **Related Activities**

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) RDT&E (WCMD - PE 27600F) | 5,725 | 1,600 | 0 | 0 | 0 | 0 | 0 | 0 | 13,225 |
| (U) RDT&E (JDAM - PE 27583F) | 3,456 | 6,400 | 0 | 0 | 0 | 0 | 0 | 0 | 14,358 |
| (U) RDT&E (JASSM - PE 27160F) | 7,000 | 8,000 | 2,900 | 2,000 | 0 | 0 | 0 | 0 | 21,400 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0101113F B-52 Squadrons |
| | PROJECT<br>4370 |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) JDAM/WCMD SMO | | | | | | | | | | | | |
| (U) Contractor interface development | X | | X | | | | | | | | | |
| (U) Software/hardware Req DT&E | X | | | | | | X | | | | | |
| (U) Test Planning | X | | | | | | X | | | | | |
| (U) Technical data development | X | | | | | | X | | | | | |
| (U) Ground/flight testing | | X | | | | | X | | | | | |
| (U) AFMSS module DT&E | X | | | | | | X | | | | | |
| (U) Program office support | X | | | | | | X | | | | | |
| | | | | | | | | | | | | |
| (U) Stand-off SMO | | | | | | | | | | | | |
| (U) Contractor Interface Development | X | | | | | | | | | | | |
| (U) Software/hardware Req DT&E | X | | | | | | | | | | | |
| (U) Test planning | X | | | | | | | | | | | |
| (U) Technical data development | | | | | | | | | | | | X |
| (U) Ground/flight testing | | | | | | | | | | | | X |
| (U) AFMSS module DT&E | | | | | | | | | | | | X |
| (U) Program support office | X | | | | | | | | | | | X |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

PROJECT: 4370

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Software/hardware requirements | 0 | 2,340 | 3,691 |
| (U) Total | 0 | 2,340 | 3,691 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Boeing, ISDS, Wichita, KS | CPFF | 4 Sep 97 | 3,702 | 0 | 2,608 | 0 | 404 | 690 | 0 | TBD |
| 88CG/SCCVO OC-ALC/LH | Project Order | 13 Mar 96 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 2 |
| | PMA | 1 Oct 96 | 322 | 0 | 172 | 0 | 75 | 75 | 0 | 322 |
| Support and Management Organizations | | | | | | | | | | |
| OC-ALC/LAS | Project Order | 16 Jul 97 | 750 | 0 | 750 | 0 | 0 | 0 | 0 | 750 |
| AEDC/DOF | Project Order | 3 Jun 97 | 48 | 0 | 48 | 0 | 0 | 0 | 0 | 48 |
| Test and Evaluation Organizations | | | | | | | | | | |
| 419 FLTS | Project Order | 31 Jan 96 | 5,152 | 0 | 152 | 0 | 1,861 | 2,926 | 0 | TBD |
| 49 Tests | AF Form 616 | 31 Aug 96 | 10 | 0 | 10 | 0 | 0 | 0 | 0 | 10 |

**Government Furnished Property:** None

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

PROJECT: 4370

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Product Development | | | 4,026 | 0 | 2,782 | 0 | 479 | 765 | 0 | TBD |
| Subtotal Support & Management | | | 798 | 0 | 798 | 0 | 0 | 0 | 0 | 798 |
| Subtotal Test and Evaluation | | | 5,162 | 0 | 162 | 0 | 1,861 | 2,926 | 0 | TBD |
| Total Project | | | 9,986 | 0 | 3,742 | 0 | 2,340 | 3,691 | 0 | TBD |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

PROJECT: 4401

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4401 Air Force Mission Support System (AFMSS) | 5,327 | 895 | 2,745 | 2,733 | 0 | 0 | 0 | 0 | 14,501 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

Air Force Mission Support System (AFMSS) previously funded out of the AFMSS program element. Develops an aircraft specific avionics/weapons/electronic countermeasures (A/W/E) module to be used in conjunction with core AFMSS. AFMSS is the replacement mission planning system for the current B-52 Mission Data Preparation System. AFMSS will provide future ground/inflight mission planning capability. Block 1 provides the capability to plan conventional gravity missions at the unit level. Block 2 provides the capability to plan JDAM and WCMD missions, accomplish Periodic Depot Maintenance (PDM) on the B-52 test aircraft (050). It also establishes the capability to import TRICOMS mission data into AFMSS. Block 3 of this project will adds planning capability for AGM-142, AGM-84, AGM-86C, and IU/TACAN. Block 4 provides JSOW and JASSM capabilities. Block 5 enables migration from the current AFMSS core architecture to the planned new architecture.

(U) **Aquisition Strategy**

The AFMSS program is organically conducted at OC-ALC/LAS. Previously funded by the AFMSS program element.

(U) FY 1997 ($ in Thousands):
- (U) $2,079 Initiate Block 2 operational software for WCMD and JDAM
- (U) $3,053 Complete periodic depot maintenance for the B-52 test aircraft
- (U) $195 Establish TRICOMS import capability
- (U) $5,327 Total

(U) FY 1998 ($ in Thousands):
- (U) $615 Initiate Block 3 operational software for AGM-142, AGM-86C, AGM-84, IU/TACAN and for other advanced weapons, as required
- (U) $280 Complete Block 2 operational software
- (U) $895 Total

(U) FY 1999 ($ in Thousands):
- (U) $700 Initiate Block 4 operational requirements for JSOW and JASSM and other advanced weapons as required.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0101113F B-52 Squadrons |
| | PROJECT<br>4401 |

- (U) $2,045 Complete Block 3 operational software
- (U) $2,745 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998PB) | 5,200 | 948 | | 14,501 |
| (U) Appropriated Value | 5,507 | 948 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | | -31 | | |
| b. SBIR | -180 | -22 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 2,745 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 5,327 | 895 | 2,745 | 14,501 |

(U) Change Summary Explanation:

Funding: Funding added to FY99 and FY00 to complete Blocks 4 and 5. Air Combat Command added requirement for all non-1760 as well as 1760 weapons to have AFMSS mission planning capability.

Schedule: None

Technical: None

(U) **C. Other Program Funding Summary ($ in Thousands) - not applicable**

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0101113F B-52 Squadrons<br>PROJECT 4401 |

(U) D. Schedule Profile

The B-52 peculiar mission planning software development is accomplished and delivered incrementally. Each work package within a block build is treated as a mini-development with its own analysis, design, and test. The work package are integrated with one another and with the AFMSS core.

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Contract award Block 2 | | | | | | | | | | | | |
| (U) Software development Block 2 | X | | | | X | | | | | | | |
| (U) Contract award Block 3 | | | | X | | | | | | | | |
| (U) Software development Block 3 | | | | | X | | | X | | | | |
| (U) Test aircraft PDM | X | | | | | | | | | | | |
| (U) Contract award Block 4 | | | | | | | | | X | | | |
| (U) Software development Block 4 | | | | | | | | | X | | | X |
| (U) Contract award Block 5 | | | | | | | | | | | | |
| (U) Software development Block 5 | | | | | | | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0101113F B-52 Squadrons | PROJECT<br>4401 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Software development | 1,516 | 832 | 2,695 |
| (U) System Program Office support | 758 | 63 | 50 |
| (U) OC-ALC/LH Program Depot Maintenance | 3,053 | 0 | 0 |
| (U) Total | 5,327 | 895 | 2,745 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0101113F B-52 Squadrons<br>PROJECT 4401 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Oklahoma ALC/LAS | Project Order | 26 Mar 97 | 11,075 | 0 | 2,701 | 2,079 | 842 | 2,645 | 2,633 | 10,900 |
| Support and Management Organizations | | | | | | | | | | |
| OC-ALC/LH | Project order | Oct 97 | 0 | 453 | 100 | 100 | 53 | 100 | 100 | 453 |
| OC-ALC/LAP | Project order | Jun 97 | 3,053 | 0 | 0 | 3,053 | 0 | 0 | 0 | 3,053 |
| Test and Evaluation Organizations | | | | | | | | | | |
| 419th | DT&E | 11 Dec 96 | 95 | 0 | 0 | 95 | 0 | 0 | 0 | 95 |
| **Government Furnished Property:** None | | | | | | | | | | |
| Subtotal Product Development | | | 11,075 | 0 | 2,701 | 2,079 | 842 | 2,645 | 2,633 | 10,900 |
| Subtotal Support & Management | | | 3,053 | 453 | 100 | 3153 | 53 | 100 | 100 | 3,506 |
| Subtotal Test and Evaluation | | | 95 | 0 | 0 | 95 | 0 | 0 | 0 | 95 |
| Total Project | | | 14,223 | 453 | 2,801 | 5,327 | 895 | 2,745 | 2,733 | 14,501 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0101113F B-52 Squadrons<br>PROJECT<br>4402 |

| COST *($ In Thousands)* | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4402 Electronic Countermeasures Improvement (ECMI) | 5,160 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,160 |
| Quantity of RDT&E Articles | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |

Note: Articles are not separately priced.

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

The electronic countermeasures of the B-52 ALQ-172 ECM suite must be improved to cover a requirement identified during DESERT STORM. The improvement provides for an increased memory capability to handle advanced threats as well as correcting a coverage capability problem. The project adds a third ALQ-172 to the ECM suite and develops the new display required by the addition of the third system. The modification also improves two common core Line-Replaceable-Units. Normal circuit cards are replaced with circuit cards holding erasable PROMs and gate array modules. Memory is increased 400% and Mean-Time-Between-Failure is increased.

(U) **Acquisition Strategy**

The ECM Improvement program placed Boeing, McDonnell Wichita, KS and ITT Avionics Nutley, NJ on Firm-Fixed-Price contracts as Product Development Organizations. Boeing, McDonnell provides the aircraft specific integration expertise, while ITT provides expertise on the ALQ-172 system. They are supported by OC-ALC/LH and WR-ALC/LNR.

(U) FY 1997 ($ in Thousands):
- (U) $150 System Requirement Review
- (U) $433 Fabrication of lab mock-up
- (U) $4,577 Developmental kit fabrication
- (U) $5,160 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 No activity

(U) FY 1999 ($ in Thousands):
- (U) $0 No activity

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

PROJECT: 4402

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 4,818 | 0 | 0 | 5,160 |
| (U) Appropriated Value | 5,071 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -150 | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | -239 | | | |
| (U) Adjustments to Budget Years Since FY 1997 PB | | | | |
| (U) Current Budget Submit/ FY 1999 President's Budget | 5,160 | 0 | 0 | 5,160 |

(U) Change Summary Explanation:

Funding: $150,000 reduction to pay Congressional bills. $239,000 added from internal Air Force reprogramming.

Schedule: None

Technical: None

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Aircraft Procurement (PE 11113F) | 0 | 4,749 | 5,013 | 17,139 | 49,213 | 35,575 | 6,778 | 200 | 118,667 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Contract award | X | | | | | | | | | | | |
| (U) Kit proof | | | | X | | | | | | | | |
| (U) System Requirement Review | | | | X | | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

PROJECT: 4402

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) System Requirement Review | 150 | 0 | 0 |
| (U) Mock-up fabrication | 300 | 0 | 0 |
| (U) Developmental kit proof | 4,577 | 0 | 0 |
| (U) System Program Office support | 133 | 0 | 0 |
| (U) Total | 5,160 | 0 | 0 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Boeing Wichita, ITT Avionics | FFP | Oct 96 | 5,027 | 0 | 0 | 5,027 | 0 | 0 | 0 | 5,027 |
| Support and Management Organizations | | | | | | | | | | |
| OC-ALC/LH | PMA | Oct 96 | 0 | 84 | 0 | 84 | 0 | 0 | 0 | 84 |
| HQ ACC/LGF52 | AF Form 616 | 03 Dec 96 | 25 | 0 | 0 | 25 | 0 | 0 | 0 | 25 |
| WR-ALC/LNRB | AF Form 616 | 03 Dec 96 | 20 | 0 | 0 | 20 | 0 | 0 | 0 | 20 |
| HQ ACC/DOIE | AF Form 616 | 18 Nov 96 | 4 | 0 | 0 | 4 | 0 | 0 | 0 | 4 |
| Test and Evaluation Organizations | | | | | | | | | | |
| n/a | | | | | | | | | | |
| Subtotal Product Development | | | 5,027 | 0 | 0 | 5,027 | 0 | 0 | 0 | 5,027 |

**Government Furnished Property:** None

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

PROJECT: 4402

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Support & Management | | | 49 | 84 | 0 | 133 | 0 | 0 | 0 | 133 |
| Subtotal Test and Evaluation | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | 5,076 | 84 | 0 | 5,160 | 0 | 0 | 0 | 5,160 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

PROJECT: 4493

| COST *($ In Thousands)* | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4493 B-61 Mod 11 Flight Tests | 107 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,152 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

The program involves development and testing of a modified nuclear weapon on B-52 operational aircraft. Replacement of a strategic weapon was recommended by the Nuclear Posture Review and directed by Presidential Decision Review-30. Congress was notified during the second quarter of FY 1995, of the Department of Defense, and the Department of Energy intent to modify an existing weapon to provide a replacement option. Modifications (made by the Department of Energy) to the B-61 Mod 7 strategic bomb accomplish the mission requirements of the replaced weapon. Modification of an existing weapon is less expensive than the cost to develop a new weapon from "scratch." Flight testing by the 419th FLTS, Edwards AFB, CA is required to certify the modified weapon mass and physic properties are the same as the Mod 7 device.

(U) **Acquisition Strategy**

The Department of Energy is organically conducting the modifications to the B-61 Mod 11 weapon.

(U) FY 1997 ($ in Thousands):
- (U) $ 107 Complete data analysis and develop new ballistics tables for aircraft operational delivery.
- (U) $ 107 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 No activity

(U) FY 1999 ($ in Thousands):
- (U) $0 No activity

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101113F B-52 Squadrons

PROJECT: 4493

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998PB) | 594 | 0 | 0 | 1,152 |
| (U) Appropriated Value | 594 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -487 | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1998PB | | | | |
| (U) Current Budget Submit/ FY 1999 President's Budget | 107 | 0 | 0 | 1,152 |

(U) Change Summary Explanation:

Funding: Reduction in FY97 due to Congressional bills levied against the B-52.

Schedule: None

Technical: None

(U) C. Other Program Funding Summary ($ in Thousands) Not applicable

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Major Assembly Release test | X | | | | | | | | | | | |
| (U) Aeroballistic/Dispersion tests | | X | | X | | | | | | | | |
| (U) DOE modification program | | X | | X | | | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0101113F B-52 Squadrons | PROJECT<br>4493 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) System Program Office support | 107 | 0 | 0 |
| (U) Total | 107 | 0 | 0 |

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| SA-ALC/NWI | Project Order | 25 J un 97 | 280 | 0 | 280 | 0 | 0 | 0 | 0 | 280 |
| SA-ALC/NWI | AF Form 616 | 10 Feb 97 | 107 | 0 | 0 | 107 | 0 | 0 | 0 | 107 |
| SAF/FMBMB | MIPR | 28 Jan 97 | 765 | 0 | 765 | 0 | 0 | 0 | 0 | 765 |
| Support and Management Organizations | | | | | | | | | | |
| n/a | | | | | | | | | | |
| Test and Evaluation Organizations | | | | | | | | | | |
| n/a | | | | | | | | | | |
| Subtotal Product Development | | | 1,152 | 0 | 1,045 | 107 | 0 | 0 | 0 | 1,152 |
| Subtotal Support & Management | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal Test and Evaluation | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | 1,152 | 0 | 1,045 | 107 | 0 | 0 | 0 | 1,152 |

**Government Furnished Property:** None

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0101120F Advanced Cruise Missile

PROJECT: 3844

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3844 (U) Advanced Cruise Missile | 1,105 | 2,314 | 0 | 0 | 0 | 0 | 0 | 0 | 3,419 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

The Advanced Cruise Missile (ACM) is a low-observable, air-launched, strategic missile with significant improvements over the Air Launched Cruise Missile B version (ALCM-B) in range, accuracy, and survivability. Armed with a W80 warhead, it is designed to evade air and ground-based defenses in order to strike heavily defended, hardened targets at any location within any enemy's territory. The ACM is designed for B-52H external carriage. Missile procurement is complete. FY 97 and FY98 funds are required to complete depot development work. This program is in budget activity 7, Operational System Development, because the program effort involves depot development.

(U) Acquisition Strategy: To complete the acquisition of the AGM-129A (ACM), two programs were required at the depot. In 1997 the capability to repair software will be completed. Final step involves setting up a maintenance and surveillance capability for nuclear aging and hardness at the depot. These funds will be obligated in the 3rd quarter of FY98.

(U) FY 1997 ($ in Thousands):
- (U) $1,105 Complete Development of Software Repair Capabilities at Depot
- (U) $1,105 Total

(U) FY 1998 ($ in Thousands):
- (U) $2,314 Develop Aging and Hardness Maintenance/Surveillance Capabilities at Depot
- (U) $2,314 Total

(U) FY 1998 SBIR Reduction ($79,000)
- (U) $36,000 Sec 8043 (1.5)
- (U) $30,000 Sec 8048 (NMD)
- (U) $13,000 Econ Assumption

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE: February 1998 |
|---|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0101120F Advanced Cruise Missile | PROJECT: 3844 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 1,107 | 2,393 | 0 | 3,500 |
| (U) Appropriated Value | 1,165 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional General Reductions | (30) | | | |
| b. SBIR | (30) | (79) | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | (2) | | | |
| (U) Adjustments to Budget Years Since FY 97 PB | | | | |
| (U) Current Budget Submit/98PB | 1,105 | 2,314* | | 3,419 |

(U) Change Summary Explanation:

Funding: None
Schedule: None
Technical: None

(U) * Note: $15M on withhold pending reprogramming for higher priorities

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0101120F Advanced Cruise Missile |
| | PROJECT<br>3844 |

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

ACM is a fielded weapon system. Procurement funds are for program management activities related to the on-going purchase of flight test instrumentation kits (TIKs) and FOT&E mission support. Flight TIKs are used to evaluate ACM operational availability and air vehicle reliability. O&M funding provides for support activities to maintain ACM for USSTRATCOM.

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Weapon Procurement (3020) | | | | | | | | | |
| (U) Budget Activity | | | | | | | | | |
| (U) 2. Other Missiles | 771 | 843 | 1,422 | 1,464 | 1,391 | 1,431 | 1,470 | 0 | 8,792 |
| (U) 4. Replenishment Spares | 241 | 465 | 0 | 0 | 0 | 0 | 0 | 0 | 706 |
| (U) Operations and Maintenance (3400) | 13,166 | 18,591 | 14,936 | 14,879 | 12,996 | 13,087 | 13,812 | 0 | 101,467 |

(U) Related RDT&E (3600): None

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Contract Milestones | | | | | | | | | | | | |
| (U) NONE | | | | | | | | | | | | |
| (U) Other Program Events | | | | | | | | | | | | |
| (U) Depot Activation/Completion | | | | X | | | | | | | | |
| (U) Aging and Surveillance Programs | | | | | X | | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0101120F Advanced Cruise Missile | PROJECT<br>3844 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Depot Activation | | | |
| (U) Sensor Depot Test/Repair | 165 | 0 | 0 |
| (U) Software Compiler Rehost | 940 | 0 | 0 |
| (U) Surveillance | 0 | 2,314 | 0 |
| (U) Total | 1,105 | 2,314 | 0 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE: February 1998 |
|---|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0101120F Advanced Cruise Missile | PROJECT: 3844 |

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

(U) Performing Organizations:

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| (U) Product Development Organizations | | | | | | | | | | |
| Hughes MSC | | | | | | | | | | |
| Tucson, AZ | SS/FPIF | May 92 | 16,914 | 16,914 | 15,946 | 0 | 0 | 0 | 0 | 15,946 |
| Kearfott | | | | | | | | | | |
| Wayne, NJ | SS/FFP | Aug 93 | 8,077 | 8,077 | 6,200 | 0 | 0 | 0 | 0 | 6,200 |
| Rockwell | | | | | | | | | | |
| Newark, OH | SS/CPAF | Jul 96 | | | | | | | | |
| OC-ALC | | Oct 94/ | | | | | | | | |
| | PO | Dec 96 | | | 3,135 | 1,105 | 0 | 0 | 0 | 4,240 |
| | Contract | Apr 98 | | | 0 | 0 | 2,314 | 0 | 0 | 2,314 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0101120F Advanced Cruise Missile<br>PROJECT 3844 |

(U) Support and Management Organizations: Not Applicable

(U) Test and Evaluation Organizations : Not Applicable

**(U) Government Furnished Property:** Not Applicable

| | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|
| (U) Subtotal Product Development | 35,574 | 1,105 | 2,314 | 0 | 0 | 38,993 |
| (U) Subtotal Support and Management | 5,707 | 0 | 0 | 0 | 0 | 5,707 |
| (U) Subtotal Test and Evaluation | 0 | 0 | 0 | 0 | 0 | 0 |
| (U) Total Project | 41,281 | 1,105 | 2,314 | 0 | 0 | 44,700 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102325F Joint Surveillance System

PROJECT: 2996

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2996 FAA/AF Radar Replacement (FARR) | 3,654 | 1,831 | 2,175 | 0 | 0 | 0 | 0 | 0 | 23,582 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

This program is in budget activity 7 - Operational System Development because it provides funding for the modernization of a currently existing and operating system. The Joint Surveillance System (JSS) provides command, control and communications (C3) capability in support of CINC NORAD's (North American Aerospace Defense) Atmospheric Tactical Warning and Attack Assessment (ATW/AA) air sovereignty, and air defense requirements. The JSS Connectivity (JSS-C) program provides improvements to this capability by integrating new sensor data and enhancing communications capabilities via the Advanced Interface Control Unit (AICU). The FAA/Air Force Radar Replacement (FARR) program will replace 40 existing JSS radars with solid-state, three-dimensional ARSR-4 radars to improve mission performance and reduce operation and maintenance costs. The JSS-C portion of this PE falls under Budget Activity 7, research category 6.6, Operational System Development, as it is a system being deployed to the operational community to solve an operational deficiency in the existing operational system and is post Milestone Three. The FARR portion of this program element also falls under Budget Activity 7, Operational System Development, as it has received approval for production. The Region and Sector Air Operations Center (R/SAOC) Modernization program will provide a modernized C4I system with enhanced capability to integrate data from existing and future civil and military defense surveillance systems into a comprehensive recognized air picture to enhance CINC NORAD's capability to conduct peacetime air sovereignty, transition and conventional warfare in the event of aggression toward the North American Continent. The current system has reached saturation in its capability to receive, process, display, exchange, and employ air surveillance data from current sensor systems. In some cases, it has exceeded processing and displaying capacity, thus contributing to delayed C4I decisions. The outdated technology has become increasingly difficult and costly to maintain.

**(U) Acquisition Strategy:**

Management of the JSS Connectivity is by the Electronic Systems Center, Air Force Materiel Command, Hanscom AFB, MA. The prime contractor for the AICU is TRW, Aurora, CO. Enhanced Traffic Management System (ETMS), Department of Transportation, Cambridge, MA provides the AICU with flight plan information from FAA sources. The Federal Aviation Administration (FAA) is the lead acquisition agency for the FAA/AF Radar Replacement Program in accordance with a 19 November 1984 sub-agreement (as amended by Amendment 1, dated 1 September 1988) to FAA/AF National Agreement (NAT) 711. The FAA and the Air Force have established a joint Program Office at HQ, FAA, Washington, DC for this procurement. Northrup Grumman Corporation, Linthicum, MD is the prime contractor for the FARR program.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0102325F Joint Surveillance System |
| | PROJECT<br>2996 |

(U) FY 1997 ($ in Thousands):

- (U) $427 Provided program office support
- (U) $844 Continued test support for FARR Joint Program Office (JPO)
- (U) $832 Continued radar production, installation, test, and system checkout
- (U) $1,551 Provided interoperability evaluations and commissioning support
- (U) $3,654 Total

(U) FY 1998 ($ in Thousands):

- (U) $295 Provide program office support
- (U) $51 Continue test support for FARR Joint Program Office (JPO)
- (U) $785 Continue installation, test and system checkout
- (U) $700 Continue interoperability evaluations and commissioning support
- (U) $1,831 Total

(U) FY 1999 ($ in Thousands):

- (U) $311 Provide program office support
- (U) $1,424 Continue test and system checkout
- (U) $440 Continue interoperability evaluations and commissioning support
- (U) $2,175 Total

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102325F Joint Surveillance System

PROJECT: 2996

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 12,626 | 2,020 | 2,219 | 43,456 |
| (U) Appropriated Value | 13,239 | 2,020 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong /General ReductionS | -111 | -168 | 0 | 0 |
| b. SBIR | -63 | -21 | | |
| c. Omnibus or Other Above Threshold Reprogram | -9,479* | | | |
| d. Below Threshold Reprogramming | 74 | | | |
| e, Rescissions | -6 | | | |
| (U) Adjustments to Budget Year Since FY 1998 PB | | | -44 | |
| (U) Current Budget Submit/FY1999 President's Budget | 3,654 | 1,831 | 2,175 | 33,638 |

(U) Change Summary Explanation:

Funding: FY97 -$21 for App Act Sec 8037(E), -$10 for Sec 8037(H), -$76 for Sec 8136, -$4 for Sec 8138.
FY98 -$47 for App Act Sec 8035, -$55 for Sec 8041, -$30 for Sec 8043, -$25 for Sec 8048, -$11 for Economic Assumptions.

*1415-3 reclassification of appropriated funds to PE 0102326F from PE 0102325F (Projects 2976 and 4559.) The 1415-3 was approved after completion of the FY98 President's Budget, so the above amounts reflect allocated adjustments based on amounts reclassified. FY 98 and outyear funds have been budgeted in PE 0102326F.

Schedule: None

Technical: None

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102325F Joint Surveillance System

PROJECT: 2996

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement AF, WSC 86190A | 0 | 849 | 639 | 0 | 0 | 0 | 0 | TBD | TBD |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) FARR last operational readiness date | | | | | | | | | x | | | |
| (U) FARR follow-on support including baselining/commissioning before FAA final acceptance | | | | | x | | | | | | | x |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0102325F Joint Surveillance System<br>PROJECT 2996 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Systems engineering | 596 | 700 | 440 |
| (U) Contractor engineering support | 858 | 140 | 144 |
| (U) Installation/Test/Checkouts | 1773 | 696 | 1280 |
| (U) Program Office support | 427 | 295 | 311 |
| (U) Total | 3,654 | 1,831 | 2,175 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| None | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Support and Management Organizations | | | | | | | | | | |
| MITRE | Various | | N/A | N/A | 3,803 | 596 | 700 | 400 | 0 | 5,539 |
| TEMS | Various | | N/A | N/A | 1,669 | | | 144 | 0 | 1,813 |
| Martin Marietta | Various | | N/A | N/A | 5,341 | 858 | 140 | | 0 | 6,339 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102325F Joint Surveillance System

PROJECT: 2996

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Program Office Support | Various | | N/A | N/A | 1,087 | 427 | 295 | 311 | 0 | 7,771 |
| Test and Evaluation Organizations | | | | | | | | | | |
| Various | | | | | 4,022 | 1,773 | 696 | 1,280 | 0 | 7,771 |
| **Government Furnished Property:** None | | | | | | | | | | |
| Subtotal Product Development | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal Support and Management | | | | | 11,900 | 1,881 | 1,135 | 895 | 0 | 15,811 |
| Subtotal Test and Evaluation | | | | | 4,022 | 1,773 | 696 | 1,280 | 0 | 7,771 |
| Total Project | | | | | 15,922 | 3,654 | 1,831 | 2,175 | 0 | 23,582 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102326F Region/Sector Operations Control Center Modernization Program

PROJECT: 4592

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4592 Region/Sector Operations Modernization Center (R/SAOC)* | 8,921* | 19,233 | 13,592 | 8,739 | 3,811 | 5,818 | 5,866 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

* Funds have been realigned from PE 0102325F to PE 0102326F. All dollars previously reported in PE 0102325F for Projects 2976 and 4559 were reclassified to PE 0102326F in FY98. FY 98 and outyear funds have been budgeted in PE 0102326F.

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

The Region and Sector Air Operations Center (R/SAOC) Modernization program will provide a modernized C4I system with enhanced capability to integrate data from existing and future civil and military defense surveillance systems into a comprehensive recognized air picture to enhance CINC NORADS's (North American Aerospace Defense Command) capability to conduct peacetime air sovereignty, transition and conventional warfare in the event of aggression toward the North American Continent. The current system has reached saturation in its capability to receive, process, display, exchange, and employ air surveillance data from current sensor systems. In some cases, it has exceeded processing and displaying capacity, thus contributing to delayed C4I decisions. The outdated technology has become increasingly difficult and costly to maintain. This program is in budget activity 7 - Operational System Development because it provides funding for the modernization of a currently existing and operating system.

## (U) Acquisition Strategy:

Management for the R/SAOC Modernization is by ESC, AFMC, Hanscom AFB MA. The R/SAOC Modernization acquisition is being refined in preparation of the MS II decision. Prime Contract was awarded in March 1997 to Litton Data Systems Division, Agoura Hills, CA.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0102326F Region/Sector Operations Control Center Modernization Program<br>PROJECT 4592 |

(U) FY 1997 ($ in Thousands):
- (U) $5,969 Updated hardware and software in the US/Canadian Air Defense C2 Centers
- (U) $1,118 Systems Engineering Support
- (U) $1,452 Program Management and Technical Support
- (U) $ 382 Program Office Support
- (U) $8,921 Total*

* 1415-3 reclassification of appropriated funds from PE 0102325F (Joint Surveillance System) to PE 0102326F.

(U) FY 1998 ($ in Thousands):
- (U) $15,207 Continuation of Prime Contract
- (U) $1,560 Systems Engineering Support
- (U) $2,035 Program Management and Technical Support
- (U) $ 431 Program Office Support
- (U) $19,233 Total

(U) FY 1999 ($ in Thousands):
- (U) $9,062 Continuation of "Core" Software Development/Modification for COC and Prepare for Install of New Equipment at First Site
- (U) $1,589 Systems Engineering Support
- (U) $1,958 Program Management and Technical Support
- (U) $ 983 Program Office Support
- (U) $13,592 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0102326F Region/Sector Operations Control Center Modernization Program<br>PROJECT 4592 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 0 | 20,512 | 14,065 | TBD |
| (U) Appropriated Value | 0 | 20,512 | | TBD |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong /General Reductions | -276 | -872 | | |
| b. SBIR | -163 | -407 | | |
| c. Omnibus or Other Above Threshold Reprogram | 9,479* | | | |
| d. Below Threshold Reprogramming | -104 | | | |
| e. Rescissions | -15 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -473 | |
| (U) Current Budget Submit/FY1999 President's Budget | 8,921 | 19,233 | 13,592 | TBD |

(U) Change Summary Explanation:

Funding: FY97 -$25 for App Act Sec 8037(H), -$54 for Sec 8037(E), -$188 for Sec 8136, -$9 for Sec 8138.
*$9,479 Approved by OUSD(C) on 4 Feb 97 (FY 97-21 IR). 1415-3 reclassification of appropriated funds from PE 0102325F to PE 0102326F. All funding previously reported in PE 0102325F for Projects 2976 and 4559) were reclassified to PE 0102326F in FY98. Consequently, all adjustments were also reallocated to PE 0102326F based on the reclassified amounts and are reflected in this R-2 submission. FY 98 and outyear funds have been budgeted in PE 0102326F.
Funding: FY98 -$82 for Sec 8035, -$120 for Sec 8041, -$307 for Sec 8043, -$256 for Sec 8048, -$107 for Economic Assumptions
Schedule: R/SAOC contractor announced schedule growth and corresponding cost growth due to his underestimation of effort and staffing problems. The schedule was extended 8 months and resultant cost growth is estimated at $15 million.
Technical: None

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement AF, WSC 834340, BA 7, P-1 55 | 0 | 0 | 11,137 | 4,713 | 1,916 | 4,831 | 5,037 | Cont | TBD |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102326F Region/Sector Operations Control Center Modernization Program

PROJECT: 4592

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) R/SAOC ORDII approved | x | | | | | | | | | | | |
| (U) R/SAOC RFP released | x | | | | | | | | | | | |
| (U) R/SAOC Mod Milestone II | | | | x | | | | | | | | |
| (U) R/SAOC Mod Contract Award | | x | | | | | | | | | | |
| (U) Site 1 (SEADS) Hardware & COTS Software Procurement | | | | | | x | | | | | | |
| (U) Procure Operator Work Stations | | | | | | | x | | | | x | x |
| (U) COC Site Turnover | | | | | | | | | | | | x |
| (U) Site 1 IOT&E | | | | | | | | | | | | x |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102326F Region/Sector Operations Control Center Modernization Program

PROJECT: 4592

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) System Engineering Support | 1,118 | 1,560 | 1,589 |
| (U) Program Office Support | 382 | 431 | 983 |
| (U) Program Management and Technical Support | 1,452 | 2,035 | 1,958 |
| (U) Development/Modification of Software for COC | 5,969 | 15,207 | 9,062 |
| (U) Total | 8,921 | 19,233 | 13,592 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| LITTON | CPAF | 14 Mar 97 | (R/SAOC) | | 0 | 5,969 | 15,207 | 9,062 | Cont | TBD |
| Support and Management Organizations | | | | | | | | | | |
| MITRE | Various | | N/A | N/A | 0 | 1,118 | 1,560 | 1,589 | Cont | TBD |
| TEMS | Various | | N/A | N/A | 0 | 1,452 | 1,098 | 1,808 | Cont | TBD |
| Program Office Support | Various | | N/A | N/A | | 382 | 568 | 983 | Cont | |
| Test and Evaluation Organizations | | | | | | | | | | |
| 46th Test Wing /Other Test Activities | | | | | | | 100 | 150 | Cont | TBD |
| Government Furnished Equipment | | | | | | | 700 | 0 | | |
| Subtotal Product Development | | | | | 0 | 5,969 | 15,207 | 9,062 | Cont | TBD |
| Subtotal Support and Management | | | | | 0 | 2,952 | 3,226 | 4,380 | Cont | TBD |
| Subtotal Test and Evaluation | | | | | 0 | 0 | 800 | 150 | Cont | TBD |
| Total Project | | | | | 0 | 8,921 | 19,233 | 13,592 | Cont | TBD |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102411F North Atlantic Defense System (NADS)

PROJECT: 2980

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2980 North Atlantic Defense System (NADS) | 4,954 | 1,257 | 615 | 0 | 0 | 0 | 0 | 0 | 60,970 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

This program provides improvements to command, control, and communications (C3) and air surveillance capabilities in Iceland. The Control Reporting Center (CRC) and air surveillance radars support air defense requirements in the strategically important Greenland-Iceland-Norwegian gap. The program is a joint program with NATO funding infrastructure while the US funds cryptographic capabilities, system engineering and integration activities. The program is in budget activity 7 since it supports improvements to these currently operational systems.

(U) **Acquisition Strategy**: The acquisition of hardware has been completed. Current funding provides engineering support during the NATO Operational Review known as the JFAI (Joint Formal Acceptance Inspection). The JFAI is a NATO technical and financial audit. Any discrepancies must be corrected to satisfy NATO. This requires engineering and technical support to perform this function. NATO also requires On-Island Support to provide technical, management, logistics, and system support services. NATO is presently deliberating on the funding of Link 16 requirement for NADS. If NATO provides the infrastructure funding for Link 16, the US will fund system engineering and integration activities.

(U) FY 1997 ($ in Thousands)
- (U) 2,018 Provided program office support
- (U) 2,723 Provided systems engineering support for NADS
- (U) 213 Completed support for Developmental Test and Evaluation (DT&E) and Operational Test & Evaluation (OT&E).
- (U) 4,954 Total

(U) FY 1998 ($ in Thousands)
- (U) 537 Provide program office support
- (U) 720 Provide systems engineering support for NADS
- (U) 1,257 Total

NOTE: Program is nearing completion requiring only engineering support and program management.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0102411F North Atlantic Defense System (NADS) |
| | PROJECT<br>2980 |

(U) FY 1999 ($ in Thousands)

- (U) 195 Provide program office support
- (U) 420 Provide systems engineering support for NADS
- (U) 615 Total

NOTE: Program is nearing completion requiring only engineering support and program management

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 4,962 | 1,442 | 0 | 60,548 |
| (U) Appropriated Value | 5,278 | 1,442 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional General Reduction | -233 | -183 | | |
| b. Below Threshold Reprogramming | | | | |
| c. SBIR reduction | -83 | -2 | | |
| d. Rescissions | -8 | | | |
| (U) Adjustment to Budget Years | | | 615 | |
| (U) Current Budget Submit/FY1999 President's Budget | 4,954 | 1,257 | 615 | 60,970 |

(U) Change Summary Explanation:

Funding:

FY97 -$27 for Appr Act Sec 8037(H), -$95 for Section 8037(E), -$106 for Section 8136 and -$5 for Section 8138.
FY98 -$55 for Appr Act Sec 8035, -$81 for Section 8041, -$22 for Section 8043, -$18 for Section 8048, -$7 for Economic Assumptions.
FY99 +615 added to complete on-island support and complete NATO Financial Audit

Schedule: FY1999 funding provided for program office support to accomplish the NATO Financial Audit and any residual clean-up taskings as a result of deficit findings of the Joint Formal Acceptance Inspection (JFAI).

Technical: None

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

Not Applicable

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0102411F North Atlantic Defense System (NADS) |
| | PROJECT<br>2980 |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) On-Site Development Test & Evaluation | | | x | | | | | | | | | |
| (U) Functional Configuration Audit (FCA)/Physical CA | | | x | | | | | | | | | |
| (U) System Operational Test & Evaluation | | | | x | | | | | | | | |
| (U) FOC* | | | | | | x | | | | | | |
| (U) Preparation for JFAI** | | | | | x | | | x | | | | |
| (U) CI-13 Install** | | | | | | | x | | | | | |
| (U) JFAI*** | | | | | | | | x | | | | |
| (U) NATO Financial Audit*** | | | | | | | | | x | | | |
| (U) Program residuals and T&E | | | | | | | | | x | x | | |

*Air Combat Command accepted operational system 4QFY97. Correction of OT&E residuals will complete FOC scheduled for 2QFY98.
**Schedule updates reflect the separation of "Preparation for JFAI" and "CI-13 Install" requirements, which were previously listed together.
***The addition of "JFAI" and "NATO Financial Audit", which were erroneously omitted on previous reports, and a more accurate estimate of the time necessary to complete residuals.

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0102411F North Atlantic Defense System (NADS)

PROJECT: 2980

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Engineering Support | 2,723 | 720 | 420 |
| (U) Test and Evaluation Support | 213 | 0 | 0 |
| (U) Program Support | 2,018 | 537 | 195 |
| (U) Total | 4,954 | 1,257 | 615 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Support and Management Organizations | | | | | | | | | | |
| MITRE | Various | Oct 94 | N/A | N/A | 33,954 | 2,723 | 420 | 720 | 0 | 37,817 |
| TEMS | Various | Jun 94 | N/A | N/A | 14,715 | 1,147 | 400 | 100 | 0 | 16,362 |
| Program Office Support | Various | | N/A | N/A | 2,310 | 871 | 137 | 95 | 0 | 3,413 |
| Test and Evaluation Organizations | | | | | | | | | | |
| Various | | | | | 3,165 | 213 | 0 | 0 | 0 | 3,378 |
| GFP/GFE: | None | | | | | | | | | |
| Subtotal Product Support | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal Support and Management | | | | | 50,979 | 4,741 | 1,257 | 615 | 0 | 57,592 |
| Subtotal Test and Evaluation | | | | | 3,165 | 213 | 0 | 0 | 0 | 3,378 |
| Total Project | | | | | 54,144 | 4,954 | 1,257 | 615 | 0 | 60,970 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207131F A-10 Squadrons

PROJECT: 3861

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3861 A-10 Squadrons | 0 | 0 | 3,212 | 6,956 | 6,761 | 3,119 | 10,511 | TBD | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | TBD | TBD |

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

The A-10 aircraft is the Air Force's dedicated Close Air Support (CAS) aircraft for support of ground maneuver forces. There is a need to upgrade and modernize the A/OA-10 aircraft to enhance its ability to support CAS and interdiction mission requirements. The Low Altitude Safety and Targeting Enhancement (LASTE) computer upgrade will enhance the computer memory, throughput, and system architecture to allow the aircraft to integrate advanced weapons and accomodate a situational awareness display, a data-link capability, an Electronic Warfare Management System, and the Digital Terrain System. This program is in budget activity 7 - Operational System Development because it supports an operational system.

(U) **Acquisition Strategy:**

The LASTE development will be conducted under the A-10 Prime Contract scheduled to be awarded in March 1998 on a full-and-open basis.

(U) FY 1997 ($ in Thousands):
- (U) $0 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $2,312 LASTE Computer Upgrade
- (U) $2,358 Total

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207131F A-10 Squadrons

PROJECT: 3861

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 0 | 0 | 2,312 | TBD |
| (U) Adjustments to Budget Years Since FY 1998 PB | 0 | 0 | 0 | |
| (U) Current Budget Submit/ FY 1999 President's Budget | 0 | 0 | 2,312 | TBD |

(U) Change Summary Explanation:

Funding: None

Schedule: None

Technical: None

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Aircraft Procurement, BP-11 (PE 27131F) | 29,613 | 24,412 | 31,088 | 25,365 | 52,269 | 24,783 | 26,398 | TBD | TBD |
| (U) BP-29 (PE 207442F) | 0 | 2,500 | 8,200 | 6,400 | 4,900 | 2,400 | 0 | TBD | 24,400 |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Low Altitude Safety and Targeting Enhancement (LASTE) computer upgrade RDT&E | | | | | | | | | X | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207131F A-10 Squadrons<br>PROJECT 3861 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) LASTE | 0 | 0 | 2,312 |
| (U) Total | 0 | 0 | 2,312 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| LASTE | | TBD | TBD | | | | | | | |
| Lockheed Martin Federal Systems | A-10 Prime Contract/ CPAF | 1Q99 | | | 0 | 0 | 0 | 2,312 | 8,100 | 10,412 |
| Support and Management Organizations | | | | | | | | | | |
| Not Applicable | | | | | | | | | | |
| Test and Evaluation Organizations | | | | | | | | | | |
| Not Applicable | | | | | | | | | | |
| Subtotal Product Development | | | | | 0 | 0 | 0 | 0 | 2,312 | 8,100 | 10,412 |
| Subtotal Support & Management | | | | | | | | | | |
| Subtotal Test and Evaluation | | | | | | | | | | |
| Total Project | | | | | | | | | 2,312 | 8,100 | 10,412 |

**Government Furnished Property:** None

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207133F F-16 Squadrons

PROJECT: 2671

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2671 F-16 Squadrons | 125,489 | 95,333 | 125,076 | 119,522 | 95,498 | 55,088 | 41,912 | TBD | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

The F-16 fighter aircraft program satisfies the need for modernization of the USAF and allied multimission tactical fighter forces. The F-16 is a single-engine, single-seat, multirole tactical fighter with full air-to-air and air-to-surface combat capabilities. The F-16 complements the F-15 in counter-air missions and is the primary aircraft in the surface attack role. The F-16C/D program develops, integrates, and qualifies systems to enhance the overall performance of the F-16 mission.

The F-16 program also develops enhanced combat capability in both the air-to-ground and air-to-air role. Improvements (all within the FYDP) include completion of the Mid-Life Update (MLU) Program, the Modular Mission Computer (MMC), Block 30 GPS Integration, Smart Weapons Integration, and Pratt & Whitney 229 Engine design improvements. The planned program also develops Close Air Support (CAS) enhancements for 250 Block 40 C/D by integrating the Night Vision Imaging System (NVIS). The F-16C/D development efforts are complemented by comprehensive Operational Flight Program (OFP) upgrades.

To meet the need beyond the turn of the century, a Mid-Life Update (MLU) of aircraft avionics is being conducted by our European partners. MLU involves various mods to European F-16A/B, including the Modular Mission Computer (MMC), which USAF Block 50s will eventually employ. The MMC will extend the cost effective life of the F-16 through replacement of three Line Replaceable Units and the addition of significant memory and processing growth provisions. The latest version of the F-16C/D has significantly improved display processors, enabling increased pilot situational awareness. Efforts are underway to upgrade the Improved Data Modem (IDM) data link capability on the Block 50 aircraft with the latest version of the High Speed Anti-Radiation Missile (HARM).

Additionally, future capability is highlighted by new developments such as: AIM-9X for Blocks 40/50, Color Displays for Blocks 40/50; Improved Flight Controls for Blocks 30/40/50; Link 16 for Blocks 40/50; MMCs added for Block 40s; Advanced Weapons Integration; Night Vision Imaging System (NVIS), Enhanced/Expanded Fire Control Computer (EEFCC); Improved Flight Control Computer for the Block 30; Improved Airborne Video Tape Recorder (IAVTR) for Block 50 and On-Board Oxygen Generating System (OBOGS) for all F-16 C/D aircraft; and Common Configuration Integration Program (CCIP) Integration (Time & Materials). CCIP will modify all Block 40 and Block 50 F-16 aircraft. CCIP pulls together several related programs under one umbrella and allows integration of AIM-9X onto F-16:

a. The main driver for CCIP will be the Link 16 program. Link 16 is a data link that connects main components of a battle arena to maintain awareness and to share position data. The Link 16 program designs the appropriate Group A (hardware mounted permanently on aircraft) to incorporate existing Group B (hardware that is easily removed from airplane) developed by the Multifunctional Information Distribution System (MIDS) Office and adapted for use on the F-16.

b. To enhance the display of the Link 16 data, the current black and white display will be changed out with the color display used by the European Participating Air Force countries on the MLU Program.

c. To have sufficient computing power in the Block 40 aircraft to operate Link16 and to allow the cost savings of using a common Operational Flight Program, the MMC has to be upgraded to the same one used on the Block 50 aircraft.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207133F F-16 Squadrons |
| | PROJECT<br>2671 |

d. The Joint Helmet Mounted Cueing System (JHMCS) incorporates a man-mounted, ejection capable helmet mounted display system, with capability to cue and verify cueing of high off-axis sensors and weapons. JHMCS includes a flight helmet with display optics, image source, helmet tracker transducer w/attached cable, graphics processor/video hardware and software to drive the display, helmet tracker hardware and software, interfaces to the aircraft computers, weapons and sensor hardware, with software to integrate the JHMCS functions with other onboard systems.

The F-16, which received Milestone III approval in FY 1977, is an operational aircraft. Since the development activities in this PE support an operational aircraft, these development activities are funded in the Operational System Development budget activity 7.

(U) **Acquisition Strategy:** Procurement of additional F-16 aircraft is not funded beyond the buy of 3 provided by Congress in the FY 98 Appropriations Act. RDT&E funds will primarily be executed in developing improved capability, maintenance and safety mods. Operational Flight Program (OFP) software will be continuously updated to complement mod development efforts. The approach to contracting varies by individual project. LMTAS is the Prime on all systems except Trainer (Hughes Prime) and 229 Engines (Pratt & Whitney Prime). Contract types are CPIF, CPFF, FFP.

(U) FY 1997 ($ in Thousands):

| | | | |
|---|---|---|---|
| – | (U) | $2,100 | Completed MLU Engineering and Manufacturing Development (EMD) |
| – | (U) | $10,900 | Continued MMC Upgrade Block 50 |
| – | (U) | $1,030 | Continued F-16 Block 40 Close Air Support EMD |
| – | (U) | $4,400 | Continued Block 30 GPS |
| – | (U) | $12,000 | Continued Smart Weapons integration |
| – | (U) | $44,601 | Continued OFP development |
| – | (U) | $26,400 | Continued Flight Tests Developmental Test & Evaluation (DT&E) |
| – | (U) | $3,700 | Started/Completed EEFCC |
| – | (U) | $4,800 | Continued CCIP (Time & Materials) |
| – | (U) | $1,000 | Completed OBOGS development |
| – | (U) | $10,500 | Started Weapon System Trainer/Unit Training Devices (UTDs) |
| – | (U) | $1,000 | Completed Pratt & Whitney 229 Engines |
| – | (U) | $1,100 | Started/Completed JHMCS design analysis |
| – | (U) | $1,358 | Continued Government Test/Support |
| – | (U) | $600 | Wright Lab Support/Studies |
| – | (U) | $125,489 | Total |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207133F F-16 Squadrons<br>PROJECT 2671 |

(U) FY 1998 ($ in Thousands):

- (U) $7,400 Start Link 16 Development/Integration Block 40/50
- (U) $3,000 Continue UTDs
- (U) $37,600 Continue Flight Tests DT&E
- (U) $5,000 Complete Block 40 Close Air Support EMD
- (U) $6,200 Complete MMC on Block 50; Start MMC on Block 40
- (U) $25,573 Continue OFP Updates
- (U) $2,000 Continue Advanced Weapons Integration
- (U) $4,700 Continue Block 30 GPS
- (U) $1,300 Continue Government Test/Support
- (U) $2,500 Start Color Display Development/Integration for Block 40/50
- (U) $60 Start AIM-9X Development/Integration
- (U) $95,333 Total

(U) FY 1999 ($ in Thousands):

- (U) $22,800 Continue Link 16 Block 40/50
- (U) $4,300 Continue Block 40/50 Color Display Development/Integration
- (U) $32,500 Continue Flight Tests DT&E
- (U) $37,704 Continue OFP Updates
- (U) $1,293 Complete Advanced Weapons Integration
- (U) $3,200 Complete Block 30 GPS Integration
- (U) $12,000 Continue MMC for Block 40
- (U) $4,179 Continue UTDs
- (U) $7,100 Continue AIM-9X development
- (U) $125,076 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207133F F-16 Squadrons<br>PROJECT 2671 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 126,228 | 100,233 | 100,491 | TBD |
| (U) Appropriated Value | 132,202 | 100,233 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -2,772 | -3,327 | | |
| b. SBIR | -3,202 | -1,573 | | |
| c. Omnibus or Other Above Threshold Reprogram | -1,030 | | | |
| d. Below Threshold Reprogramming | 500 | | | |
| e. Rescission | -209 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 24,585 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 125,489 | 95,333 | 125,076 | TBD |

(U) Change Summary Explanation:

Funding: In FY 1998, $643 cut is pending for inflation adjustment. In FY 1999, the $24,585 adjustment includes $20,000 transferred from procurement to accelerate CCIP, $7,100 added for AIM-9X/JHMCS, and $2,515 inflation adjustment cut.

Schedule: JHMCS is a new start in FY 1997 and AIM-9X is a new start in FY 1998.

Technical: The improved capabilities inherent in adding AIM-9X/JHMCS.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Aircraft Procurement, BP10, BA-2, PE 0207133 (F-16 Squadrons) | 154,278 | 80,654 | | | | | | TBD | TBD |
| (U) Aircraft Procurement, BP11, Mods, BA-5 | 112,241 | 172,636 | 229,319 | 244,501 | 278,427 | 254,692 | 206,296 | TBD | TBD |
| (U) Aircraft Procurement, BP13, Post Production Support, BA-7 | 63,146 | 37,542 | 27,289 | 15,555 | 12,803 | 12,380 | 12,677 | TBD | TBD |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207133F F-16 Squadrons |
| | PROJECT<br>2671 |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) ENGINEERING MILSTONES | | | | | | | | | | | | |
| (U) Blk 50T4 FCA/PCA | * | | | | | | | | | | | |
| (U) Blk 50T5 CDR | | | * | | | | | | | | | |
| (U) T&E MILESTONES | | | | | | | | | | | | |
| (U) Blk 40 CAS DT&E Start | | * | | | | | | | | | | |
| (U) CONTRACT MILESTONES | | | | | | | | | | | | |
| (U) Link 16 | | | | | | | X | | | | | |
| (U) JHMCS | | | | | | | X | | | | | |
| (U) MMC | | | | | | | X | | | | | |
| (U) Color Display | | | | | | | X | | | | | |
| (U) OBOGS | | | | * | | | | | | | | |
| (U) CCIP (T&M) | | * | | | | | | | | | | |
| (U) Digital Terrain System | | | | | | | | | | | X | |
| (U) Blk 30 GPS EMD | | | | | | | | | | | | X |
| (U) Advanced Weapons Integration Dev | | | | | | | | | | | | X |
| (U) Blk 30 NVIS | | | | | | | | | | | | |
| (U) Screech Reduction for F110-229s | | | | | | | X | | | | | |
| (U) Blk 30 Fire Control Computer Mod | | | | | | | | | | X | | |

X = Planned Events
* = Completed Events

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207133F F-16 Squadrons<br>PROJECT 2671 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Pratt & Whitney 229 Engine | 1,000 | | |
| (U) LINK 16 Block 50 | | 5,600 | 17,000 |
| (U) Link 16 Block 40 | | 1,800 | 5,800 |
| (U) UTD | 10,500 | 3,000 | 4,179 |
| (U) Government Test/Support | 1,358 | 1,300 | |
| (U) Flight Tests DT&E | 26,400 | 37,600 | 32,500 |
| (U) MLU | 2,100 | | |
| (U) Block 40 Close Air Support | 1,030 | 5,000 | |
| (U) MMC Block 50 | 10,900 | 3,700 | |
| (U) MMC Block 40 | | 2,500 | 12,000 |
| (U) OFP Upgrades | 44,601 | 25,573 | 37,704 |
| (U) Smart Weapons Integration | 12,000 | 2,000 | 1,293 |
| (U) Blk 30 GPS Integration | 4,400 | 4,700 | 3,200 |
| (U) Color Display Block 50 | | 2,100 | 3,000 |
| (U) Color Display Block 40 | | 400 | 1,300 |
| (U) Studies/Wright Lab Spt/Misc. | 600 | | |
| (U) OBOGS | 1,000 | | |
| (U) EEFCC Blk 30 | 3,700 | | |
| (U) JHMCS | 1,100 | | |
| (U) AIM-9X | | 60 | 7,100 |
| (U) CCIP (Time & Materials) | 4,800 | | |
| (U) Total | 125,489 | 95,333 | 125,076 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207133F F-16 Squadrons<br>PROJECT 2671 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Trainer (Hughes) | FFP | Apr 97 | 44,979 | 44,979 | 0 | 10,500 | 3,000 | 4,179 | 27,300 | 44,979 |
| MLU (Lockheed/ Westing/Other) | SS/CPIF | 92 | 102,800 | 102,800 | 100,700 | 2,100 | 0 | 0 | 0 | 102,800 |
| Close Air Spt (LMTAS) | Proj Orders/ SS/CPIF | Jan/Feb 95 | 49,830 | 49,830 | 43,800 | 1,030 | 5,000 | 0 | 0 | 49,830 |
| MMC Blk 50 (LMTAS) | SS/CPIF | Jan 92 | 269,700 | 269,700 | 255,100 | 10,900 | 3,700 | 0 | 0 | 269,700 |
| MMC Blk 40 (LMTAS) | SS/CP | Apr 98 | 27,500 | 27,500 | 0 | 0 | 2,500 | 12,000 | 13,000 | 27,500 |
| OFP Upgrades (LMTAS) | CPIF/T&M | Dec 95 | TBD | TBD | 39,100 | 44,601 | 25,573 | 37,704 | TBD | TBD |
| Smart Wpns (LMTAS) | CPIF | Dec 95 | TBD | TBD | 6,900 | 12,000 | 2,000 | 1,293 | TBD | TBD |
| GPS Blk 30 (Various) | FFP | Jul 97 | 20,200 | 20,200 | 7,900 | 4,400 | 4,700 | 3,200 | 0 | 20,200 |
| Color Displays (LMTAS) | SS/CPFF | Apr 98 | 8,069 | 8,069 | 0 | 0 | 2,500 | 4,300 | 1,269 | 8,069 |
| Link 16 Blk 50 (LMTAS) | SS/CPFF | Apr 98 | 32,500 | 32,500 | 0 | 0 | 5,600 | 17,000 | 9,900 | 32,500 |
| Link 16 Blk 40 (LMTAS) | SS/CPFF | Apr 98 | 15,524 | 15,524 | 0 | 0 | 1,800 | 5,800 | 7,924 | 15,524 |
| CCIP (LMTAS) | T&M | Feb 97 | 6,200 | 6,200 | 1,400 | 4,800 | 0 | 0 | 0 | 6,200 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207133F F-16 Squadrons

PROJECT: 2671

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| EEFCC (LMTAS) | SS/FFP | Feb 97 | 3,700 | 3,700 | 0 | 3,700 | 0 | 0 | 0 | 3,700 |
| OBOGS (LMTAS) | SS/CPIF | Jul 96 | 2,500 | 2,500 | 1,500 | 1,000 | 0 | 0 | 0 | 2,500 |
| JHMCS (LMTAS) | SS/CPFF | Apr 98 | 1,100 | 1,100 | 0 | 1,100 | 0 | 0 | 0 | 1,100 |
| AIM/9X (LMTAS) | CPAF | Apr 98 | 32,360 | 32,360 | 0 | 0 | 60 | 7,100 | 25,200 | 32,360 |
| 229 Engine (Pratt&Whitney) | SS/FFP | Dec 94 | 6,500 | 6,500 | 5,500 | 1,000 | 0 | 0 | 0 | 6,500 |
| Support and Management Organizations | | | | | | | | | | |
| Govt Test/Spt | | | 263,023 | 263,023 | 260,365 | 1,358 | 1,300 | 0 | 0 | 263,023 |
| Modernization Planning Process Study | | | 1,400 | 1,400 | 900 | 500 | 0 | 0 | 0 | 1,400 |
| Test and Evaluation Organizations | | | | | | | | | | |
| Flight Tests | | | TBD | TBD | 61,200 | 26,400 | 37,600 | 32,500 | TBD | TBD |
| Wright Labs | | | 190 | 190 | 90 | 100 | 0 | 0 | 0 | 190 |
| Government Furnished Equipment/Property: N/A | | | | | | | | | | |
| Subtotal Product Development | | | | | 461,900 | 97,131 | 56,433 | 92,576 | TBD | TBD |
| Subtotal Support and Management | | | | | 261,265 | 1,858 | 1,300 | | 0 | 264,423 |
| Subtotal Test and Evaluation | | | | | 61,290 | 26,500 | 37,600 | 32,500 | TBD | TBD |
| Total Project | | | | | 784,455 | 125,489 | 95,333 | 125,076 | TBD | TBD |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207134F F-15E Squadrons

PROJECT: 0131

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 0131 Initial Operational Test and Evaluation | 152,353 | 129,774 | 104,207 | 119,753 | 107,272 | 95,168 | 51,307 | 369,876 | 1,088,473 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 A/C |

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

The F-15E is the most versatile fighter in the world today. Configured with conformal fuel tanks (CFTs), the F-15E can deploy worldwide with minimal tanker support and arrive combat-ready. The F-15E retains air superiority capability and adds systems, such as Low Altitude Navigation Targeting Infrared for Night (LANTIRN), to meet the requirement for all-weather, deep penetration, and night/under-the-weather, air-to-surface attack. However, the threat includes a new generation of aircraft possessing all-weather detection and kill capabilities. The F-15E's avionics, armament, airframe, and engines must be improved to maintain its superiority against the threat into the next century. Avionics updates, exploiting proven technological advances, are being incorporated into the F-15E providing expanded capability and supporting an updated and fully integrated electronic warfare suite. As a result, this project develops enhanced offensive and defensive capability and survivability.
(The F-15E PE also funds RDT&E activities for PE # 0207130, F-15A-D). The F-15E, which received contract award approval in FY84, is an operational aircraft and therefore the development activities in the PE are included in Budget Activity 7, Operational Systems Development.

(U) **Acquisition Strategy:** Program is a continuation of effort which includes the development of all F-15 models. Current contract award information is contained in R-3, Section B, "Budget Acquisition History and Planning Information". Funds are executed organically in support of equipment improvement, study, analysis, and test.

(U) FY 1997 ($ in Thousands):

- (U) 64,838 Continued development and testing of F-15 improvements to APG-63 radar.
- (U) 34,056 Continued Operational Flight Program (OFP) development efforts.
- (U) 25,092 Continued flight test of the OFP and flight testing of improvements initiated in prior years.
- (U) 15,000 Development of ALQ-135, Band 1.5
- (U) 5,963 Continued improvements contributed to Diminishing Manufacturing Sources (DMS).
- (U) 5,156 Continued development of Programmable Armament Control Set (PACS) upgrade.
- (U) 1,200 TEWS Intermediate Support System (TISS) replacement
- (U) 1,000 Completed development of -229 engine improvements.
- (U) 48 Repaired government furnished equipment used for R&D.
- (U) 152,353 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207134F F-15E Squadrons<br>PROJECT 0131 |

(U) FY 1998 ($ in Thousands):

| | | | |
|---|---|---|---|
| – | (U) | 35,475 | Continue OFP development efforts. |
| – | (U) | 32,006 | Completes development and improvements of the APG-63 radar. |
| – | (U) | 15,300 | Continue flight test of the OFP and flight testing of improvements initiated in prior years. |
| – | (U | 15,900 | Continue development of ALQ-135, Band 1.5 |
| – | (U) | 5,650 | Continue improvements attributed to DMS. |
| – | (U) | 5,170 | Development of the Joint Helmet Mounted Cueing System (JHMCS). |
| – | (U) | 15,000 | Development of the Link-16 data link for the F-15E. |
| – | (U) | 2,360 | TISS replacement |
| – | (U) | 1,790 | Development of the Combat Identification (ID) System. |
| – | (U) | 600 | Repair government furnished equipment used for R&D. |
| – | (U) | 523 | Continue development of PACS upgrade. |
| – | (U) | 129,774 | Total |

(U) FY 1999 ($ in Thousands):

| | | | |
|---|---|---|---|
| – | (U) | 41,748 | Continue OFP development efforts. |
| – | (U) | 20,200 | Continue flight test of the OFP and flight testing of improvements initiated in prior years. |
| – | (U) | 5,900 | Continue development of the Link-16 data link for the F-15E. |
| – | (U) | 11,445 | Continue development of the ALQ-135 Band 1.5. |
| – | (U) | 8,600 | Continue developments attributed to DMS. |
| – | (U) | 4,674 | Continue development of the Combat ID System. |
| – | (U) | 5,080 | Continued development of the JHMCS. |
| – | (U) | 3,490 | Development of the Air Data Processor (ADP). |
| – | (U) | 1,730 | Continue development of PACS upgrade. |
| – | (U) | 740 | TISS replacement |
| – | (U) | 600 | Repair government furnished equipment used for R&D. |
| – | (U) | 104,207 | Total |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207134F F-15E Squadrons | PROJECT<br>0131 |

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget FY 1998 PB | 150,981 | 137,538 | 109,798 | 1,131,159 |
| (U) Appropriated Value | 158,095 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | -3,326 | -4,519 | | |
| b. SBIR | -3,788 | -3,245 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | +1,622 | | | |
| e. Recissions | -250 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -5,591 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 152,353 | 129,774 | 104,207 | 1,088,473 |

(U) (U) Change Summary Explanation:

**Funding:** $3,495 reprogrammed in FY97 from Joint Helmet Mounted Cueing System (JHMCS). FY97 BTR also includes -$1,873 for a cancellation bill. For the FY98 funds, $882,000 is pending reprogramming to fund higher priorities and $18,000 is pending for additional SBIR reduction.

**Schedule:** No changes.

**Technical:** No changes.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207134F F-15E Squadrons

PROJECT: 0131

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Aircraft Procurement BP10 (PE27134F) | 247,021 | 231,989 | 0 | 0 | 0 | 0 | 0 | 0 | TBD |
| (U) Aircraft Procurement BP11 (Mods) (PEs 27130F and 27134F) | 132,280 | 177,272 | 196,579 | 220,140 | 248,239 | 303,174 | 313,072 | TBD | TBD |
| (U) Aircraft Procurement BP 11 (Mods) (PE27442F) | 0 | 0 | 0 | 0 | 0 | 8,519 | 22,387 | TBD | TBD |
| (U) Aircraft Procurement BP13 (Post Prod Spt) | 7,786 | 6,074 | 7,851 | 7,732 | 7,714 | 7,820 | 8,029 | TBD | TBD |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) JHMCS DT start | | | | | * | | | | | | | |
| (U) JHMCS OT start | | | | | | | | | | | X | |
| (U) PACS DT&E complete | | | | * | | | | | | | | |
| (U) OFP Suite 3 | | | | | | | | | | | | |
| (U) MSIP OT&E complete | | | | | * | | | | | | | |
| (U) E-model OT&E start | | | | | * | | | | | | | |
| (U) MSIP release | | | | | | X | | | | | | |
| (U) E-model release | | | | | | | | X | | | | |
| (U) OFP Suite 4 VCC CDR | | | | | | | | | | | X | |
| (U) APG-63 ground integration test start | * | | | | | | | | | | | |
| (U) APG-63 DT flight test start | | | | * | | | | | | | | |
| (U) APG-63 OT flight test start | | | | | | | | X | | | | |
| (U) Link-16 DT start | | | | | | | | | | X | | |
| (U) Combat ID DT start | | | | | | | | | | X | | |
| (U) ALQ-135, Band 1.5 DT&E start | | | | | | | X | | | | | |
| (U) ALQ-135,Band 1.5 OT start | | | | | | | | | | X | | |
| (U) TISS replacement | | | | * | | | | | | | | |
| (U) Air Data Processor EMD start | | | | | | | | | | X | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE: February 1998 |
|---|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0207134F F-15E Squadrons | PROJECT: 0131 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Flight Test | 25,092 | 15,300 | 20,200 |
| (U) OFP | 34,056 | 35,475 | 41,748 |
| (U) Link-16 data link | 0 | 15,000 | 5,900 |
| (U) APG-63(V)1 | 64,838 | 32,006 | 0 |
| (U) Helmet Mounted Cueing System | 0 | 5,170 | 5,080 |
| (U) GFE/GFP Repair | 48 | 600 | 600 |
| (U) Falcon -229 | 1,000 | 0 | 0 |
| (U) Parts Obsolescence | 5,963 | 5,650 | 8,600 |
| (U) PACS Upgrade | 5,156 | 0,523 | 1,730 |
| (U) Combat ID | 0 | 1,790 | 4,674 |
| (U) ALQ-135 Band 1.5 | 15,000 | 15,900 | 11,445 |
| (U) Air Data Processor | 0 | 0 | 3,490 |
| (U) TISS Replacement | 1,200 | 2,360 | 740 |
| (U) Total | 152,353 | 129,774 | 104,207 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207134F F-15E Squadrons | PROJECT<br>0131 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | FY 1997 | FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| P&W (-229 Eng) | CPAF | Sep 94 | 6,520 | 6,520 | 5,520 | 1,000 | 0 | 0 | 0 | 6,520 |
| GE (-129 Eng) | | | 7,130 | 7,130 | 7,130 | 0 | 0 | 0 | 0 | 7,130 |
| Boeing (GFE/GFP) | FFP | Dec 93 | 4,475 | 4,475 | 1,327 | 48 | 600 | 600 | 1,900 | 4,475 |
| OFP Suite 4 Development | CPAF | May 98 | 257,040 | 257,040 | 37,246 | 34,056 | 35,475 | 41,748 | 108,515 | 257,040 |
| Boeing APG63 (Feasability Study) | CPFF | Feb 94 | 778 | 778 | 778 | 0 | 0 | 0 | 0 | 778 |
| (Risk Reduction) | CPFF | Feb 94 | 9,892 | 9,892 | 9,892 | 0 | 0 | 0 | 0 | 9,892 |
| (EMD) | CPAF | Sep 94 | 234,512 | 234,512 | 137,668 | 64,838 | 32,006 | 0 | 0 | 234,512 |
| Boeing (JHMCS A-D) | CPAF | | 14,230 | 14,230 | | 0 | 5,170 | 5,080 | 3,980 | 14,230 |
| PACS Upgrade | CPAF | May 95 | 38,819 | 38,812 | 21,731 | 5,156 | 523 | 1,730 | 10,100 | 39,240 |
| Wright Lab (DMS) | MIPR/PRs | Sep 94 | 58,789 | 58,789 | 12,046 | 5,963 | 5,650 | 8,600 | 26,530 | 58,789 |
| Smart Weapons Integration | CPAF | Nov 99 | 40,640 | 40,640 | 0 | 0 | 0 | 0 | 40,640 | 40,640 |
| ADP(E) | CPAF | Jan 99 | 5,280 | 5,280 | 0 | 0 | 0 | 3,490 | 1,790 | 5,280 |
| ADCP(E) | CPAF | Dec 99 | 53,280 | 53,280 | 0 | 0 | 0 | 0 | 53,280 | 53,280 |
| NGA (ALQ-135 Band 1.5) | FFP | May 97 | 42,345 | 42,345 | 0 | 15,000 | 15,900 | 11,445 | 0 | 42,345 |
| Link-16 data link | CPFF | Feb 98 | 20,900 | 20,900 | 0 | 0 | 15,000 | 5,900 | 0 | 20,900 |
| Combat ID | CPAF | May 98 | 16,750 | 16,750 | 0 | 0 | 1,790 | 4,674 | 10,286 | 16,750 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207134F F-15E Squadrons

PROJECT: 0131

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | FY 1997 | FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| TISS Replacement | CPFF | Aug 97 | 4,700 | 4,700 | 0 | 1,200 | 2,360 | 740 | 400 | 4,700 |
| Support and Management Organizations | | | | | | | | | | |
| (Msn Spt) Misc. | | | | | 16,708 | 0 | 0 | 0 | 0 | 16,708 |
| Test and Evaluation Organizations | | | | | | | | | | |
| Boeing (Flt Test) | FFP | Oct 96 | | | 41,315 | 9,980 | 9,579 | 7,000 | 33,000 | 100,874 |
| Edwards (OFP) | PO | Oct 96 | | | 31,492 | 12,512 | 5,391 | 8,400 | 64,455 | 122,250 |
| Eglin (Flt Test) | PO | Oct 96 | | | 9,410 | 2,600 | 330 | 4,800 | 15,000 | 32,140 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207134F F-15E Squadrons | PROJECT<br>0131 |

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

**Government Furnished Property:** The F-15 program funds for the repair of government furnished property (GFP) purchased and available for support of F-15 research and development. The GFP consists of avionics line replaceable units, special test equipment, flight test instrumentation, and special tooling needed by Boeing Aerospace and Northrop-Grumman to complete development on several F-15 aircraft hardware and software enhancements. Assets are rotated among several F-15 development contracts on an as needed basis and repaired organically through the network of repair contracts managed by the various Air Logistics Centers.

| | Total Prior to FY 1997 | FY 1997 | FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 233,338 | 127,261 | 114,474 | 84,007 | 257,421 | 816,501 |
| Subtotal Support and Management | 16,708 | | | | | 16,708 |
| Subtotal Test and Evaluation | 82,217 | 25,092 | 15,300 | 20,200 | 112,455 | 255,264 |
| Total Project | 332,263 | 152,353 | 129,774 | 104,207 | 369,876 | 1,088,473 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207136F Manned Destructive Supression

PROJECT: 4595

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4595 F-16 HARM Targeting System (HTS) | 13,130* | 12,259 | 2,443 | 0 | 0 | 0 | 0 | 0 | 55,278 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*For FY97 and prior, the project number was 2671. The project number was changed to 4595 starting in FY98 for administrative reasons.

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

The overall Manned Destructive Suppression (MDS) program funds the development, procurement and sustainment of the Air Force's lethal Suppression of Enemy Air Defenses (SEAD) capability. The program provides certain F-16 aircraft the capability to carry and employ the AGM-88 High-Speed Anti-Radiation Missile (HARM). The F-16C/Blk 50 has been modified to carry the AN/ASQ-213 HARM Targeting System (HTS) for real-time targeting, and "range known" HARM employment -the missile's most lethal mode. The RDT&E efforts are focused on making the HTS system more capable in advanced threat environments. This PE is in Budget Activity 7- Operational System Development because it supports HTS upgrade development.

(U) **Acquisition Strategy:**

The HTS program objective is to develop an enhanced HARM Targeting System capability that improves HARM effectiveness on F-16C/Blk 50 aircraft. The objective will be accomplished by EMD efforts that significantly upgrade and increase the aircraft real-time, reactive Suppression of Enemy Air Defenses(SEAD).

(U) FY 1997 ($ in Thousands)

- (U) 7,432 Continued Engineering and Manufacturing Development (EMD) of HTS Upgrade.
- (U) 914 Developed HTS Air Force Mission Support System (AFMSS) modifications.
- (U) 908 Began HTS Test and Evaluation.
- (U) 1,476 Mission Support
- (U) 2,400 Aircraft/Systems Integration
- (U) 13,130 **Total**

(U) FY 1998 ($ in Thousands)

- (U) 7,665 Continue EMD of HTS Upgrade development.
- (U) 866 Develop HTS Air Force Mission Support System (AFMSS) modifications.
- (U) 2,427 Continue HTS Test and Evaluation.
- (U) 1,301 Mission Support
- (U) 12,259 **Total**

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207136F Manned Destructive Supression | PROJECT<br>4595 |

(U) FY 1999 ($ in Thousands)

| | | | |
|---|---|---|---|
| – | (U) | 1,809 | Continue EMD of HTS upgrade development. |
| – | (U) | 487 | HTS Test and Evaluation. |
| – | (U) | 147 | Mission Support |
| – | (U) | 2,443 | **Total** |

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

| | FY 1997 | FY 1998 | | FY 1999 | Total Cost |
|---|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 11,821 | 13,561 | | 2,492 | 56,629 |
| (U) Appropriated Value | 12,384 | 13,561 | | | |
| (U) Adjustments to Appropriated Value: | | | | | |
| a. General Congressional Reductions | -263 | -474 | | | |
| b. SBIR | -300 | -828 | * | | |
| c. Omnibus or Other Above Threshold Reprogramming | | | | | |
| d. Below Threshold Reprogramming | 1,329 | | | | |
| d. Rescissions | -20 | | | | |
| (U) Adjustments to Budget Years Since FY98 PB | | | | -49 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 13,130 | 12,259 | | 2,443 | 55,278 |

(U) Change Summary Explanation:

Funding:

- FY 97 funds ($1,329M) were added for Upgrade Plus EMD contract effort, R6 flight test efforts, and mission planning.
- An additional SBIR reduction of $28,000 is planned*.
- FY99 reductions for an economic adjustment.

Schedule: N/A

Technical: N/A

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207136F Manned Destructive Supression<br>PROJECT 4595 |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) HTS Aircraft Procurement (BP11) AF PE 0207136F | 0 | 12,172 | 3,314 | 138 | 0 | 0 | 0 | 0 | 22,648 |
| (U) HTS Aircraft Procurement (BP19) AF PE 0207136F | 0 | | 12,855 | 0 | 0 | 0 | 0 | 0 | 12,855 |
| (U) HTS Ops & Maintenance, AF PE 0207136F | 0 | 8,754 | 10,960 | 6,995 | 7,814 | 8,483 | 8,294 | Continuing | TBD |

**Related RDT&E:** PE 0207133F, F-16 Squadrons.

NOTE: FY97-FY01 funding includes Air Force MSS (AFMSS) and WTT sustaining support, contractor sustaining engineering, depot development, repair, program office support and other related support activities.

U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) F-16 HTS Upgrade Development* | | | | | | | | | | | | X |
| (U) New Buy Lot 2 Contract Award | | | | | | | | | X | | | |
| (U) Retrofit Contract Award | | | | | | X | | | | | | |
| (U) New Buy Lot 1 Pod Deliveries | | | | | | | X | | X | | | |
| (U) New Buy Lot 2 Pod Deliveries | | | | | | | | | | | | |
| (U) R6 Fielding | | | | | | | | | | | | X |

*Note: This effort started second quarter FY96

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207136F Manned Destructive Supression<br>PROJECT 4595 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) HTS Upgrade Project | | | |
| (U) HTS Pod Development | 7,432 | 7,665 | 1,809 |
| (U) Aircraft/System Integration | 2,400 | | |
| (U) Test & Evaluation | 908 | 2,427 | 487 |
| (U) Training & Support Equip Development | 914 | 866 | |
| (U) Mission Support | 1,476 | 1,301 | 147 |
| (U) Total | 13,130 | 12,259 | 2,443 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207136F Manned Destructive Supression |
| PROJECT<br>4595 | |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Raytheon/TI Systems | SS/CPAF | Various | 6,808 | 6,808 | 6,532 | 276 | | | 0 | 6,808 |
| Raytheon/TI Systems | SS/CPAF | Feb 96 | 27,680 | 28,400 | 17,474 | 7,329 | 7,665 | 1,809 | 0 | 34,277 |
| Lockheed Ft Worth | TBD | Various | | | | 2,400 | | | 0 | 2,400 |
| AFMSS | | | | | 32 | 882 | 866 | | 0 | 1,780 |
| Support and Management Organizations | | | | | | | | | | |
| Prog. Office Spt | Various | Various | | | 1,909 | 1,405 | 1,301 | 147 | 0 | 4,762 |
| Test and Evaluation Organizations | | | | | | | | | | |
| Eglin | PO | Various | | | 204 | 697 | 941 | 412 | 0 | 2,254 |
| Edwards | PO | Various | | | 373 | 141 | 1,486 | 75 | 0 | 2,075 |
| Light Defender Support Orgs. | | Various | | | 922 | | | | | 922 |
| Subtotal Product Development | | | | | 24,038 | 10,887 | 8,531 | 1,809 | 0 | 45,265 |
| Subtotal Support and Management | | | | | 1,909 | 1,405 | 1,301 | 147 | 0 | 4,762 |
| Subtotal Test and Evaluation | | | | | 1,499 | 838 | 2,427 | 487 | 0 | 5,251 |
| Total Project | | | | | 27,446 | 13,130 | 12,259 | 2,443 | 0 | 55,278 |

**Government Furnished Property:** Not Applicable.

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207141F F-117A Squadrons

PROJECT: 3956

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3956 F-117A Stealth Fighter | 11,777 | 8,964 | 5,147 | 4,896 | 2,903 | 2,361 | 3,642 | 11,446 | 55,589 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

The F-117A is the world's first operational low-observable (LO) combat aircraft. Its combination of stealth and precision weapons delivery capability allows the United States Air Force to hold even the most highly defended targets at risk. This program provides funds to develop improved systems for the F-117A aircraft. These improvements will enhance combat capability while maintaining a safe, reliable, and supportable aircraft. The F-117A is projected to be in service through at least 2015. The major research budget activity category is operational systems development; however, some of the research is engineering and manufacturing development (EMD). The final F-117A delivery to the Air Force (number 59) was in July 1990. The program is well past production and into sustainment. The single operational F-117A unit, the 49th Fighter Wing, is stationed at Holloman AFB, NM. The program uses Aircraft Procurement Air Force (APAF) modification (BA-5) money for an extensive modification program to keep the F-117A current with operational system and reliability/maintainability upgrades. Most modification projects require development efforts, funded with RDT&E money, before they are integrated into the fleet. Additionally, F-117A RDT&E funding supports integration, threat system, and technology studies, as required by the user.

This project provides research and development for multiple modifications to the F-117A weapons system. The first FY 99 RDT&E effort continues development work for the MIL-STD-1760 Stores Management Processor (SMP). This modification facilitates integration of advanced weapons on the F-117A, specifically, the Joint Direct Attack Munition (JDAM) and the Wind Corrected Munitions Dispenser (WCMD). The Single Configuration Fleet (SCF) sub-project includes development of new spray coating application techniques and panel access technologies to improve the reliability and maintainability of the weapon system. SCF development concludes in FY 98 and the modification effort begins in FY 99. This modification allows the weapon system to move toward a single, standard configuration for all F-117 airframes, fleetwide. This sub-project also includes efforts to integrate a single leading edge configuration, compatible with the overall Low Observable aircraft system. The next effort continues development for actual Smart Weapons Integration, JDAM and WCMD, on the F-117. This program is in budget activity 7, Operational System Development, because all aircraft have been delivered and the program is in its deployment phase.

(U) **Acquisition Strategy**: RDT&E funds are executed in developing improved capability, maintenance, and safety modification development efforts. Operational Flight Program (OFP) software is continuously updated (Block Cycle Update every 3 years) to complement modification development efforts. The contracting approach varies by individual project and involves Firm Fixed Price (FFP), Cost Plus Fixed Fee (CPFF), and Cost Plus Award Fee (CPAF) contract types.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207141F F-117A Squadrons<br>PROJECT 3956 |

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

(U) FY 1997 ($ in Thousands):
- (U) $5,300 Continued development work on Stores Management Processor (SMP) (formerly known as MIL-STD-1760)
- (U) $4,524 Continued development work on Single Configuration Fleet (SCF) (formerly known as RAM recoating)
- (U) $1,953 Completed development work on Ozone Depleting Chemical
- (U) $11,777 Total

(U) FY 1998 ($ in Thousands):
- (U) $4,669 Continue development work on SMP
- (U) $4,295 Complete development work on SCF
- (U) $8,964 Total

(U) FY 1999 ($ in Thousands):
- (U) $4,855 Continue development work on SMP
- (U) $292 Start Smart Weapons Integration
- (U) $5,147 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0207141F F-117A Squadrons — PROJECT: 3956 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget: FY 98 PB | 11,797 | 9,520 | 5,251 | 44,416 |
| (U) Appropriated Value | 12,050 | 9,520 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional General Reductions/Rescissions | -253 | -311 | | |
| b. SBIR | | -245 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Recissions | -20 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -104 | |
| (U) Current Budget Submit/FY99 President's Budget | 11,777 | 8,964 | 5,147 | 55,589 |

(U) Change Summary Explanation:

Funding: A total of $556K was removed in FY 98 for Congressional General Reductions and SBIR. $289K removed from SMP project and $267K removed from the integration of new smart weapons into Block 2 upgrades. In FY 99, $104K was removed as an inflation adjustment.

Schedule: Delayed planned start of smart weapons integration from FY 98 to FY 99.

Technical: Reduction of funds removed new smart weapons integration from Block 2 upgrades increasing risk of conflict between software modules.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Aircraft Procurement (BA-5), Appn 3010/BP1100, AF F117A Squadrons, PE 27141F | 28,819 | 27,657 | 25,654 | 28,843 | 31,536 | 29,354 | 22,542 | TBD | TBD |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207141F F-117A Squadrons<br>PROJECT 3956 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) F3 IRADS (RDT&E Start FY93, Retrofit Start Mar 95, Finished Jan 97) | | * | | | | | | | | | | |
| (U) RNIP+ (RDT&E Start Aug 91, Retrofit Started Oct 96 Finish Dec 99) | * | | | | | | | | | | | |
| (U) AP-102 Computer Upgrade (Retrofit Started Oct 96, Finish Jun 00) | * | | | | | | | | | | | |
| (U) Stores Management Processor (SMP) (RDT&E Start Jul 96; Retrofit Start May 00, Finish Sep 03) | | | | | | | | | | | | |
| (U) High Temperature Edges Retrofit CA FY 2/93, Finish FY 2/98) | | | | | | X | | | | | | |
| (U)Single Configuration Fleet (SCF) (RDT&E Start Apr 96, Retrofit CA FY 2/99, Finish FY 3/04) | | | | | | | | | | X | | |
| (U) Replace Life-Limited Skin Panels & Web Retrofit CA FY 2/99, Finish FY 2/04 | | | | | | | | | | X | | |
| (U) Ozone Depleting Chemical upgrade (RDT&E Started Sep 97, Retrofit Start Sep 99 Finish Dec 03) | | | | * | | | | | | | | X |
| (U) Smart Weapons Integration (RDT&E Started Oct 97) | | | | | * | | | | | | | |
| (U) Icing Detection and Protection (Retrofit CA FY 3/93, Retrofit Start FY 3/93, Finish FY 2/98) | | | | | | X | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207141F F-117A Squadrons<br>PROJECT 3956 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Development work on SMP (MIL-STD-1760) | 5,300 | 4,669 | 4,855 |
| (U) Development work on SCF (RAM Recoating) | 4,524 | 4,295 | |
| (U) Development work on Ozone Depleting Chemical | 1,953 | | |
| (U) Smart Weapons Integration | | | 292 |
| (U) Total | $11,777 | 8,964 | 5,147 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Compl | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| **SMP (Mil-Std-1760 modification)** | | | | | | | | | | |
| Lockheed Martin Skunk Works (1760), Palmdale CA | CPAF | Jul 96 | 19,023 | 19,023 | 1,839 | 5,300 | 4,669 | 4,855 | 2,360 | 19,023 |
| **Single Configuration Fleet (RAM Recoat Modification)** | | | | | | | | | | |
| Wright Laboratory, Signature technology office | AF 616 | Apr 96 | 325 | 325 | 100 | 225 | 0 | 0 | 0 | 325 |
| Sandia Labs, Albuquerque NM | MIPR | May 96 | 3,900 | 3,900 | 500 | 2,700 | 700 | 0 | 0 | 3,900 |
| Lockheed Martin Skunk Works (RAM), Palmdale CA | T&M | Jun 96 | 6,402 | 6,402 | 1208 | 1,599 | 3,595 | 0 | 0 | 6,402 |
| **Ozone Depleting Chemical Modification** | | | | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207141F F-117A Squadrons

PROJECT: 3956

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Compl | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Lockheed Martin Skunk Works (Ozone), Palmdale CA | CPFF | Sep 97 | 2,759 | 2,759 | 806 | 1,953 | 0 | 0 | 0 | 2,759 |
| **Smart Wpn Integration** Sacramento Air Logistics Center, McClellan AFB, CA | FFP | Oct 97 | 22,523 | 22,523 | 0 | 0 | 0 | 292 | 22,231 | 22,523 |
| **Fuel Quantity Processor Contractor TBD** | TBD | FY 02 | TBD | 657 | 0 | 0 | 0 | 0 | 657 | 657 |
| Subtotal Product Development | | | | | 4,453 | 11,777 | 8,964 | 5,147 | 25,248 | 55,589 |
| Subtotal Support and Management | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal Test and Evaluation | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | | 4,453 | 11,777 | 8,964 | 5,147 | 25,248 | 55,589 |

Support and Management Organizations N/A

Test and Evaluation Organizations N/A

**Government Furnished Property:** N/A

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207161F Tactical AIM Missile

PROJECT: 4132

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4132 AIM-9 Product Improvement | 29,245 | 51,199 | 52,966 | 40,807 | 16,993 | 2,695 | 0 | 0 | 212,884 |
| Quantity of RDT&E Articles | 0 | 5 | 7 | 11 | 0 | 0 | 0 | 0 | 23 |

**Note:** The RDT&E articles are deliverables under the Engineering and Manufacturing Development contract and are not separately priced.

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

The AIM-9 Sidewinder short range air-to-air missile is a launch and leave, air combat munition that uses passive infrared (IR) energy for acquisition and tracking of enemy aircraft and complements the Advanced Medium Range Air-to-Air Missile. Air superiority in the short range air-to-air missile arena is essential and includes first shot, first kill opportunity against an enemy employing IR countermeasures. Improvements in missile seeker and kinematics allow retrofit of components to current missiles to the maximum extent possible. Anti-Tamper features will be incorporated to protect improvements inherent in this design. Retrofitting of components will extend the operational effectiveness of existing inventories at an affordable cost while continuing evolution of the AIM-9 series. AIM-9X is an ACAT I joint-service program with Navy lead. This program is in budget activity 7 - Operational System Development, since the AIM-9X is a long-term evolution to the AIM-9, a fielded system .

(U) **Acquisition Strategy:**

The Joint Air Force/Navy Short Range Air-to-Air Missile (SRAM) Upgrade Program objective is development and upgrade of the AIM9X missile to counter the AA-11+ threat. This is an ACAT 1D program with the Navy as lead Service; the Air Force is a participating Service and jointly manages the program. Key provisions of the acquisition strategy are development of improved maneuverability of the airframe, improvement of Infra Red Imaging Midwave FPA seeker technology with high OBA gimbal, evolutionary design/modification of rocket motor, warhead, and fuse. Ultimate goal of this strategy is to maximize US capability to achieve day/night air-to-air superiority in a robust infra-red countermeasure environment through development of improved airframe guidance and control capability while maximizing sub-component utilization of AIM-9M fuse.

(U) FY 1997 ($ in Thousands):

- (U) $17,270 AIM-9X EMD
- (U) $ 9,975 Continued sustaining engineering and in-house efforts
- (U) $ 2,000 Began EMD development test. Conduct DT-IIA (captive carry tests)
- (U) $29,245 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207161F Tactical AIM Missile<br>PROJECT 4132 |

(U) FY 1998 ($ in Thousands):

- (U) $35,080 Continue manufacturing development, conduct Design Review II (DR II), fly captive test units, and start delivery of safe separation vehicles for DT-IIB
- (U) $ 5,144 Continue providing aircraft interface information to EMD contractor to include any available wind tunnel tests
- (U) $ 3,535 Continue preparations for DT-IIB and start DT-IIB
- (U) $ 7,440 Provide for consulting services, technical engineering, and management support
- (U) $51,199 Total

(U) FY 1999 ($ in Thousands):

- (U) $31,505 Continue the manufacturing development contract
- (U) $ 6,602 Continue providing aircraft interface to the EMD contractor. Incorporate results of wind tunnel
- (U) $ 9,550 Complete DT-IIB, start DT-IIC and start OT-IIA
- (U) $ 5,309 Provide for consulting services, technical engineering, and management support
- (U) $52,966 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE |
|---|---|
| | February 1998 |

| BUDGET ACTIVITY | PE NUMBER AND TITLE | PROJECT |
|---|---|---|
| 7 - Operational System Development | 0207161F Tactical AIM Missile | 4132 |

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget/FY 1998 PB | 31,798 | 53,171 | 54,031 | 212,884 |
| (U) Appropriated Value | 32,882 | 53,171 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -692 | -1,972 | | |
| b. SBIR | -392 | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | -2,500 | | | |
| e. Rescissions | -53 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -1,065 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 29,245 | 51,199 | 52,966 | 212,884 |

(U) Change Summary Explanation:

Funding: FY98 adjustments included -$1,972K in Congressional Reductions; FY99 adjustments include -$1,065M removed for other higher priorities.

Schedule: None

Technical: Anti-Tamper requirements were added to the AIM-9X program.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207161F Tactical AIM Missile

PROJECT: 4132

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Missile Procurement, Budget Activity 2, PE 0207161F, Program Title: Tactical AIM Missile | | | | 32,162 | 35,653 | 62,326 | 66,705 | 1,090,642 | 1,287,488 |
| (U) Missile Procurement, Budget Activity 2, PE 0207590F, Program Title: SEEK EAGLE | | | | | 6,005 | 0 | 8,395 | 0 | 14,400 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE: February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0207161F Tactical AIM Missile / PROJECT: 4132 |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Acquisition Milestones | | | | | | | | | | | | |
| MS II | X | | | | | | | | | | | |
| (U) Engineering Milestones | | | | | | | | | | | | |
| DR I | | | | X | | | | | | | | |
| DR II | | | | | | X | | | | | | |
| (U) Test and Evaluation Milestones | | | | | | | | | | | | |
| DT-IIA (Captive Carry) | | | X | | | | | | | | | |
| Wind Tunnel Tests for F-15 & F-18 | | | | | | X | | | | | | |
| DT-IIB (Safe Separation) | | | | | | | | X | | | | |
| DT-IIC (Guided Launches) | | | | | | | | | | X | | |
| Conduct Insensitive Munitions Tests | | | | | | | | | | X | | |
| OT-IIA (Guided Launches) | | | | | | | | | | | | X |
| (U) Contract Milestones | | | | | | | | | | | | |
| EMD Award | X | | | | | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207161F Tactical AIM Missile

PROJECT: 4132

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Project Cost Categories | | | |
| a. Primary Hardware Development | 17,270 | 35,080 | 31,505 |
| b. Government Engineering Support | 4,900 | 2,476 | 957 |
| c. Contractor Engineering Support | 4,180 | 5,144 | 6,602 |
| d. Miscellaneous | 720 | 4,760 | 4,131 |
| e. Development Test and Evaluation | 2,000 | 3,535 | 9,550 |
| f. Travel | 175 | 204 | 221 |
| (U) Total | 29,245 | 51,199 | 52,966 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Hughes | C/CPIF | Dec 94 | 5,694 | 5,694 | 5,694 | | | | | 5,694 |
| Raytheon | C/CPIF | Dec 94 | 5,695 | 5,695 | 5,695 | | | | | 5,695 |
| Hughes (EMD)* | C/CPIF | Dec 96 | 113,720 | 113,720 | | 17,270 | 35,080 | 31,505 | 29,865 | 113,720 |
| McDon-Doug# | C/CPIF | Jan 96 | 18,588 | 18,588 | 181 | 4,180 | 5,144 | 6,602 | 2,481 | 18,588 |
| Field Activities | PO | Oct 96 | N/A | N/A | 5,955 | 6,900 | 6,011 | 10,507 | 20,985 | 50,358 |
| Misc. In-House | PO | | N/A | N/A | 898 | 761 | 4,384 | 3,798 | 6,032 | 15,873 |
| Support and Management Organizations | | | | | | | | | | |
| Various Contracts | FFP | | N/A | N/A | 559 | 134 | 580 | 554 | 1,129 | 2,956 |

*Note: Hughes became part of Raytheon Systems effective Dec 97.

#Note: McDonnell-Douglas became part of Boeing effective Aug 97.

Test and Evaluation Organizations (Included in product improvement)

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207161F Tactical AIM Missile

PROJECT: 4132

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| **Government Furnished Property:** NA | | | | | | | | | | |
| Subtotal Product Development | | | | | 18,423 | 29,111 | 50,619 | 52,412 | 59,363 | 209,928 |
| Subtotal Support and Management | | | | | 559 | 134 | 580 | 554 | 1,129 | 2,956 |
| Subtotal Test and Evaluation | | | | | | | | | | |
| Total Project | | | | | 18,982 | 29,245 | 51,199 | 52,966 | 60,492 | 212,884 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207163F Adv Med Range A/A Msl

PROJECT: 3777

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | FY 2004 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| 3777 AMRAAM | 9,704 | 39,875 | 45,078 | 47,289 | 41,815 | 37,008 | 27,941 | TBD | 143,500 | 664,031 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

The Air Force and Navy developed the baseline Advanced Medium Range Air-to-Air Missile (AMRAAM) as a high performance, all weather missile to counter existing air vehicle threats operating at high or low altitude and having advanced Electronic Protection (EP) capabilities. The AMRAAM Pre-planned Product Improvement (P3I) program provides for a continuing, Joint Air Force/Navy research and development program which enables AMRAAM to: (1) be compatible with advanced fighters, (2) enhance AMRAAM capability and operational flexibility against mid-1990's and beyond threats, (3) incorporate high payoff technology developments, and (4) investigate new variants and/or alternate missions which may use many baseline missile attributes. Currently, improvements under the P3I program include enhanced EP capabilities; improved weapon effectiveness through improved warhead, fuzing, and guidance; and increased kinematics via a new 5-inch stretched rocket motor. This program is in budget activity 7 - Operational System Development, providing upgrades to the AIM-120C missile now in production.

(U) **Acquisition Strategy:**

The AMRAAM program is an Air Force ACAT 1C program. The Air-To-Air Joint System Program Office (JSPO) provides AMRAAM missile test assets for all development and operational tests conducted on the system, subsystems, components, and rail launchers. The JSPO develops system performance specifications at the missile level, for which it will retain configuration control.

Management of the AMRAAM program includes a price-based acquisition strategy offered to a single AMRAAM Prime Contractor as a "Total Package Deal." The "Deal" includes a Long Term Pricing Agreement (LTPA), Total System Performance Responsibility (TSPR), and sustainment activities to include depot level repair. This contractor will produce all AMRAAM missiles, provide technical support, sustain fielded missiles and perform depot and development activity. The net effect reduces total program costs.

(U) FY 1997 ($ in Thousands):

- (U) $ 250 Continued P3I Phase 2 Engineering and Manufacturing Development (EMD) for EP, weapons effectiveness improvements and initiated kinematic improvements (5-inch rocket motor)
- (U) $ 4,940 Continued Phase 3 risk reduction to enhance EP and guidance
- (U) $ 3,437 Mission support
- (U) $ 1,077 Test and evaluation
- (U) $9,704 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE |
|---|---|---|
| | | February 1998 |
| BUDGET ACTIVITY | PE NUMBER AND TITLE | PROJECT |
| 7 - Operational System Development | 0207163F Adv Med Range A/A Msl | 3777 |

(U) FY 1998 ($ in Thousands):
- (U) $25,383 Complete P3I Phase 2 EMD for EP, weapons effectiveness, and kinematic improvements
- (U) $ 7,668 Complete Phase 3 risk reduction to enhance EP and guidance
- (U) $ 3,297 Mission support
- (U) $ 3,527 Test and evaluation
- (U) $39,875 Total

(U) FY 1999 ($ in Thousands):
- (U) $ 7,000 Conduct P3I Phase 3 improved EP fuzing capability
- (U) $ 28,060 Initiate P3I Phase 3 EP and guidance EMD
- (U) $ 3,219 Mission support
- (U) $ 6,799 Test and evaluation
- (U) $ 45,078 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget/FY 1998 PB | 24,745 | 50,781 | 45,985 | 664,031 |
| (U) Appropriated Value | 25,883 | 43,781 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional General Reductions | -593 | -1851 | | |
| b. SBIR | -545 | -2055 | | |
| c. Omnibus or Other Above Threshold Reprogram | -14,000 | | | |
| d. Below Threshold Reprogramming | -1,000 | | | |
| e. Rescissions | -41 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -907 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 9,704 | 39,875 | 45,078 | 664,031 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0207163F Adv Med Range A/A Msl — PROJECT: 3777 |

(U) Change Summary Explanation:

Funding: In FY97, $14M was removed from the program for Omibus Above Threshold Reprogramming. In FY99, a non pay purchase inflationreduction occurred.

Schedule: Due to Phase 2 restructure, flight testing will be completed in Sep 98. The Phase 3 contract award was delayed to Oct 98 due to FY98 congressional language, therefore, the PDR will be moved to 3QFY99.

Technical: Due to the FY98 Congressional Budget reductions and rephasing language, the improved EP fuzing capability was moved to Phase 3 with FY99 completion.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Missile Procurement, Budget Activity: #2 | | | | | | | | | |
| (U) BP20 AMRAAM | 110,605 | 104,016 | 114,627 | 107,219 | 105,045 | 127,637 | 123,112 | 502,110 | 6,833,276 |
| (U) BP25 Replenishment Spares | 11,885 | 0 | 5,236 | 10,557 | 10,441 | 10,447 | 10,347 | Continuing | 153,534 |
| (U) BP26 Initial Spares | 3,853 | 1,057 | 2,661 | 2,701 | 2,654 | 2,708 | 2,791 | Continuing | 79,828 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207163F Adv Med Range A/A Msl | PROJECT<br>3777 |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) P3I Phase 2 Tape 7A FCA | | | X | | | | | | | | | |
| (U) P3I Phase 2 Tape 7B PDR/CDR | | | | X | | | | | | | | |
| (U) P3I Phase 2 Tape 7A Flt Test Comp | | | X | | | | | | | | | |
| (U) P3I Phase 2 Tape 7B Flt Test Comp | | | | | | | | X | | | | |
| (U) P3I Phase 2 Warhead CDR/FCA | | | | X | | | | | | | | |
| (U) P3I Phase 2 SCAS CDR/FCA | | | | | | X | | | | | | |
| (U) P3I Phase 2 Rocket Motor CDR/FCA | | | | | X | | | | | | | |
| (U) P3I Phase 3 Fuzing FCA | | | | | | | | | | | | X |
| (U) P3I Phase 3 EMD Contract Award | | | | | | | | | X | | | |
| (U) P3I Phase 3 PDR | | | | | | | | | | | X | |

"X" = Completion or Milestone

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207163F Adv Med Range A/A Msl

PROJECT: 3777

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) a. Contract/Cost and Operational Effectiveness Analysis (COEA) | 5,191 | 33,051 | 35,060 |
| (U) b. Government Costs (Test, Support) | 1,907 | 4,034 | 7,004 |
| (U) c. GFE | 0 | 0 | 323 |
| (U) d. Contractor Support | 2,606 | 2,790 | 2,691 |
| (U) Total | 9,704 | 39,875 | 45,078 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Misc. Contracts Various | FFP | Dec 95 - Mar 96 | N/A | N/A | 7,658 | 740 | 140 | 140 | 8,823 | 17,501 |
| F08635-90-C-0201 Hughes* | FFP | Aug 90 | N/A | N/A | 5,200 | 0 | 0 | 0 | 0 | 5,200 |
| F08626-91-C-0034 Hughes | CPIF | Mar 91 | 91,704 | 93,506 | 93,506 | 0 | 0 | 0 | 0 | 93,506 |
| F08626-93-C-0044 (Phase 2) Hughes | CPAF | Jun 94 | 118,442 | 114,893 | 87,822 | 110 | 26,961 | 0 | 0 | 114,893 |
| Phase 3 Risk Reduction | | Oct 95 | N/A | N/A | 16,351 | 4,341 | 5,950 | 0 | 0 | 26,642 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207163F Adv Med Range A/A Msl

PROJECT: 3777

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Phase 3 Inproved Fuzing Capability | | 1QFY99 | | | | | 0 | 7,000 | 0 | 7,000 |
| Phase 3 EP/Guidance EMD Contract | | 1QFY99 | | | | | 0 | 27,920 | 113,709 | 141,629 |
| Phase 3 Follow on | | 2QFY03 | | | | | 0 | 0 | 116,817 | 116,817 |
| Support and Management Organizations | | | | | | | | | | |
| COEA | PO/MIPR | Jan 94 | | | 3,358 | | | | | 3,358 |
| Contractor Support | PR/REO | Oct 95 - Mar 96 | | | 9,896 | 2,607 | 2,790 | 2,691 | 17,955 | 35,939 |
| JSPO Operations | REO/MIPR | Oct 95 - Sep 96 | | | 16,213 | 830 | 507 | 528 | 4,461 | 22,539 |
| Test and Evaluation Organizations | | | | | | | | | | |
| Government Test | PO/MIPR | Oct 95 - Sep 96 | | | 29,437 | 1,077 | 3,527 | 6,476 | 32,038 | 68,555 |

***Note: Hughes became part of Raytheon Systems effective Dec 97.**

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207163F Adv Med Range A/A Msl | PROJECT<br>3777 |

**Government Furnished Property:**

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| None. | | | | | | | | | |
| Support and Management Property | | | | | | | | | |
| None. | | | | | | | | | |
| Test and Evaluation Property | | | | | | | | | |
| TM/ECM Pods | MIPR/PO | | | 2,380 | 0 | 0 | 323 | 3,751 | 6,454 |
| Subtotal Product Development | | | | 210,537 | 5,191 | 33,051 | 35,060 | 239,349 | 523,187 |
| Subtotal Support and Management | | | | 29,467 | 3,436 | 3,297 | 3,219 | 22,415 | 61,835 |
| Subtotal Test and Evaluation | | | | 31,817 | 1,077 | 3,527 | 6,799 | 35,789 | 79,009 |
| Total Project | | | | 271,821 | 9,704 | 39,875 | 45,078 | 297,553 | 664,031 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207217F Podded Reconnaissance System (PRS)

PROJECT: 4611

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4611 Theater Airborne Reconnaissance System | 6,127 | 282 | 0 | 0 | 0 | 0 | 0 | 0 | 9,409 |
| Quantity of RDT&E Articles | 1/* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1/* |

* RDT&E articles are not seperately priced.

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

(U) The Theater Airborne Reconnaissance System (TARS) Podded Reconnaissance System (PRS) provides a responsive (on-demand), day/under-the-weather manned reconnaissance capability to support intelligence requirements of military, multinational, and other government agency users. It will provide literal, selective aspect electro-optical (EO) sensor imagery for bomb damage assessment. TARS will use on-board imagery recording and ground-based first phase imagery exploitation. It is intended to fill the penetrating, low altitude, under-the-weather medium-to-high threat niche not accomplished by current systems (national, UAVs, and other manned systems). TARS supports Combat Air Force (CAF) Mission Need Statement 328-93, Theater Airborne Reconnaissance System, 5 Jun 95.

(U) TARS will consist of 20 podded systems with embedded electro-optical (EO) sensor suites, provisions for a data link and a second sensor, five transportable Squadron Ground Systems (SGS), logistics support, and spares. It will be integrated into Air National Guard (ANG) Block 30 F-16C squadrons. Each TARS PRS system will provide a single forward/oblique EO sensor, sensor controller, wide-band recorder, second sensor window, and internal pod environmental control. The pod will interface with the F-16 cockpit Electronic Warfare Management System. The PRS will also provide space and environmental control required to implement a second vertical/oblique EO sensor and provisions for a P3I (Pre-Planned Product Improvement) Common Data Link. The SGS will interface with Combat Intelligence System (CIS) terminals.

(U) The TARS Program is in Budget Activity 7, Operational System Development. It involves commercial/government off-the-shelf technology and integration into operational (fielded) platforms.

(U) Acquisition Strategy: The acquisition strategy uses concurrent development/production and a firm fixed price contract. Aeronautical Systems Center (ASC), Wright-Patterson AFB, OH is the lead development activity. First year activities (FY 96) included contract award. Second year activities (FY 97) included completion of the Source Selection Process and a resulting Engineering Change Proposal to incorporate a new framing sensor, long lead item acquisition (pods, subsystem LRUs, etc.) and risk reduction to support first article development and procurement of production shipsets. Third year activities (FY 98) include first article testing, delivery of production systems, SGS segments, integration, and initiation of ANG unit activations. TARS will be Common Imagery Ground Surface System (CIGSS) and Common Data Link (CDL) compliant IAW Defense Airborne Reconnaissance Office guidelines.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE |
|---|---|
| | February 1998 |

| BUDGET ACTIVITY | PE NUMBER AND TITLE | PROJECT |
|---|---|---|
| 7 - Operational System Development | 0207217F Podded Reconnaissance System (PRS) | 4611 |

(U) FY 1997 ($ in Thousands):

- (U) $30 Modeling and Simulation
- (U) $1,000 Flight Test
- (U) $4,527 NRE
- (U) $70 SEEK EAGLE Stores Certification
- (U) $160 Miscellaneous
- (U) $340 Program support
- (U) $6,127 Total

(U) FY 1998 ($ in Thousands):

- (U) $140 Flight Test
- (U) $142 Program Support
- (U) $282 Total

(U) FY 1999 ($ in Thousands):

- (U) $0 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207217F Podded Reconnaissance System (PRS) |
| | PROJECT<br>4611 |

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 6,438 | 299 | 0 | 9,737 |
| (U) Appropriated Value | 6,714 | 299 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -140 | -14 | | |
| b. Small Business Innovative Research | -136 | -3 | | |
| c. Below Threshold Reprogramming | -300 | | | |
| d. Rescission | -11 | | | |
| (U) Adjustments to Budget Years Since FY 1998 President's Budget | | 0 | 0 | |
| (U) FY 1999 PB | 6,127 | 282 | 0 | 9,409 |

(U) Change Summary Explanation:
Funding: Not Applicable.
Schedule: Not Applicable
Technical: Not Applicable

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207217F Podded Reconnaissance System (PRS)

PROJECT: 4611

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Appn 3010, Initial Spares BP 16 | 0 | 0 | | | | | | | 1,700 |
| (U) Appn 3010, Other Production Charges BP19 | 0 | 6,082 | | | | | | | 38,221 |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Source Selection | * | | | | | | | | | | | |
| (U) Contract Award | | * | | | | | | | | | | |
| (U) Development Begins | | | | * | | | | | | | | |
| (U) Testing Begins | | | | * | | | | | | | | |
| (U) Begin Procurement | | | | * | | | | | | | | |
| (U) Mid-Bay Sensor Contract Award | | | | | | X | | | | | | |
| (U) Begin P$^3$I Planning | | | | | | | X | | | | | |
| (U) Development Ends | | | | | | | | X | | | | |
| (U) Testing Ends | | | | | | | | X | | | | |
| (U) IOC | | | | | | | | X | | | | |
| (U) Procurement Ends | | | | | | | | | | | | X |

* denotes completed events

X denotes planned events

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207217F Podded Reconnaissance System (PRS) |
| | PROJECT<br>4611 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) SEEK EAGLE Stores Certification | 70 | 0 | |
| (U) Modeling and Simulation | 30 | 0 | |
| (U) Non-Recurring Engineering | 4,527 | 0 | |
| (U) Miscellaneous | 160 | 0 | |
| (U) Flight test | 1,000 | 140 | |
| (U) Program Support | 340 | 142 | |
| (U) Total | 6,127 | 282 | 0 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207217F Podded Reconnaissance System (PRS) | PROJECT<br>4611 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| LMFS | FFP | 27 Sep 96 | 7,337 | 7,337 | 2,810 | 4,527 | 0 | 0 | 0 | 7,337 |
| DESC (ERIM M&S) | MIPR | 8 Oct 96 | 130 | 130 | 100 | 30 | 0 | 0 | 0 | 130 |
| EGLIN | AF 185 | 30 Jan 97 | 70 | 70 | 0 | 70 | 0 | 0 | 0 | 70 |
| Support and Management Organizations | | | | | | | | | | |
| SPO OVHD | Mission Spt | Misc | N/A | N/A | 90 | 240 | 142 | 0 | 0 | 472 |
| OO-ALC | AF 616 | 29 Aug 97 | 100 | 100 | 0 | 100 | 0 | 0 | 0 | 100 |
| SPO Misc | Misc | | | | 0 | 160 | 0 | 0 | 0 | 160 |
| Test and Evaluation Organizations | | | | | | | | | | |
| AFFTC | AF 616 | 15 Apr 97 | N/A | N/A | 0 | 1,000 | 140 | 0 | 0 | 1,140 |
| Subtotal Product Development | | | | | 2,910 | 4,627 | 0 | 0 | 0 | 7,537 |
| Subtotal Support and Management | | | | | 90 | 500 | 142 | 0 | 0 | 732 |
| Subtotal Test and Evaluation | | | | | 0 | 1,000 | 140 | 0 | 0 | 1,140 |
| TOTAL | | | | | 3,000 | 6,127 | 282 | 0 | 0 | 9,409 |

**Government Furnished Property:** Not Applicable

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207247F Air Force TENCAP

PROJECT: 0001

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 0001 Air Force TENCAP | 18,172 | 14233 | 6447 | 10285 | 10102 | 11093 | 10825 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

Air Force TENCAP is a Congressionally mandated program to provide the Tactical Exploitation of National Capabilities (TENCAP). The objective of TENCAP is to pursue seamless integration of present and future national space systems' capabilities into military operations for the warfighter. TENCAP expedites improvements to Air Force combat capabilities by performing operational concept demonstrations with rapid prototyping. TENCAP is not a developmental program per normal acquisition guidelines, but does support future operational systems development. To enhance combat effectiveness, TENCAP will focus in three areas:

1) Exploit existing national systems for the tactical warfighter (TENCAP will conceive and demonstrate capabilities to exploit national systems).
2) Influence the design and operation of new national systems for the warfighter by advocating tactical impacts of the new systems (in the form of analysis and integration of national systems into roadmaps and architectures for Air Force weapons/$C^4I$ systems).
3) Educate warfighters about national systems capabilities (in the form of training, exercises, and readiness activities).

Since this effort supports fielded systems, it is in the budget activity #7 Operational Systems Development.

(U) Acquisition Strategy. Not Applicable.

(U) FY 1997 ($ in Thousands):

- (U) $14,672 Exploited the tactical use of existing national systems for the warfighter
- --Talon Warrior (Supported training, exercises, and TENCAP applications)
- --Talon Ready (Supported mission planning)
- --Talon Shooter (Supported weapons delivery)
- --Talon Knight (Supported Special Operations)
- --Talon Command (Supported Air Force C2 systems)
- --Talon Vision (Supported emerging technologies and applications)
- (U) $1,000 Transitioned TENCAP Concept Demonstrations to the field
- (U) $2,500 Program support
- (U) $18,172 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207247F Air Force TENCAP<br>PROJECT 0001 |

(U) FY 1998 ($ in Thousands):

| | | | |
|---|---|---|---|
| – | (U) | $11,733 | Exploit the tactical use of existing national systems for the warfighter |
| – | | | --Talon Warrior (Support for training, exercises, and TENCAP applications) |
| – | | | --Talon Ready (Support mission planning) |
| – | | | --Talon Shooter (Support for weapons delivery) |
| – | | | --Talon Knight (Support Special Operations) |
| – | | | --Talon Command (Support for Air Force C2 systems) |
| – | | | --Talon Vision (Support for emerging technologies and applications) |
| – | (U) | $700 | Transition TENCAP Concept Demonstrations to field |
| – | (U) | $1800 | Program support |
| – | (U) | $14,233 | Total |

(U) FY 1999 ($ in Thousands):

| | | | |
|---|---|---|---|
| – | (U) | $ 4,747 | Exploit the tactical use of existing national systems for the warfighter |
| – | | | --Talon Warrior (Support for training, exercises, and TENCAP applications) |
| – | | | --Talon Ready (Support mission planning) |
| – | | | --Talon Shooter (Support for weapons delivery) |
| – | | | --Talon Knight (Support Special Operations) |
| – | | | --Talon Command (Support for Air Force C2 systems) |
| – | | | --Talon Vision (Support for emerging technologies and applications) |
| – | (U) | $800 | Transition TENCAP Concept Demonstrations to field |
| – | (U) | $900 | Program support |
| – | (U) | $6,447 | Total |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget FY1998 | 19,102 | 15,251 | 16,277 | Continuing |
| (U) Appropriated Value | 20,116 | 15,251 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | -497 | -646 | | |
| b. SBIR | -517 | -372 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | -900 | | | |
| e. Rescission | -30 | | | |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207247F Air Force TENCAP | PROJECT<br>0001 |

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Adjustments to Budget Years Since FY1998 PB | | | -9830 | |
| (U) Current Budget Submit (FY1999 President"s Budget) | 18,172 | 14,233 | 6447 | Continuing |

(U) Change Summary Explanation:

Funding: $500K FY97 reprogramming funded classified program. $400K FY97 reprogramming and FY99 reduction funds higher priority Air Force and DoD requirements.

Schedule: None

Technical: None

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement, BA 3, BPAC 2070 | 196 | 143 | 194 | 197 | 201 | 202 | 202 | Cont | Cont |

(U) D. **Schedule Profile:**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Contractor Proposals for FY98 Projects | | | | X | | | | | | | | |
| FY98 Project Evaluations Complete | | | | | X | | | | | | | |
| FY98 Project Authority to Proceed | | | | | X | | | | | | | |
| FY99 Projects Identified | | | | | | | X | | | | | |
| FY99 Projects Evaluated and Approved | | | | | | | | X | | | | |
| FY99 Project Authority to Proceed | | | | | | | | X | | | | |
| FY00 Projects Identified | | | | | | | | | | | X | |
| FY00 Projects Evaluated and Approved | | | | | | | | | | | | X |
| FY00 Projects Authority to Proceed | | | | | | | | | | | | X |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207247F Air Force TENCAP

PROJECT: 0001

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| TALON Projects | 14,672 | 11,733 | 4,747 |
| Transition of Projects | 1,000 | 700 | 800 |
| Program Management Spt | 2,500 | 1,800 | 900 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations: None. | | | | | | | | | | |
| Support and Management Organizations: | | | | | | | | | | |
| Multiple | Various | Multiple | | | 20,460 | 8,172 | 4,233 | 2,447 | Cont | Cont |
| Lockheed Martin | CPAF | Sep 95 | Cont | Cont | 0 | 10,000 | 10,000 | 4,000 | Cont | Cont |
| Test and Evaluation Organizations: None. | | | | | | | | | | |

**Government Furnished Property:** Not applicable. No Government property furnished to non-Government entities.

| | | | | | | |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal Support and Management | 20,460 | 18,172 | 14,233 | 6,447 | Cont | Cont |
| Subtotal Test and Evaluation | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | 20,460 | 18,172 | 14,233 | 6,447 | Cont | Cont |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207268F Aircraft Engine Component Improvement Program (CIP)

PROJECT: 1012

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 1012 Aircraft Engine Component Improvement Program | 92,636 | 98,058 | 92,069 | 93,659 | 116,663 | 115,259 | 114,560 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) **Note:** Prior to FY97 this program was funded under Program Element 0604268F.

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

CIP provides critical sustaining engineering support (only source) for in-service Air Force engines to maintain flight safety (highest priority), to correct service revealed deficiencies, to improve system Operational Readiness (OR) and Reliability and Maintainability (R&M), to reduce engine Life Cycle Cost (LCC), and to sustain engines throughout their service life. Historically, aircraft systems change missions, tactics, and environments to meet changing threats throughout their lives. Numerous new problems can develop in the engines through actual use during deployment, production, and service, and CIP provides the only funds to develop fixes for these field problems. CIP starts with delivery of the first production engine purchased with procurement funds, and continues over the engine's life, gradually decreasing to a minimum level (safety/depot repairs) sufficient to keep older inventory engines operational. CIP addresses out-of-warranty usage and life and enables the Air Force to obtain additional warranties when manufacturers incorporate CIP improvements into production engines. Since operational and safety problems arise throughout a system's service life, CIP must be maintained at a level to provide the engineering support to make the changes essential for continued satisfactory system performance at affordable costs. CIP ensures continued improvements in engine R&M factors, which reduce outyear support costs. Historically, R&M related CIP efforts reduce outyear Operations and Maintenance (O&M) and spares costs by a ratio greater than 21 to 1. O&M and spares budgets assume a viable CIP effort is in place. Without the outyear cost avoidance provided by CIP, outyear support funding would have to be increased drastically. CIP funding is driven by field events and types/maturity of engines, not by the total engine quantity. This program is in budget activity 7 - Operational System Development, Research Category 6.6 because all efforts support fielded systems.

(U) **B. Acquisition Strategy**

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

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207268F Aircraft Engine Component Improvement Program (CIP) |
| | PROJECT<br>1012 |

(U) FY 1997 ($ in Thousands):
- (U) 83,400 636 CIP tasks (244 redesign tasks, 318 repair development tasks, and 74 analysis tasks)
- (U) 5,198 6000 test hours
- (U) 4,038 Petroleum, oil, lubricants and other support costs
- (U) $92,636 Total

(U) FY 1998 ($ in Thousands):
- (U) 81,962 626 CIP tasks (250 redesign tasks, 302 repair development tasks, and 74 analysis tasks)
- (U) 10,600 7250 test hours
- (U) 5,496 Petroleum, oil, lubricants and other support costs
- (U) $98,058 Total

(U) FY 1999 ($ in Thousands):
- (U) 75,391 590 CIP tasks (239 redesign tasks, 270 repair development tasks, and 81 analysis tasks)
- (U) 8,648 6500 test hours
- (U) 8,030 Petroleum, oil, lubricants and other support costs
- (U) $92,069 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207268F Aircraft Engine Component Improvement Program (CIP) |
| | PROJECT<br>1012 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget FY1998 PB | 92,704 | 93,122 | 93,921 | Continuing |
| (U) Appropriated Value | 96,850 | 103,122 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -2,027 | -3,398 | | |
| b. SBIR | -2,119 | -1,666 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | 85 | | | |
| e. Rescissions | - 153 | | | |
| (U) Adjustments to Budget Years Since FY1998 PB | | | -1852 | |
| (U) Current Budget Submit/FY1999 President's Budget | 92,636 | 98,058 | 92,069 | Continuing |

(U) Change Summary Explanation:

Funding: None

Schedule: No change.

Technical: No Change

(U) C. **Other Program Funding Summary ($ in Thousands)** Not Applicable

(U) RELATED ACTIVITIES:
(U) - PEs # 0604268A and #0604268N, Army/Navy Aircraft Engine CIPs for prior years
(U) - PEs # 0207268A and #0207268N, Army/Navy Aircraft Engine CIPs for FY96 and following years

(U) D. **Schedule Profile:** Not Applicable. CIP is a level of effort program that funds some 600 separate engineering tasks. Most are completed within two years.

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207268F Aircraft Engine Component Improvement Program (CIP) |
| | PROJECT<br>1012 |

(U) A. **Project Cost Breakdown ($ in Thousands) ):** A project cost breakdown is not applicable to this Program, because there are no individual projects, but several hundred independently managed tasks. The bulk of the funding goes to the major engine manufacturers. Cost breakdown for follow-on years is expected to be of similar proportions.

| | FY97 | FY98 | FY99 |
|---|---|---|---|
| Contracted Tasks | 83,400 | 81,962 | 75,391 |
| AFFTC Flight Tests | 1,457 | 600 | 2,500 |
| AEDC Altitude Tests | 3,741 | 10,000 | 6,148 |
| Petroleum/Oil/Lubricants | 2,900 | 4,290 | 6,730 |
| Mission Support | 1,138 | 1,206 | 1,300 |
| PE TOTAL | 92,636 | 98,058 | 92,069 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| GE-Evandale, OH | CPAF | Jan 98 | NA | NA | NA | 37,820 | $43,668 | $35,954 | CONT | CONT |
| Pratt & Whitney | CPAF | Jan 98 | NA | NA | NA | 36,087 | 31,874 | 29,215 | CONT | CONT |
| GE-Lynn, MA | CPFF | Jan 98 | NA | NA | NA | 5,457 | 2,576 | 6,825 | CONT | CONT |
| Allison | CPFF | Jan 98 | NA | NA | NA | 1,230 | 1,362 | 1,429 | CONT | CONT |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207268F Aircraft Engine Component Improvement Program (CIP) |
| | PROJECT<br>1012 |

Product Development Organizations (Continued)

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Teledyne | CPFF | Jan 98 | NA | NA | NA | 1,134 | 1,207 | 730 | CONT | CONT |
| Allied Signal | CPFF | Jan 98 | NA | NA | NA | 560 | 500 | 538 | CONT | CONT |
| Williams | CPFF | Jan 98 | NA | NA | NA | 601 | 275 | 200 | CONT | CONT |
| Sundstrand | CPFF | Jan 98 | NA | NA | NA | 511 | 500 | 500 | CONT | CONT |
| Support and Management Organizations | | | | | | | | | | |
| In House Support | | | | | NA | 1,138 | 1,206 | 1,300 | CONT | CONT |
| Petroleum/Oil/ Lubricants | | | | | NA | 2,900 | 4,290 | 6,730 | CONT | CONT |
| Test and Evaluation Organizations | | | | | | | | | | |
| AFFTC-Edwards AFB, CA | | | | | NA | 1,457 | 600 | 2,500 | CONT | CONT |
| AEDC-Arnold AFB, TN | | | | | NA | 3,741 | 10,000 | 6,148 | CONT | CONT |
| **Government Furnished Property:** None | | | | | | | | | | |
| Subtotal Product Development | | | | | NA | 83,400 | 81,962 | 75,391 | CONT | CONT |
| Subtotal Support and Management | | | | | NA | 4,038 | 5,496 | 8,030 | CONT | CONT |
| Subtotal Test and Evaluation | | | | | NA | 5,198 | 10,600 | 8,648 | CONT | CONT |
| Total Project | | | | | NA | $92, 636 | $98,058 | $92,069 | CONT | CONT |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207320F Sensor Fuzed Weapons

PROJECT: 1016

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 1016 Sensor Fuzed Weapon | 18,664 | 16,437 | 3,551 | 0 | 0 | 0 | 0 | 0 | 48,169 |
| Quantity of RDT&E Articles | 4/$1,600 | 4/$1,600 | 0 | 0 | 0 | 0 | 0 | 0 | 8/3,200 |

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

This project continues development of the Sensor Fuzed Weapon (SFW) Pre-Planned Product Improvement (P3I). The P3I improvements to the baseline SFW will enhance weapon performance against primary targets (land combat vehicles), targets with countermeasures, and potentially allow for use against alternative targets. The improvements will also enhance the performance of SFW when fitted with the Wind Corrected Munitions Dispenser (WCMD) kit and the anti-armor version of the Joint Standoff Weapon (JSOW). This program is in budget activity 7 - Operational System Development, because this activity funds improvements to the SFW, which is currently in production. SFW is an ACAT 1C program.

(U) **Acquisition Strategy:**

The SFW Pre-Planned Product Improvements (P3I) program is a 40 month R&D effort to enhance the BLU-108 submunition and projectile. This is a sole source Cost-Plus Award Fee (CPAF) contract for P3I to the current SFW submunition design and for incorporating the P3I design into the FY 1999 full rate production contract.

(U) **FY 1997 ($ in Thousands):**

- (U) 17,918 Continued the P3I development, qualification, integration of the dual mode sensor and multi-mission warhead
- (U) 66 GFE (PBX-11 explosive fill)
- (U) 186 Conducted Test Analysis
- (U) 494 Program management support, includes travel, program office supplies and equipment, training and technical engineering support
- (U) $18,664 Total

(U) **FY 1998 ($ in Thousands):**

- (U) 10,344 Continue the P3I development, qualification, integration of the dual mode sensor and multi-mission warhead. Conduct munition tests.
- (U) 4,981 Conduct dual mode sensor and multimission warhead tests
- (U) 1,112 Program management support, includes travel, program office supplies and equipment, training and technical engineering support
- (U) $16,437 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207320F Sensor Fuzed Weapons<br>PROJECT 1016 |

(U) **FY 1999 ($ in Thousands):**

- (U) 1,040 Complete the P3I development program with contractor test and evaluation; integrate P3I into the production program
- (U) 451 Program management support, includes travel, program office supplies and equipment, training and technical engineering support
- (U) 2,060 Conduct and complete CBU flight tests
- (U) $3,551 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 18,695 | 19,804 | 3,622 | 53,067 |
| (U) Appropriated Value | 19,100 | 19,804 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -400 | -705 | | |
| b. SBIR | -5 | -2,662 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | -31 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -71 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 18,664 | 16,437 | 3,551 | 48,169 |

(U) Change Summary Explanation:

Funding: For the FY98 funds, $420,000 is pending reprogramming to fund higher priorities and $213,000 is pending for additional SBIR reduction.

Schedule: No Change

Technical: No Change

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207320F Sensor Fuzed Weapons |
| | PROJECT<br>1016 |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) SFW Production, Procurement of Ammo, AF (Appn 3011) ; PE 0207320F | 149,500 | 150,150 | 125,992 | 151,804 | 118,039 | 109,163 | 189,000 | 240,021 | 1,724,621 |
| (U) Total | 149,500 | 150,150 | 125,992 | 151,804 | 118,039 | 109,163 | 189,000 | 240,021 | 1,724,621 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Contract Award (FY96/Q3) | | | | | | | | | | | | |
| (U) System Requirement Review (SRR) (FY96/Q4) | | | | | | | | | | | | |
| (U) System Design Meeting | | * | | | | | | | | | | |
| (U) Design and Development of P3I | * | | | | | | | | | X | | |
| (U) Trade Studies | * | | | * | | | | | | | | |
| (U) Preliminary Design Review (PDR) | | | | * | | | | | | | | |
| (U) Detailed Design/Development Tests | * | | | | | | | X | | | | |
| (U) Development Test Meeting | | | | | | | X | | | | | |
| (U) Critical Design Review (CDR) | | | | | | | | X | | | | |
| (U) Hardware Build/Qualification Tests | | | | | | | | X | | | X | |
| (U) CBU Flight Tests | | | | | | | | | | | X | X |
| (U) P3I ECP/FY99 Prod Contract Awrd | | | | | | | | | | | X | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207320F Sensor Fuzed Weapons

PROJECT: 1016

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Major Contracts | 17,918 | 10,344 | 1,040 |
| (U) Support Contracts | 317 | 587 | 177 |
| (U) Program Office Support | 177 | 525 | 274 |
| (U) Test and Evaluation | 186 | 4,981 | 2,060 |
| (U) Government Furnished Equipment (GFE) | 66 | 0 | 0 |
| (U) Total | 18,664 | 16,437 | 3,551 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Textron System Defense | CPAF | Oct 98 | 36,961 | 36,961 | 7,659 | 17,918 | 10,344 | 1,040 | 0 | 36,961 |
| Support and Management Organizations | | | | | | | | | | |
| ASC/YH | N/A | varius | N/A | N/A | 84 | 177 | 587 | 177 | 0 | 1,025 |
| Miscellaneous | CPAF | varius | N/A | N/A | 0 | 317 | 525 | 274 | 0 | 1,116 |
| Test and Evaluation Organizations | | | | | | | | | | |
| 46 OG/OGML | REO | Oct 98 | N/A | N/A | 1,774 | 186 | 4,981 | 2,060 | 0 | 9,001 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207320F Sensor Fuzed Weapons | PROJECT<br>1016 |

**Government Furnished Property:**

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| GFE (PBX-11)<br>Army, Aberdeen | MIPR | May 97 | Oct 97 | 0 | 66 | 0 | 0 | 0 | 66 |
| Support and Management Property | | | | | | | | | |
| None | | | | | | | | | |
| Test and Evaluation Property | | | | | | | | | |
| None | | | | | | | | | |
| Subtotal Product Development | | | | 7,659 | 17,984 | 10,344 | 1,040 | 0 | 37,027 |
| Subtotal Support and Management | | | | 84 | 494 | 1,112 | 451 | 0 | 2,141 |
| Subtotal Test and Evaluation | | | | 1,774 | 186 | 4,981 | 2,060 | 0 | 9,001 |
| Total Project | | | | 9,517 | 18,664 | 16,437 | 3,551 | 0 | 48,169 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207325F Joint Air-to-Surface Standoff Missile

PROJECT: 4515

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4515 Joint Air-to-Surface Standoff Missile (JASSM) | 160,692 | 123,460 | 132,870 | 104,434 | 34,067 | 4,913 | 0 | 0 | 588,036 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) In FY 1998, $40,622 (after Congressional reductions) was appropriated in the JSLAM PE (64611F). Pending SecDef decision, funding may be executed by either JASSM or JSLAM.

(U) * NOTE: Cost information is Source Selection Sensitive because of the competitive nature of the contract effort. This information is available through AFPEO/WP.

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

The Joint Air-to-Surface Standoff Missile (JASSM) is a joint Air Force/Navy program with the Air Force as the lead service. This is an ACAT ID program to provide an affordable long range, conventional air-to-surface, autonomous precision guided, standoff cruise missile compatible with fighter and bomber aircraft and able to attack a variety of fixed or relocatable targets. Initial integration efforts are for the B-52H, F-16 Block 50 and F/A-18E/F. Objective aircraft include the B-1, B-2, F-15E, F-16 Block 40, F-117, P-3 and S-3. This descriptive summary reflects Air Force only funding. Although reflected in Budget Activity 7, Operational System Development, the program is currently in Budget Activity 5, Engineering and Manufacturing Development because its products are primarily research and development procured through advanced acquisition reform methods.

(U) **Acquisition Strategy:**

All major contracts within this Program Element were awarded through full and open competition. JASSM is an OSD flagship program under Cost as An Independent Variable (CAIV). This allows for competing contractors to have maximum trade space to develop an affordable missile that meets the three key performance parameters. Under CAIV, the program maintains a threshold unit cost of $700 (BY $95) and an objective unit cost of $400 (BY $95). JSLAM funds will be distributed in accordance with Congressional direction based on the results of the Analysis of Alternatives and SecDef determination.

(U) **FY 1997 ($ in Thousands):**

- (U) $131,543 Continued two selected PDRR contractors for JASSM weapon system development and hardware
- (U) $ 11,611 Continued aircraft integration.
- (U) $ 6,707 Continued flight test support for threshold aircraft, aircraft modifications, live fire test support, target construction.
- (U) $ 7,839 Continue program office support contracts.
- (U) $ 2,992 Continue mission support.
- (U) $160,692 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207325F Joint Air-to-Surface Standoff Missile<br>PROJECT 4515 |

(U) FY 1998 ($ in Thousands): NOTE: Amounts reflected below fund efforts through approximately 30 April 1998. Pending SecDef decision, JSLAM funding ($40,622) could be made available for PDRR Phase II.

- (U) $ 90,096 Continue PDRR Phase I contractors for JASSM through downselect.
- (U) $ 13,154 Continue flight test support, aircraft modifications, live fire test support, target construction/rehab.
- (U) $ 11,450 Continue aircraft integration.
- (U) $ 5,677 Continue program support contracts.
- (U) $ 2,083 Continue mission support.
- (U) $ 1,000 Congressionally-directed alternate engine source study
- (U) $123,460 Total

(U) FY 1999 ($ in Thousands):

- (U) $ 68,873 Initiate EMD.
- (U) $ 40,643 Continue flight test support, aircraft modifications, live fire test support, target construction/rehab.
- (U) $ 10,931 Continue aircraft integration.
- (U) $ 10,523 Continue program support contracts.
- (U) $ 1,900 Continue mission support.
- (U) $132,870 Total

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget FY 1998 PB | 160,958 | 203,321 | 135,542 | 588,036 |
| (U) Appropriated Value | 168,632 | 128,000 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional Reductions | -3,551 | -4,540 | | |
| b. SBIR | -4,123 | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | -266 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -2,672 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 160,692 | 123,460 | 132,870 | 588,036 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207325F Joint Air-to-Surface Standoff Missile |
| | PROJECT<br>4515 |

(U) Change Summary Explanation:

Funding: FY 1998 reduced by $75,321 ($32,300 eliminated from JASSM PE, $43,021 allocated to new JSLAM PE). JSLAM assessed proportional amounts of Congressional general reductions of $2,399 leaving $40,622. FY99 funding reflects inflation adjustments.

Schedule: FY98 Congressional RDT&E reduction ($32,300) drove program re-structure: PDRR now in two phases [competitive Phase I, June 1996 to April 1998; downselect to one contractor for Phase II, April 1998 (was July 1998)]; EMD start in November 1998 (was July 1998); Milestone II now September 1998 (was June 1998).

Technical: No change.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Missile Procurement | 0 | 0 | 0 | 75,044 | 74,333 | 153,996 | 203,825 | 1,172,377 | 1,679,575 |
| (U) Seek Eagle | 0 | 0 | 0 | 8,002 | 2,291 | 10,200 | 0 | 0 | 20,493 |

**Related RDT&E:**

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) RDT&E PE 604611F, Joint Standoff Land Attack Missile (JSLAM) | 0 | 40,622 | 0 | 0 | 0 | 0 | 0 | 0 | 40.622 |

(NOTE: Pending completion of Analysis of Alternatives, funding may be executed by JASSM or JSLAM.)

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207325F Joint Air-to-Surface Standoff Missile

PROJECT: 4515

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Downselect to Single Contractor | | | | | | | X | | | | | |
| (U) PDRR Phase I Completion | | | | | | | X | | | | | |
| (U) PDRR Phase II Start | | | | | | | X | | | | | |
| (U) Milestone II Approval | | | | | | | | X | | | | |
| (U) PDRR Phase II Completion | | | | | | | | | X | | | |
| (U) EMD Contract Award / Start | | | | | | | | | X | | | |
| (U) DT&E Start | | | | | | | | | X | | | |
| (U) B-52H Wind Tunnel Test | | | X | | | | | | | | | |
| (U) F-16 C/D Wind Tunnel Test | | | X | | | | | | | | | |
| (U) B-52H Software Dev/Test Start | | | | | | X | | | | | | |
| (U) F-16 C/D Software Dev/Test Start | | | | | | X | | | | | | |
| (U) F-16 C/D Software Dev/Test Completion | | | | | | | X | | | | | |
| (U) F-16 C/D Ground & Flight Test Start | | | | | | | X | | | | | |
| (U) B-52H Software Dev/Test Completion | | | | | | | | | | X | | |
| (U) B-52H Ground & Flight Test Start | | | | | | | | | | | X | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207325F Joint Air-to-Surface Standoff Missile<br>PROJECT 4515 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Major Contracts | 131,543 | 90,096 | 68,873 |
| (U) Associated Contracts | 11,611 | 11,450 | 10,931 |
| (U) Support Contracts | 7,839 | 5,677 | 10,523 |
| (U) In-House | 2,992 | 2,083 | 1,900 |
| (U) Test Support | 6,707 | 13,154 | 40,643 |
| (U) Congressionally-directed alternate engine source study | | 1,000 | |
| (U) Total | 160,692 | 123,460 | 132,870 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207325F Joint Air-to-Surface Standoff Missile

PROJECT: 4515

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| JASSM Development Contractors | C/CPFF/CPIF | Jun 96 | ** | ** | 18,637 | 131,543 | 90,096 | 68,873 | 73,474 | 382,623 |
| **Note: Contract cost information is Source Selection Sensitive because of the competitive nature of the contract effort. This information is available through AFPEO/WP. | | | | | | | | | | |
| Support and Management Organizations | | | | | | | | | | |
| F-16 SPO | PO | Apr 96 | N/A | N/A | 210 | 1,853 | 2,600 | 2,000 | 21,906 | 28,569 |
| B-52 SPO | PO | Sep 96 | N/A | N/A | 1,500 | 7,053 | 7,400 | 5,500 | 2,000 | 23,453 |
| Other Acft SPOs | PO | Various | N/A | N/A | 488 | 2,705 | 1,450 | 0 | 0 | 4,643 |
| Sverdrup Tech Inc. | C/CPAF | Jan 96 | N/A | N/A | 1,097 | 2,277 | 2,948 | 2,387 | 3,257 | 11,966 |
| Navy | MIPR | Jan 96 | N/A | N/A | 808 | 1,424 | 287 | 0 | 0 | 2,519 |
| JASSM SPO/Other | Misc | Various | N/A | N/A | 3,906 | 7,130 | 5,525 | 13,467 | 5,714 | 35,742 |
| Test and Evaluation Organizations | | | | | | | | | | |
| 46TW | PO | Jan 96 | N/A | N/A | 954 | 6,707 | 13,154 | 40,643 | 37,063 | 98,521 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207325F Joint Air-to-Surface Standoff Missile | PROJECT<br>4515 |

**Government Furnished Property:** Not Applicable.

| | | | | | | |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 18,637 | 131,543 | 90,096 | 68,873 | 73,474 | 382,623 |
| Subtotal Support and Management | 8,009 | 22,442 | 20,210 | 23,354 | 32,877 | 106,892 |
| Subtotal Test and Evaluation | 954 | 6,707 | 13,154 | 40,643 | 37,063 | 98,521 |
| Total Project | 27,600 | 160,692 | 123,460 | 132,870 | 143,414 | 588,036 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207412F Theater Air Control System

PROJECT: 485L

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 485L Theater Air Control Sys Imp (TACSI) | 589 | 393 | 440 | 487 | 471 | 460 | 451 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

Ground Theater Air Control System (GTACS) provides the means through which the Air Component Commander exercises control of his forces to accomplish his assigned mission. This program provides for major improvements to the existing Tactical Air Control System (TACS) which was designed in the 1960s and is now unsupportable. The GTACS RDT&E program consists primarily of the Modular Control Equipment (MCE) Pre-Planned Product Improvements (P3I) program which replaces obsolete equipment (operator consoles, shelters, computers, radios, etc.) in the GTACS. The modernization upgrades C2 interoperability, flexibility, mobility, communications and worldwide operations. The P3I program is structured into multiple phases. Phase one consisted of the integration of secure anti-jam UHF radios, an upgrade to the weapons control and Joint Tactical Air Operations data link software (S/W). These improvements have already been incorporated into the MCE production line. The current R&D includes the integration of a Joint Tactical Information Distribution System (JTIDS)/Tactical Digital Information Link-J (TADIL-J) capability, the integration of an Automated Air Tasking Order (AATO) capability, integration of secure anti-jam VHF (SINCGARS) radios and upgrades to the Ground Mobile Forces/Satellite Communications digital communications interfaces. This program also includes production funding for JTIDS terminals, JTIDS Modules (JMs), JTIDS Interface Boxes (JIBs) and Operations Modules (OM) Interface Kits, all of which are required to integrate JTIDS/COMM into the MCE. The next planned phase includes a software interoperability upgrade to the TADIL-J Reissue 2 baseline, which works towards a Theater Missile Defense capability and the implementation of the Interim JTIDS Message Specification. This program is in budget activity 7 - Operational System Development because the Ground Theater Air Control System (GTACS) is a fielded, operational system currently undergoing major modifications/upgrades.

(U) **Acquisition Strategy:**

MCE OM development is complete, production is ongoing until fourth quarter, FY99. Current strategy is to develop and define requirements for the GTACS follow-on system, migrating to a Global Command and Control System (GCCS) platform. Further strategy is to work the residual tasks associated with the MCE OM production item.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE |
|---|---|
| | February 1998 |

| BUDGET ACTIVITY | PE NUMBER AND TITLE | PROJECT |
|---|---|---|
| 7 - Operational System Development | 0207412F Theater Air Control System | 485L |

(U) **FY 1997** ($ in Thousands)

| | | | |
|---|---|---|---|
| – | (U) | 274 | Continued development/fielding of interoperability upgrades to MCE P3I system |
| – | (U) | 100 | Continued operator and maintainer training |
| – | (U) | 215 | Continued program support, test, and other miscellaneous efforts |
| – | (U) | 589 | Total |

(U) **FY 1998** ($ in Thousands)

| | | | |
|---|---|---|---|
| – | (U) | 130 | Continue development/fielding of interoperability upgrades to MCE P3I systems |
| – | (U) | 60 | Continue development of follow-on system for migration to the Air Force GCCS |
| – | (U) | 187 | Continue program support, test, and other miscellaneous efforts |
| – | (U) | 377 | Total |

(U) **FY 1999** ($ in Thousands)

| | | | |
|---|---|---|---|
| – | (U) | 160 | Continue development/fielding of interoperability upgrades to MCE P3I systems |
| – | (U) | 40 | Continue development of follow-on system for migration to the Air Force GCCS |
| – | (U) | 231 | Continue program support, test, and other miscellaneous efforts |
| – | (U) | 431 | Total |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207412F Theater Air Control System

PROJECT: 485L

B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 590 | 393 | 440 | TBD |
| (U) Appropriated Value | 622 | 393 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. General Congressional Reductions | -20 | -13 | | |
| b. SBIR | -12 | -3 | | |
| c. Omnibus / Other Above Threshold Reprogramming | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | -1 | | | |
| (U) Adjustments to Budget since FY98 PB | | | -9 | |
| (U) Current Budget Submission/FY 1999 President's Budget | 589 | 377 | 431 | TBD |

(U) Change Summary Explanation:

Funding:

FY97: -$12 for Appr Act Sec 8136, -$1 for Section 8138, -$7 for Section 8037(E).

FY99: -$9 funding has been realigned to support other Air Force priorities

Schedule: None

Technical: None

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207412F Theater Air Control System

PROJECT: 485L

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement AF Total | 9,441 | 27,434 | 26,064 | 24,199 | 19,149 | 19,999 | 19,988 | Cont | TBD |
| Budget Activity 3, WSC 833040 | 4,149 | 22,252 | 20,813 | 19,545 | 19,149 | 19,555 | 19,554 | Cont | TBD |
| Budget Activity 3, WSC 834010 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,020 |
| Budget Activity 3, WSC 83790A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,730 |
| Budget Activity 6, WSC 838010 | 0 | 0 | 1,937 | 2,408 | 0 | 0 | 0 | TBD | TBD |
| Budget Activity 4, WSC 84590A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6,166 |
| Budget Activity 6, WSC 86190A | 5,292 | 5,182 | 3,314 | 2,246 | 0 | 444 | 434 | Cont | TBD |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) MCE P3I OM Interface Kit Follow-on Production Award | | | | | x | | | | x | | | |
| (U) MCE P3I OM Interface Kit Article IOT&E | | | x | | | x | | | | | | |
| (U) MCE P3I Initial Operational Capability (IOC) | | | | | | | | | | | x | |
| (U) JM Development Completed | | | | x | | | | | | | | |
| (U) GTACS Modernization | | | | | x | | | | x | | | |
| (U) GCCS Migration | | | | | x | | | | x | | | |
| (U) Program Support | x | | | | x | | | | x | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207412F Theater Air Control System | PROJECT<br>485L |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Continue development fielding of interoperability upgrades to MCE P3I system | 274 | 130 | 160 |
| (U) Operator and maintainer training | 100 | 0 | 0 |
| (U) Develop follow-on system for migration to GCCS | 0 | 60 | 40 |
| (U) Program Management Support | 215 | 187 | 231 |
| (U) Total | 589 | 377 | 431 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207412F Theater Air Control System

PROJECT: 485L

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

**Performing Organizations:**

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | |
| N/A | | | | | | | | | |
| Support and Management Organizations | | | | | | | | | |
| Computer Support Equipment Maintenance | | | | | 22 | 13 | 13 | | |
| Miscellaneous (TDY, Supplies, Eq Purchase) | | | | | 6 | 6 | 6 | | |
| | | | | | 561 | 358 | 412 | | |
| Test and Evaluation Organizations | | | | | | | | | |
| N/A | | | | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207412F Theater Air Control System | PROJECT<br>485L |

**Government Furnished Property:** None

| | | | |
|---|---|---|---|
| Subtotal Product Development | | | |
| Subtotal Support and Management | 589 | 377 | 431 |
| Subtotal Test and Evaluation | | | |
| **Total Project** | **589** | **377** | **431** |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207414F Combat Intelligence System

PROJECT: 4773

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4773 Combat Intelligence System (CIS) | 0 | 11,590 | 9,802 | 10,172 | 9,009 | 7,523 | 6,625 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) Note: This funding request was previously programmed across PEs 0604321F, 0207431F, and 0305158F. They have been consolidated here in PE 0207414F for program clarity and reporting efficiency.

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

(U) Combat Intelligence System (CIS) is the Air Force's single, standard automated intelligence system optimizing both component and unit-level intelligence functions to provide warfighters with the most accurate and timely intelligence data available. CIS is the core capability for automating the receipt, correlation, and dissemination of intelligence information to a variety of intelligence and operational systems which support combat planning and execution. As the intelligence segment to Theater Battle Management Core Systems (TBMCS), it provides an automated capability at the component and unit levels to rapidly receive and process all-source intelligence data to support Contingency Theater Automated Planning System (CTAPS). CIS builds and maintains in-theater situational awareness during deployment to the theater and provides indications and warning support after arrival. CIS is electronically interoperable and compatible with other intelligence systems, providing an integrated network capable of intelligence support to decision makers, battle planners, mission planners, and warfighters. This program is in budget activity 5, Engineering and Manufacturing Development, because it develops new capabilities to upgrade current systems.

(U) **Acquisition Strategy**: Full and open competition has led to a cost plus award fee contract with Lockheed Martin Command and Control Systems (Colorado Springs, CO) to develop capabilities and integrate this system and software.

(U) FY 1997: Included in PEs 0604321F, 0207431F, and 0305158F.

(U) FY 1998

- (U) $10,167 Complete software development for TBMCS Version 1.0 release, and initiate TBMCS software Version 2.0 development
- (U) $ 900 Implement results of studies for CIS Intelligence Interoperability
- (U) $ 523 System engineering and support
- **(U) $11,590 Total**

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207414F Combat Intelligence System |
| | PROJECT<br>4773 |

(U) FY 1999

- (U) $ 6,276 Continue software development for TBMCS V2.0 release
- (U) $ 3,138 Intiate TBMCS software version 3.0 planning and design
- (U) $ 388 Continue studies for CIS Intelligence Interoperability
- **(U) $ 9,802 Total**

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 0 | 12,267 | 10,499 | TBD |
| (U) Appropriated Value | 0 | 12,267 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | | -425 | | |
| b. Small Business Innovative Research | | -252 | | |
| c. Omnibus/Other Above Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -697 | |
| (U) Current Budget Submit/ FY 1999 President's Budget | 0* | **11,590 | **9,802 | TBD |

(U) Change Summary Explanation:

Funding: * FY97: Funding was appropriated in PEs 0604321F, 0207431F, and 0305158F.
** FY98 and FY99: Funds were budgeted in PEs 0604321F, 0207431F, and 0305158. They have been consolidated for clarity and reporting efficiency. FY98 is in BA6-EMD.

Schedule: Not Applicable

Technical: Not Applicable

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207414F Combat Intelligence System |
| | PROJECT<br>4773 |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement AF, Budget Activity 5, Project 642758, PE 0207414F | 9,705 | 18,043 | 12,819 | 18,149 | 14,107 | 11,587 | 11,582 | Cont | TBD |
| (U) Other Procurement AF, Budget Activity 7, Project 671004, PE 0207431F | 4,293 | 5,487 | 4,886 | 6,666 | 5,189 | 4,813 | 4,829 | Cont | TBD |
| (U) Other Procurement AF, Budget Activity 7, Project 674395, PE 0305158F | 1,951 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,919 |
| (U) O&M, PE 0207431, CAIS | 3,479 | 3,330 | 3,353 | 4,326 | 5,371 | 5,488 | 5,615 | Cont | TBD |
| **Related RDT&E** | | | | | | | | | |
| (U) RDT&E, PE 0207431F, CAIS | 7,373 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,373 |
| (U) RDT&E, PE 0305158F, Project 4394 | 1,949 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3,939 |
| (U) RDT&E, PE 0604321F, CIS-EMD | 2,786 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16,443 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) CIS 1.2 Release | | | X | | | | | | | | | |
| (U) TBMCS V1.0 Preliminary Design Review (PDR) | X | | | | | | | | | | | |
| (U) TBMCS V1.0 In Plant Test | | | | | | | X | | | | | |
| (U) TBMCS V1.0 Release | | | | | | | | X | | | | |
| (U) TBMCS V2.0 PDR | | | | | | | | | | X | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207414F Combat Intelligence System

PROJECT: 4773

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Software Development | 0 | 11,067 | 9,414 |
| (U) Engineering Support | 0 | 523 | 388 |
| **(U) Total** | **0** | **11,590** | **9,802** |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Lockheed Martin Cmd & Ctrl Systems | SS/CPAF | Oct 95 | TBD | TBD | 0 | 0 | 11,067 | 9,414 | Cont. | TBD |
| Support and Management Organizations | | | | | | | | | | |
| TEMS | Time & Mtrls | Various | n/a | TBD | 0 | 0 | 200 | 188 | Cont. | TBD |
| MITRE | Fixed Price | Various | n/a | TBD | 0 | 0 | 223 | 200 | Cont. | TBD |
| Test and Evaluation Organizations - Not Applicable | | | | | | | | | | |
| Test Support | Project Order | Various | n/a | TBD | 0 | 0 | 100 | 0 | Cont. | TBD |

**Government Furnished Property:** Not Applicable

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207414F Combat Intelligence System |
| | PROJECT<br>4773 |

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

| | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 0 | 0 | 11,067 | 9,414 | Cont. | TBD |
| Subtotal Support and Management | 0 | 0 | 423 | 388 | Cont. | TBD |
| Subtotal Test and Evaluation | 0 | 0 | 100 | 0 | Cont. | TBD |
| **Total Project** | 0 | 0 | **11,590** | **9,802** | **Cont.** | **TBD** |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: 411L

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 411L Airborne Warning & Control System (AWACS) | 55,005 | 43,606 | 28,189 | 26,015 | 36,423 | 22,375 | 58,965 | TBD | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

This program develops and integrates system improvements which enable the E-3 AWACS to remain an effective, survivable airborne surveillance system for command and control of tactical forces and for strategic defense of the U.S. These improvements include Electronic Support Measures (ESM), Central Computer Memory Upgrade, Joint Tactical Information Distribution System (JTIDS) Class 2H/TADIL J and NAVSTAR Global Positioning System (GPS) integrated navigation (GINS) (collectively known as Block 30/35); the Radar System Improvement Program (RSIP); the Computers and Displays (C&D) upgrade (an Extend Sentry effort) ; Cruise Missile Defense and various concept exploration and program definition/risk reduction efforts such as DII-GCCS compliance and incremental plug-and-play software upgrades through spiral development. RSIP will increase radar reliability and maintainability, restore required E-3 surveillance capability against the evolving threats posed by low radar cross section fighters and cruise missiles, improve electronic counter countermeasures (ECCM), and enhance man-machine interface, while Extend Sentry is a collection of 58 projects that target investment in three areas. Extend Sentry prevents grounding of aircraft, buys back aircraft from maintenance downtime, and corrects deficiencies to meet operational requirements. Only the C&D project is currently funded. Test System 3 (TS-3)/AWACS Development and Production Tests (ADAPT) Support - includes maintenance for the government owned test aircraft and labs located at the contractor's facility. Category of research: Operational Systems Development, Budget Activity 7. AWACS is a fielded, operational system currently undergoing major modifications/block upgrades/continuing sustainment.

(U) **Acquisition Strategy:**

Block 30/35: ESM is joint development with NATO. Priced FPIF options with Boeing for ESM and 30/35 Group A hardware. CC-2E contract with LORAL Federal Systems with fixed price options. JTIDS and GPS acquired via respective program office-awarded contracts. RSIP is a cooperative development with NATO. Boeing is prime integrating contractor, Northrup-Grumman is the subcontractor for radar equipment items. FFP contract with priced options through FY99 is sole source to Boeing for production. Extend Sentry acquisition strategy approved, contract vehicle awarded, and tasks added as funding is made available.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE: February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0207417F Airborne Warning & Control System (AWACS) — PROJECT: 411L |

(U) FY 1997 ($ in Thousands):
- (U) $ 105 Blk 30/35 EMD contract close out actions.
- (U) $27,540 Computers & Displays and Extend Sentry efforts
- (U) $ 8,406 Offensive Counter Air (OCA) efforts.
- (U) $18,954 AWACS Development and Production Tests (ADAPT) support and program sustaining efforts
- (U) $55,005 Total

(U) FY 1998 ($ in Thousands):
- (U) $14,573 Computers & Displays and Extend Sentry efforts
- (U) $13,174 Cruise Missile Defense
- (U) $15,859 ADAPT support and program sustaining efforts
- (U) $43,606 Total

(U) FY 1999 ($ in Thousands):
- (U) $ 5,944 Systems Architect
- (U) $7,500 Cruise Missile Defense
- (U) $14,745 ADAPT support and program sustaining efforts
- (U) $28,189 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0207417F Airborne Warning & Control System (AWACS) — PROJECT: 411L |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 78,635 | 46,807 | 29,266 | TBD |
| (U) Appropriated Value | 82,559 | 46,807 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional General Reductions | (1,929) | (2,038) | | |
| b. SBIR | (1,995) | (1,163) | | |
| c. Omnibus or Other Above Threshold Reprogram | (11,000) | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | (12,630) | | | |
| (U) Adjustments to Budget Since FY98 PB | | | (1,077) | |
| (U) Current Budget Submit/FY 1999 President's Budget | 55,005 | 43,606 | 28,189 | TBD |

(U) **Change Summary Explanation:**

Funding:

FY97: Appropriations Act included a $25M add to begin an E-3 re-engining program of this 1.4 went towards Congressional general reductions, 12.630 was rescinded by Congress and 11.000 was reprogrammed for OMNIBUS.

FY98: $297K of the total $43.606M is on withhold pending reprogramming for higher priorities.

FY99: 1.077M reduction reflects internal inflation adjustment.

Schedule: None.

Technical: None.

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

| | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Complete | Total |
|---|---|---|---|---|---|---|---|---|
| (U) Aircraft Procurement, AF,BA-5 AWACS Mod | 127,652 | 114,181 | 97,869 | 105,423 | 65,980 | 88,173 | Cont | TBD |
| (U) Other Procurement, AF | 0 | 2,627 | 0 | 0 | 0 | 0 | Cont | TBD |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: 411L

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) RSIP IOT & E Complete | | | | * | | | | | | | | |
| (U) RSIP MSIII Decision | | | | * | | | | | | | | |
| (U) RSIP Trial Install Start | | | | | | | X | | | | | |
| (U) RSIP RAA 3QTR FY00 | | | | | | | | | | | | |
| (U) RSIP KIT DELIVERY (#1) | | | | | | X | | | | | | |
| (U) RSIP KIT DELIVERY (#2) | | | | | | | | X | | | | |
| (U) RSIP KIT DELIVERY (#3) | | | | | | | | | | X | | |
| (U) RSIP KIT DELIVERY (#4) | | | | | | | | | | | | X |
| (U) RSIP KIT DELIVERY (#5) 1QTR FY00 | | | | | | | | | | | | |
| (U) BLK 30/35 Support capability - I Level | | | * | | | | | | | | | |
| (U) - D Level | | | | | | | | X | | | | |
| (U) BLK 30/35 RAA | | | | | | X | | | | | | |
| (U) BLK 30/35 IOC | | | | | | X | | | | | | |

* Denotes completed events

X Denotes planned events

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207417F Airborne Warning & Control System (AWACS) |
| | PROJECT<br>411L |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Contracts | 47,513 | 39,562 | 25,914 |
| (U) MITRE/TEMS | 5,318 | 2,947 | 1,670 |
| (U) GFE | 250 | | |
| (U) Travel | 982 | 305 | 310 |
| (U) Other | 942 | 792 | 295 |
| (U) Total | 55,005 | 43,606 | 28,189 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207417F Airborne Warning & Control System (AWACS) |
| | PROJECT<br>411L |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | |
| (U) Boeing(RSIP) | C/FPIF | 9/89 | 88,500 | 93,517 | 93,517 | 0 | 0 | 0 | 93,517** |
| (U) WECO(RSIP) | C/FPIF | 9/89 | 327,400 | 306,900 | 259,155 | 0 | 0 | 0 | 259,155** |
| (U) Boeing(Blk 30/35) | SS/FPIF | 5/87 | N/A | N/A | 291,667 | 105 | 0 | | 291,772** |
| (U) Extend Sentry / Systems Architect | Multiple | N/A* | N/A | N/A | 15,734 | 27,540 | 14,573 | 5,944 | TBD |
| (U) Offensive Counter Air/CMD | Studies | N/A | N/A | N/A | 29,368 | 8,406 | 13,174 | 7,500 | TBD |

* N/A based on Extend Sentry Acquisition Strategy which includes multiple contracts with multiple organizations with overlapping and continuing performance periods.
** Total Program does not include NATO funds and covers contract plus ECPs.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Support and Management Organizations | | | | | | | | | |
| (U) Support/TEMS MITRE/GFE, Travel & Other | | | | | 553,227 | 7,492 | 4,044 | 2,275 | TBD |
| Test and Evaluation Organizations | | | | | | | | | |
| (U) Test System-3 ADAPT Contract/ Other test Activities | | | | | 33,800 | 11,462 | 11,815 | 12,470 | TBD |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE: February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0207417F Airborne Warning & Control System (AWACS) — PROJECT: 411L |

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Total Program |
|---|---|---|---|---|---|---|---|---|---|

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

**Government Furnished Property:** None

| | Total Prior to FY97 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Total Program |
|---|---|---|---|---|---|
| Subtotal Product Development | 689,441 | 36,051 | 27,747 | 13,444 | TBD |
| Subtotal Support and Management | 553,227 | 7,492 | 4,044 | 2,275 | TBD |
| Subtotal Test and Evaluation | 33,800 | 11,462 | 11,815 | 12,470 | TBD |
| Total Project | 1,276,468 | 55,005 | 43,606 | 28,189 | TBD |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207423F Advanced Communications Systems

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 1,646 | 2,728 | 2,348 | 2,916 | 2,947 | 2,991 | 3,047 | Continuing | TBD |
| 1013 Theater Deployable Communications (TDC) | 1,450 | 2,539 | 2,131 | 2,694 | 2,723 | 2,991 | 3,047 | Continuing | TBD |
| 2982 Anti-Jam Radio Communications | 196 | 189 | 217 | 222 | 224 | 0 | 0 | 0 | 20,121 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

The Advanced Communication Systems program procures commercially available ground communications equipment for deployment to theaters of operation and develops and procures jam resistant ultra high frequency (UHF) and very high frequency (VHF) frequency-hopping tactical radios. The HAVE QUICK UHF radios provide the primary Air Force and DOD UHF Electronic Counter-Countermeasures (ECCM) voice communications. SINCGARS (Single Channel Ground and Airborne Radio System) provides anti-jam, VHF frequency-hopping voice and data communications and is the primary means of ECCM communications between Air Force, Army, and USMC aircraft and ground units involved in close air support and joint battlefield operations. The Theater Deployable Communications (TDC) program provides funding for the research, development, test and evaluation for the modernization of operational deployable communications, and integration of COTS equipment that support tactical air operations in a combat environment. This includes the integration of deployable communications equipment for active duty, guard and reserve forces. Equipment will be fielded at wings, combat communications squadrons, AFSOC and AMC communication units and Theater Air Control System units. RDT&E funds in this program element are used to examine appropriate emerging technologies; provide software development support for the fielded HAVE QUICK family of radios; and determine and resolve integration issues pertaining to commercial-off-the-shelf (COTS) equipment, making this program budget activity 7, Operational System Development.

(U) **Acquisition Strategy**: There are three (3) contracts within this Program Element; two contracts for TDC (the Lightweight Multiband Satellite Terminals (LMST) and the Integrated Communication Access Packages (ICAP)), and one for PACER SPEAK. All contracts within this Program Element are firm fixed price (FFP) and were awarded after full open competition. (When restricted technologies are involved, foreign competition is not allowed.)

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207423F Advanced Communications Systems |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 1,646 | 2,966 | 2,895 |
| (U) Appropriated Value | 1,822 | 2,966 | |
| (U) Adjustments to Appropriated Value | | | |
| a. Congressional Reductions | -137 | -174 | |
| b. Small Business Innovative Research | -39 | -64 | |
| c. Omnibus and Other AboveThreshold Reprogramming | | | |
| d. Below Threshold Reprogramming | | | |
| e. Rescissions | | | |
| Adjustment to Budget Years Since FY 1998 President Budget | | | -547 |
| (U) Current Budget Submit /FY 1999 President's Budget | 1,646 | 2,728 | 2,348 |

(U) Change Summary Explanation:

Funding: N/A

Schedule: N/A

Technical: N/A

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207423F Advanced Communications Systems |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement AF, Budget Activity 3, Weapon System Code 837100, PE 0207423F | 62,471 | 32,685 | 31,064 | 30,726 | 86,551 | 89,917 | 139,685 | Cont. | TBD |
| (U) Other Procurement AF, Budget Activity 3, Weapon System Code 837290, PE 0207423F | 2,270 | 3,844 | 2,518 | 2,330 | 2,115 | 104 | 104 | 0 | 8,478 |
| (U) Aircraft Procurement AF, Budget Activity 5, Weapon System Code OTHACF, PE 0207423F | 352 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22,227 |
| (U) Operations and Maintenance AF, PE 0207422F | 1,438 | 2,155 | 3,124 | 4,168 | 5,238 | 5,336 | 5,438 | Cont. | |
| (U) Operational and Maintenance AF PE 0207423F | | | | | | | | | TBD |

Other Advanced Communication Systems Programs

- PACER SPEAK Operates the Air Force Air Request Net (AFARN), which is the principal means of communications through which theater forces plan, request, coordinate, and control immediate close air support (CAS), reconnaissance, and airlift requests. The AFARN is operated by the Tactical Air Control Parties (TACPs).
- HAVE QUICK Frequency-hopping UHF radio that provides jam-resistant voice and data communications.
- SINCGARS Secure, jam-resistant VHF frequency-hopping voice and data communications system that can be configured in ground and airborne modes.
- Digital Communications Terminal (DCT) The DCT is used for message generation and transmission over the AFARN by land maneuver units.

(U) D. **Schedule Profile**: See individual projects

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207423F Advanced Communications Systems

PROJECT: 1013

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 1013 Theater Deployable Communications (TDC) | 1,450 | 2,539 | 2,131 | 2,694 | 2,723 | 2,991 | 3,047 | Continuing | TBD |

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

As clearly demonstrated during Desert Shield/Desert Storm (DS/DS), today's generation of deployable communications equipment is bulky, inflexible in design and does not meet today's projected airlift availability or interoperability standards. Air Force planning calls for initial communications assets to be in place prior to the arrival of flying forces. Deployment priorities for DS/DS did not allow timely arrival of communications assets. This program will complete joint interoperability certification testing, begin development and implementation of integrated network management software, and to support field activities and conduct integration activities. This program also emphasizes COTS equipment to augment existing assets or replace tactical communications packages. The resulting Theater Deployable Communications (TDC) packages will reduce airlift requirements and be designed to support a wide range of operational scenarios during deployment/employment, expansion and sustaining operations. Communications packages will be used by theater air control, combat communications, special operations units, deployed air wings, and mobility forces worldwide.

(U) FY 1997 ($ in Thousands):

- (U) $356 Continue communications architecture planning.
- (U) $457 Continue development of automation tools
- (U) $637 Continue field interoperability and integration activities
- (U) $1,450 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207423F Advanced Communications Systems |
| | PROJECT<br>1013 |

(U) FY 1998 ($ in Thousands):

- (U) $436 Continue communications architecture planning
- (U) $523 Continue development of automation tools
- (U) $1,280 Continue field interoperability and integration activities
- (U) $300 Start production improvement and interface development
- (U) $2,539 Total

(U) FY 1999 ($ in Thousands):

- (U) $299 Continue communications architecture planning
- (U) $490 Continue development of automation tools
- (U) $1,013 Continue field interoperability and integration activities
- (U) $329 Continue production improvement and interface development
- (U) $2,131 Total

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 1,450 | 2,766 | 2,674 |
| (U) Appropriated Value | 1,622 | 2,766 | |
| (U) Adjustments to Appropriated Value | | | |
| a. Congressional Reductions | -133 | -167 | |
| b. Small Business Innovative Research | -39 | -60 | |
| c. Omnibus and Other Above Threshold Reprogramming | | | |
| (U) Adjustment to Budget Years Since FY 98 President Budget | | | -543 |
| (U) Current Budget Submit/FY 1999 President's Budget | 1,450 | 2,539 | 2,131 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207423F Advanced Communications Systems |
| | PROJECT<br>1013 |

(U) Change Summary Explanation:

Funding: N/A

Schedule: N/A

Technical: N/A

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement AF, Budget Activity 3, Weapon System Code 837100, PE 0207423F | 54,456 | 29,155 | 27,342 | 26,838 | 75, 999 | 79,190 | 128,876 | Cont. | TBD |
| (U) Other Procurement AF, Budget Activity 3, Weapon System Code 86190A, PE 0207423F, | 2,270 | 4,556 | 2,450 | 2,258 | 2,039 | 100 | 99 | Cont. | TBD |
| (U) Operations and Maintenance AF, PE 0207422F | 1,438 | 2,155 | 3,124 | 4,168 | 5,238 | 5,336 | 5,438 | Cont. | TDB |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0207423F Advanced Communications Systems / PROJECT: 1013 |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| 1013 Theater Deployable Comm | | | | | | | | | | | | |
| (U) Acquisition Milestones | | | | | | | | | | | | |
| LMST Milestone III | | | | | | X | | | | | | |
| ICAP Milestone III | | | | | | | | | | | X | |
| (U) Production SATCOM Contract Award (Awarded AUG 95) | | | | | | | | | | | | |
| (U) Production SATCOM Deliveries Start | * | | | | | | | | | | | |
| (U) Production Contract for Integrated Communication Access Packages (ICAP) Award (Awarded OCT 96) | * | | | | | | | | | | | |
| (U) Production of Integrated Communications Access Packages (ICAP) Deliveries Start | | | | | X | | | | | | | |
| (U) Complete SATCOM (OT) | | | | * | | | | | | | | |
| (U) Complete ICAP (OT) | | | | | | | | | | X | | |

* denotes completed event

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207423F Advanced Communications Systems

PROJECT: 1013

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Software Support | 457 | 902 | 786 |
| (U) Engineering Support | 356 | 400 | 294 |
| (U) Integration Activities | 580 | 1,167 | 981 |
| (U) Travel | 40 | 55 | 60 |
| (U) Miscellaneous | 17 | 15 | 10 |
| (U) Total | 1,450 | 2,539 | 2,131 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Various | | | | | | | 1,069 | 636 | Cont | Cont |
| Support and Management Organizations | | | | | | | | | | |
| MITRE | FFP | OCT 96 | TBD | TBD | 1713 | 976 | 980 | 1000 | Cont | Cont |
| TEMS | FFP | Varies | | | | 474 | 490 | 495 | Cont | Cont |
| Test and Evaluation Organizations | | | | | | | | | | |
| Air Force Test & Evaluation Command | TBD | | | | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207423F Advanced Communications Systems<br>PROJECT 1013 |

**Government Furnished Property:** Not Applicable

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Support and Management Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Test and Evaluation Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Subtotal Product Development | | | | 0 | 0 | 0 | 0 | | |
| Subtotal Support and Management | | | | 1713 | 1450 | 2539 | 2131 | Cont | Cont |
| Subtotal Test and Evaluation | | | | 0 | 0 | 0 | 0 | | |
| Total Project | | | | 1713 | 1450 | 2539 | 2131 | Cont | Cont |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207423F Advanced Communications Systems

PROJECT: 2982

| COST *($ In Thousands)* | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2982 Anti-Jam Radio Communications | 196 | 189 | 217 | 222 | 224 | 0 | 0 | 0 | 20,121 |

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

The fast paced development of new frequency hopping radio technologies by potentially hostile nations dictates that the U.S. maintains a technological lead. Ultra high frequency (UHF) frequency hopping voice radios are needed for jam resistant communications between tactical aircraft and airborne and ground control elements. The HAVE QUICK wave form used in these radios is the NATO standard for UHF anti-jam communications. The HAVE QUICK UHF radios provide the primary Air Force and DOD UHF Electronic Counter-Countermeasures (ECCM) voice communications. SINCGARS (Single Channel Ground and Airborne Radio System) provides anti jam, very high frequency (VHF) frequency hopping radios and data communications and is the primary means of ECCM communications between Air Force, Army, USMC aircraft and ground units involved in close air support and joint battlefield operations.

(U) FY 1997 ($ in Thousands):
- (U) $50 Completed software support for the HAVE QUICK II radios.
- (U) $96 Continued to investigate improvements in anti-jam performance and other anti-jam techniques.
- (U) $50 Completed support of SINCGARS Phase II qualification testing and support platform integration analyses.
- (U) $196 Total

(U) FY 1998 ($ in Thousands):
- (U) $89 Continue to investigate improvements in anti-jam performance and other anti-jam techniques.
- (U) $100 Begin to investigate decrease in air traffic control channel bandwidth and modulation techniques.
- (U) $189 Total

(U) FY 1999 ($ in Thousands):
- (U) $96 Continue to investigate improvements in anti-jam performance and other anti-jam techniques.
- (U) $121 Continue to investigate decrease in air traffic control channel bandwidth and modulation techniques.
- (U) $217 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207423F Advanced Communications Systems |
| | PROJECT<br>2982 |

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 196 | 200 | 221 |
| (U) Appropriated Value | 200 | 200 | |
| (U) Adjustments to Appropriated Value | | | |
| a. Congressional Reductions | -4 | -7 | |
| b. Small Business Innovative Research | | -4 | |
| c. OMINIBUS and Other AboveThreshold Reprogramming | | | |
| (U) Adjustment to Budget Year Since FY 1998 President Budget. | | | -4 |
| (U) Current Budget Submit/ FY 1999 President's Budget | 196 | 189 | 217 |

(U) Change Summary Explanation:

Funding: N/A

Schedule: N/A

Technical: N/A

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207423F Advanced Communications Systems

PROJECT: 2982

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement AF, Budget Activity 3, Weapon System Code 837100, PE 0207423F | 8,015 | 3,530 | 3,722 | 3,886 | 10,552 | 10,727 | 10,809 | 0 | TBA |
| (U) Aircraft Procurement AF Budget Activity 5, Weapon System Code OTHACF, PE 0207423F | 512 | 0 | 0 | 0 | 0 | | | 0 | 23,230 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) HQ II Software Support Efforts | * | | | | | | | | | | | |
| (U) Platform Integration analyses | | * | | | | | | | | | | |
| (U) Investigate anti-jam improvements | * | | | | | | | | | | | |
| (U) Analyze decrease in ATC bandwidth | | | | | X | | | | | | | |

* denotes completed event

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|

| BUDGET ACTIVITY | PE NUMBER AND TITLE | PROJECT |
|---|---|---|
| 7 - Operational System Development | 0207423F Advanced Communications Systems | 2982 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) a. Software Support | 46 | 49 | 50 |
| (U) b. Engineering Support | 28 | 28 | 30 |
| (U) c. Evaluation Analysis | 77 | 73 | 78 |
| (U) d. Test and Evaluation | 20 | 25 | 25 |
| (U) e. Travel | 13 | 14 | 20 |
| (U) f. R&D Centers Payments | 0 | 0 | 0 |
| (U) g. Miscellaneous | 12 | 0 | 14 |
| (U) Total | 196 | 189 | 217 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| N/A | | | | | | | | | | |
| Support and Management Organizations | | | | | | | | | | |
| MITRE | FFP | OCT 96 | TBD | TBD | 108.5 | 125 | 119 | 131 | Cont | Cont |
| TEMS | FFP | Varies | | | | 71 | 70 | 86 | | |
| Test and Evaluation Organizations | | | | | | | | | | |
| AFOTEC | TBD | | | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207423F Advanced Communications Systems

PROJECT: 2982

**Government Furnished Property:** Not Applicable

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| NA | | | | | | | | | |
| Support and Management Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Test and Evaluation Property | | | | | | | | | |
| TBD | | | | | | | | | |
| Subtotal Product Development | | | | | | | | | |
| Subtotal Support and Management | | | | 109 | 196 | 189 | 217 | 446 | 20,021 |
| Subtotal Test and Evaluation | | | | 0 | 0 | 0 | 0 | | |
| Total Project | | | | 109 | 196 | 189 | 217 | 446 | 20,021 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

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

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 32,712 | 24,778 | 27,292 | 24,174 | 19,854 | 13,228 | 13,834 | 0 | TBD |
| 3330 Cmd Cntrl Info Process Sys (C2IPS) | 5,469 | 4,426 | 14,314 | 11,939 | 9,563 | 2,260 | 2,387 | 0 | TBD |
| 4287 Contingency Theater Automated Planning System (CTAPS) | 23,916 | 14,343 | 9,040 | 8,485 | 6,545 | 10,968 | 11,447 | Continuing | TBD |
| 4288 Wing C2 System (WCCS) | 3,327 | 6,009 | 3,938 | 3,750 | 3,746 | 0 | 0 | 0 | 31,778 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

The Theater Battle Management Core Systems (TBMCS) develops force-level and wing-level command, control, and intelligence systems which utilize DoD's Global Command and Control System (GCCS) Defense Information Infrastructure (DII) common operating environment (COE). Acquisition of these systems will allow the execution of TBM planning, intelligence, and operational functions of the Joint Forces Air Component Commander (JFACC), including the air tasking order (ATO). Projects included in this program are Command & Control Information Processing System (C2IPS), Contingency Theater Automated Planning System (CTAPS), and Wing Command & Control System (WCCS). Another project, Combat Intelligence System (CIS) is migrating to the DII COE and will directly interface TBMCS, but RDT&E funds for CIS are programmed under PEs 0604321F, 0207431F, and 0305158F (FY97), and 0207414F (FY98+). The TBMCS effort is Post Milestone III effort, and is in Budget Activity 7, Operational Systems Development because it incrementally upgrades and develops capabilities for currently operational systems.

(U) **Acquisition Strategy:**

Electronic Systems Center (ESC), Hanscom AFB, MA will manage the overall TBMCS program (CTAPS, WCCS, CIS, and C2IPS). Lockheed-Martin Command and Control Systems (LMCCS) was competitively selected and is performing the TBMCS software integration and - when directed by the government - will develop individual applications consistent with the GCCS DII COE. C2IPS efforts will continue under the current prime contractor, Computer Sciences Corporation (CSC). C2IPS migration into the DII COE will begin in FY98.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

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

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 32,766 | 24,013 | 35341 | TBD |
| (U) Appropriated Value | 34,415 | 27,013 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional Reductions | -827 | -1,670 | | |
| b. Small Business Innovative Research | -822 | -565 | | |
| c. Rescissions | -54 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | 0 | -8049 | |
| (U) Current Budget Submit / FY 1999 President's Budget | 32,712 | 24,778 | 27,292 | TBD |

(U) Change Summary Explanation:

Funding: FY97: FY 97 changes as shown above.
FY98: No change.
FY99: Funds moved to FY 01 to support a more incremental development schedule for C2IPS.

Schedule: See Individual Projects.

Technical: See Individual Projects.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement, AF (0207438F) | 46,129 | 46,920 | 44,654 | 48,351 | 52,224 | 45,551 | 44,783 | Cont | TBD |
| (U) Operations and Maintenance, AF (0207438F) | 3,145 | 3,155 | 5,417 | 5,586 | 6,879 | 6,522 | 6,920 | Cont | TBD |
| (U) Operations and Maintenance, AF (0207415F) | 9,105 | 18,566 | 20,505 | 20,871 | 22,302 | 13,376 | 13,645 | Cont | TBD |
| (U) O&M, PE 0207431, CAIS | 4,864 | 1,968 | 2,778 | 3,752 | 4,797 | 4,913 | 5,039 | Cont | TBD |
| (U) RDT&E, PE 0207431F, CAIS | 7,373 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,373 |
| (U) RDT&E, PE 0305158F, Projec 4394 | 1,945 | 0 | 0 | 0 | 0 | 0 | 0 | Cont | 1,945 |
| (U) RDT&E, PE 0604321F, CIS-EMD | 2,622 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,622 |
| (U) Other Procurement, PE 0207414F | 9,705 | 18,489 | 13,206 | 18,718 | 14,452 | 11,932 | 11,928 | Cont | TBD |
| (U) Other Procurement, PE 0207431F | 2,150 | 3,730 | 3,016 | 5,206 | 4,028 | 3,063 | 3,072 | Cont | TBD |
| (U) Other Procurement, PE 0305158F | 1,951 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2,919 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207438F Theater Battle Management (TBM) C4I |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) WCCS 1.2 Release | | X | | | | | | | | | | |
| (U) CTAPS Version 5.2 Release | | | X | | | | | | | | | |
| (U) TBMCS S/W Version 1.0 | | | | | | | | | | | | |
| (U) Preliminary Design Review | X | | | | | | | | | | | |
| (U) In-Plant Test | | | | | | | X | | | | | |
| (U) Version 1.0 Release | | | | | | | | X | | | | |
| (U) TBMCS S/W Version 2.0 | | | | | | | | | | | | |
| (U) Preliminary Design Review | | | | | | | | | | X | | |
| (U) In-Plant Test (FY00) | | | | | | | | | | | | |
| (U) Version 2.0 Release (FY00) | | | | | | | | | | | | |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: 3330

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3330 Cmd Cntrl Info Process Sys (C2IPS) | 5,469 | 4,426 | 14,314 | 11,939 | 9,563 | 2,260 | 2,387 | 0 | TBD |

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

The Command & Control Information Processing System (C2IPS) project develops communications and information processing hardware and software for all echelons of the Air Mobility Command (AMC). C2IPS provides AMC the capability to monitor in real-time the operational airlift and tanker functions associated with mission execution worldwide. The integration of C2IPS computer resources and software with improved High Frequency (HF) equipment and other available communications media will result in a unified AMC C2 System.

(U) **Acquisition Strategy:**

The C2IPS will be developed and installed in four increments. Increment 1 provided a digital data message handling capability at each Information Processing System (IPS) node and implements mission execution monitoring. Increment 2 builds on Increment 1 software to support mission planning and scheduling. Increment 3 will provide C2IPS with a client server architecture as part of the system migration efforts. Increment 4 completes the directed C2IPS efforts for the incremental development, and lays the foundation for the migration strategy that will merge features of C2IPS into TBMCS.

(U) FY 1997 ($ in Thousands):

- (U) $ 3,053 Completed Incremented 2.0D software development
- (U) $ 325 Completed Increment 3.0 software development
- (U) $ 500 Started 3.B, 3.C and Increment 4 software development.
- (U) $ 1,336 Continued implementation of force- and unit-level migration strategies.
- (U) $ 255 Completed Initial Operational Test & Evaluation (OT&E) force and unit level migration.
- **(U) $5,469 Total**

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207438F Theater Battle Management (TBM) C4I | PROJECT<br>3330 |

(U) FY 1998 ($ in Thousands):

- (U) $ 850 Continue increments 3A and 3B software development
- (U) $ 2,514 Continue increment 3C(Data partitioning, Advanced Network Options and Y2K revisions)
- (U) $ 1,062 Start increment 4 (Detailed Planning & Scheduling for integration of AMC Aircraft Schedules)
- **(U) $ 4,426 Total**

(U) FY 1999 ($ in Thousands):

- (U) $ 7,900 Complete C/S software and evaluation (3A/3B/3C)
- (U) $ 5,414 Continue increment 4 (Detailed Planning & Scheduling for integration of AMC Aircraft Schedules)
- (U) $ 1,000 Start requirements planning & segmentation for integration into DII COE
- **(U) $14,314 Total**

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 5,469 | 4,764 | 22,102 | TBD |
| (U) Appropriated Value | 5,779 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional Reductions | -172 | -237 | | |
| b. Small Business Innovative Research | -138 | -101 | | |
| c. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -7,788 | |
| (U) Current Budget Submit / FY 1999 President's Budget | 5,469 | 4,426 | 14,314 | TBD |

(U) Change Summary Explanation:

Funding: FY99 funds are transferred to FY01 to create a lower risk acquisition profile more appropriate to incremental development.

Schedule: Some functionality will be rephased between increments.

Technical: N/A

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207438F Theater Battle Management (TBM) C4I |
| | PROJECT<br>3330 |

(U) C. **Other Program Funding Summary ($ in Thousands)** - Not Applicable.

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY1998 | | | | FY1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Increment 2.0D | | | | | | | | | | | | |
| (U) DT&E | | | X | | | | | | | | | |
| (U) Operational Test & Evaluation (OT&E) | | | | X | | | | | | | | |
| (U) Increment 3 | | | | | | | | | | | | |
| (U) TRR | | | X | | | | | | | | | |
| (U) DT&E | | | | | X | | | | | | | |
| (U) Increment 4 | | | | | | | | | | | | |
| (U) SSR | | | | | X | | | | | | | |
| (U) PDR | | | | | | X | | | | | | |
| (U) TRR | | | | | | | X | | | | | |
| (U) DT&E | | | | | | | | X | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: 3330

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Major Product Development Contracts | 3,614 | 2,244 | 12,198 |
| (U) Support Contracts | 1,394 | 1,754 | 1,582 |
| (U) Program Management Support | 461 | 428 | 534 |
| **(U) Total** | **5,469** | **4,426** | **14,314** |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| CSC | C/FPIF/FP | Dec 88 | TBD | TBD | 4,106 | 3,614 | 2,244 | 12,198 | Cont. | TBD |
| Support and Management Organizations | | | | | | | | | | |
| MITRE | SS/T&M | Oct 94 | n/a | n/a | 1,471 | 1,148 | 1,508 | 1,336 | Cont. | TBD |
| TEMS | Various | Various | n/a | n/a | 230 | 246 | 246 | 246 | Cont. | TBD |
| ESC | n/a | n/a | n/a | n/a | 824 | 461 | 428 | 534 | Cont. | TBD |
| Test and Evaluation Organizations - Not Applicable. | | | | | | | | | | |
| Subtotal Product Development | | | | | 4,106 | 3,614 | 2,244 | 12,198 | Cont. | TBD |
| Subtotal Support and Management | | | | | 2,525 | 1,855 | 2,182 | 2,116 | Cont. | TBD |
| Subtotal Test and Evaluation | | | | | | | | | | |
| **Total Project** | | | | | **6,631** | **5,469** | **4,426** | **14,314** | **Cont.** | **TBD** |

**Government Furnished Property:** Not Applicable

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: 4287

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4287 Contingency Theater Automated Planning System (CTAPS) | 23,916 | 14,343 | 9,040 | 8,485 | 6,545 | 10,968 | 11,447 | Continuing | TBD |

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

The Contingency Theater Automated Planning System (CTAPS) program directly supports the Joint Forces Air Component Commander (JFACC) in the planning and execution of the theater air campaign down to the unit level. The system is designed to an open system standard, promoting interoperability among USAF, Services, and Allied command and control systems. The air tasking order generation and dissemination capabilities of CTAPS are the standard for all DoD command and control systems. On-going efforts are migrating the current system to Global Command and Control System (GCCS) Defense Information Infrastructure (DII) common operating environment (COE), ensuring compatibility, interoperability, and commonality among services

(U) **Acquisition Strategy:**

The program utilizes an evolutionary acquisition strategy that accommodates changes in user requirements and improvements in commercial technology through a series of planned incremental software releases.

(U) FY 1997 ($ in Thousands):

- (U) $17,069 Complete version planning process, continue design/development of TBMCS version 1.0, and the full Ops/Intel interoperability.
- (U) $ 3,610 Continue Air Battle Planning and Architecture modifications to support the new Air Tasking Order (ATO) format.
- (U) $ 307 Initiate version planning and design for TBMCS Version 2.
- (U) $ 2,930 Systems engineering and support.
- **(U) $23,916 Total**

(U) FY 1998 ($ in Thousands):

- (U) $ 9,989 Complete TBMCS software version 1.0 development and initiate TBMCS software version 2.0 development.
- (U) $ 2,545 Complete development of new ATO format.
- (U) $ 809 Systems engineering and support.
- (U) $ 1,000 Integrate Combat Integration Capability (CIC) into TBMCS.
- **(U) $14,343 Total**

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207438F Theater Battle Management (TBM) C4I |
| | PROJECT<br>4287 |

(U) FY 1999 ($ in Thousands):

- (U) $ 5,357 Continue TBMCS software version 2.0 development.
- (U) $ 1,765 Technical insertion activities.
- (U) $ 918 Systems engineering and support.
- (U) $ 1,000 Continue integration efforts of CIC into TBMCS.
- **(U) $9,040 Total**

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 23,970 | 12,886 | 9,222 | TBD |
| (U) Appropriated Value | | 15,886 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional Reductions | | -1216 | | |
| b. Small Business Innovative Research | | -327 | | |
| c. Rescissions | -54 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -182 | |
| (U) Current Budget Submit / FY 1999 President's Budget | 23,916 | 14,343 | 9,040 | TBD |

(U) Change Summary Explanation:

Funding: FY98: Includes $3M plus-up . Adjustments as shown above.
Schedule: Not Applicable.

Technical: FY 98/99: Add Combat Integration Capability (CIC) within TBMCS.

**(U) C. Other Program Funding Summary ($ in Thousands)** - Please see Program Summary above.

**(U) D. Schedule Profile** - Please see Program Summary above.

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: 4287

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) System Integration and Development | 20,145 | 13,041 | 8,122 |
| (U) System Engineering | 1,291 | 450 | 346 |
| (U) TEMS | 1,823 | 852 | 572 |
| (U) SPO Support | 657 | 0 | 0 |
| **(U) Total** | **23,916** | **14,343** | **9,040** |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| LMCCS | C/CPAF/PR | Oct 95 | TBD | TBD | 1,169 | 16,328 | 10,421 | 7,865 | Cont. | TBD |
| SAIC (S/W INT) Hampton VA | C/CPFF/FCA | Mar 94 | n/a | n/a | 11,085 | 0 | 0 | 0 | 0 | 11,085 |
| SAIC (ASOC/BSD) Hampton VA, Anchorage AK | C/CPFF/FCA | Feb 94 | n/a | n/a | 3,759 | 0 | 0 | 0 | 0 | 3,759 |
| PARAMAX (APS) St Paul MN | C/CPFF/FCA | Mar 94 | n/a | n/a | 1,207 | 0 | 0 | 0 | 0 | 1,207 |
| INEL (ASOC) Idaho Falls ID | C/CPFF/FCA | Oct 94 | n/a | n/a | 1,243 | 0 | 0 | 0 | 0 | 1,243 |
| Logicon, Inc San Pedro, CA | C/CPFF/FCA | Jun 94 | n/a | n/a | 0 | 3,610 | 2,545 | 0 | 0 | 6,155 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: 4287

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Miscellaneous | Various | Various | n/a | n/a | 410 | 0 | 0 | 0 | 0 | 410 |
| Support and Management Organizations | | | | | | | | | | |
| MITRE | SS/CPAF | Oct 94 | n/a | n/a | 5,237 | 2,614 | 450 | 346 | Cont. | TBD |
| TEMS | C/T&M | Various | n/a | n/a | 1,430 | 400 | 400 | 400 | Cont. | TBD |
| Miscellaneous | Various | Various | n/a | n/a | 2,137 | 841 | 452 | 354 | 0 | 2,978 |
| Test and Evaluation Organizations | | | | | | | | | | |
| 46 TS | Project Order | Various | n/a | n/a | 0 | 46 | 75 | 75 | Cont | TBD |
| JTIC | MIPR | Various | n/a | n/a | 0 | 77 | 0 | 0 | 0 | 77 |
| **Government Furnished Property:** Not Applicable | | | | | | | | | | |
| Subtotal Product Development | | | | | 18,873 | 19,938 | 12,966 | 7,865 | Cont. | TBD |
| Subtotal Support and Management | | | | | 8,804 | 3,855 | 1,302 | 1,100 | Cont. | TBD |
| Subtotal Test and Evaluation | | | | | 0 | 123 | 75 | 75 | Cont. | TBD |
| **Total Project** | | | | | **27,677** | **23,916** | **14,343** | **9,040** | **Cont.** | **TBD** |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

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

PROJECT: 4288

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4288 Wing C2 System (WCCS) | 3,327 | 6,009 | 3,938 | 3,750 | 3,746 | 0 | 0 | 0 | 31,778 |

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

This project includes development of mission critical application software for WCCS operating on commercially available hardware and system software. Wing commanders require an accurate, composite picture of their wing's total resources to effectively command, control, and manage their forces in support of their combat sortie generation and reporting responsibilities. Key functional areas (operations, maintenance, mission planning, intelligence, weather, etc.) use WCCS to support the wing commander in the mission execution and reporting process by exchanging critical command and control and intelligence information with functional counterparts located throughout the wing. The introduction of increasingly sophisticated weapon systems - with their need for and ability to produce large amounts of data - require an automated C2 system to bring meaningful, consolidated information to the Commander in near real-time. Today, this information is relayed over secure and unsecured telephones, radios, and other communications devices, as well as by runners to update multi-user status displays (grease boards) or hand written logs. These techniques have not changed substantially since World War II, and are cumbersome, error-prone, are subject to security compromise, and involve duplication of effort. Disparate programs have led to the proliferation of stovepipe systems which can not provide interoperability and do not adequately meet the needs of today's air operations. The WCCS program will design, develop, and install an automated, standard wing-level C2 system that will be tailored to meet unique organizational requirements, provide interoperability, and reduce training and maintenance costs.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207438F Theater Battle Management (TBM) C4I |
| | PROJECT<br>4288 |

(U) Acquisition Strategy:

Electronic Systems Center (ESC), Hanscom AFB, MA will manage the overall TBMCS program (CTAPS, WCCS, CIS, and C2IPS). Lockheed-Martin Command and Control Systems (LMCCS) was competitively selected and is performing the TBMCS software integration and - when directed by the government - will develop individual applications consistent with the GCCS DII COE.

(U) FY 1997 ($ in Thousands):

- (U) $ 2,797 Continue design and development of TBMCS software version 1.0.
  - (U) Complete scheduler.
  - (U) Phase II Decision Support System (DDS) Module.
  - (U) Continue first phase of security enhancement implementation.
  - (U) Include/modify unit/force level interfaces (Air Force Mission Support System (AFMSS), Automated Weather Distribution System (AWDS), Base Recovery Control System (BRCS), and Combat Ammunition System-Base (CAS-B).
  - (U) P3I efforts.
  - (U) Continue force/unit level migration.
- (U) $ 105 Initiate TBMCS software version 2.0 version planning and design.
- (U) $ 425 Systems engineering and support.
- **(U) $3,327 Total**

(U) FY 1998 ($ in Thousands):

- (U) $ 353 Initiate TBMCS software version 2.0 development.
- (U) $5,390 Complete TBMCS software version 1.0 development.
- (U) $ 266 Systems engineering and support.
- **(U) $6,009 Total**

(U) FY 1999 ($ in Thousands):

- (U) $2,547 Continue TBMCS software version 2.0 development.
- (U) $1,150 Technical insertion activities.
- (U) $ 241 Systems engineering and support.
- **(U) $3,938 Total**

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207438F Theater Battle Management (TBM) C4I<br>PROJECT 4288 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 3,327 | 6,363 | 4,017 | TBD |
| (U) Appropriated Value | 3,502 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional Reductions | -92 | -217 | | |
| b. Small Business Innovative Research | -83 | -137 | | |
| c. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -79 | |
| (U) Current Budget Submit / FY 1999 Presidents Budget | 3,327 | 6,009 | 3,938 | TBD |

(U) Change Summary Explanation:

Funding: No significant impact.

Schedule: N/A

Technical: FY 98: Add new ATO format capability.

(U) C. **Other Program Funding Summary ($ in Thousands)** - Please see Program Summary above.

(U) D. **Schedule Profile** - Please see Program Summary above.

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207438F Theater Battle Management (TBM) C4I |
| | PROJECT<br>4288 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) System Integration and Development | 2,787 | 5,743 | 3,697 |
| (U) Systems Engineering | 176 | 66 | 61 |
| (U) TEMS | 249 | 200 | 180 |
| (U) SPO Support | 115 | 0 | 0 |
| **(U) Total** | **3,327** | **6,009** | **3,938** |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207438F Theater Battle Management (TBM) C4I<br>PROJECT 4288 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| LMCCS | C/CPAF/PR | Oct 95 | TBD | TBD | 50 | 2,787 | 5,743 | 3,697 | Cont. | TBD |
| SAIC | C/CPFF/FCA | Jan 94 | n/a | n/a | 5,000 | 0 | 0 | 0 | 0 | 5,000 |
| Support and Management Organizations | | | | | | | | | | |
| MITRE | SS/CPAF | Oct 94 | n/a | n/a | 750 | 176 | 66 | 61 | Cont. | TBD |
| TEMS & Misc | Various | Various | n/a | n/a | 904 | 364 | 200 | 180 | Cont. | TBD |

Test and Evaluation Organizations - Not Applicable

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207438F Theater Battle Management (TBM) C4I | PROJECT<br>4288 |

**Government Furnished Property:**

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| Local Purchase | Various | Various | Various | 128 | 0 | 0 | 0 | Cont. | TBD |
| Support and Management Property - Not Applicable | | | | | | | | | |
| Test and Evaluation Property - Not Applicable | | | | | | | | | |
| Subtotal Product Development | | | | 5,178 | 2,787 | 5,743 | 3,697 | Cont. | TBD |
| Subtotal Support and Management | | | | 1,654 | 540 | 266 | 241 | Cont. | TBD |
| Subtotal Test and Evaluation | | | | 0 | 0 | 0 | 0 | Cont. | TBD |
| **Total Project** | | | | **6,832** | **3,327** | **6,009** | **3,938** | **Cont.** | **TBD** |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207581F Joint STARS

PROJECT: 0003

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 0003 JSTARS | 0* | 118,335 | 123,793 | 87,673 | 125,453 | 141,051 | 112,334 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

* Note: Joint STARS RDT&E funds for FY97 and prior were in PE 0604770F.

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

There is an Air Force and Army need to provide, from airborne platforms, near-real time surveillance and targeting information on moving and stationary ground targets (growth to maritime operations), slow moving rotary and fixed wing aircraft, and rotating antennas. This information enables operational and tactical commanders to make and execute battle decisions. To meet these needs, the Air Force and Army initiated the Joint Surveillance Target Attack Radar System (Joint STARS) program with the Air Force as lead service. Joint STARS provides target information for pairing direct attack aircraft and standoff weapons against selected targets. The system is capable of being cued by other reconnaissance, surveillance, and target acquisition systems; is able to respond rapidly to worldwide contingencies; and provides surveillance and attack information in all light and near-all-weather conditions. The operational utility of the system was effectively demonstrated by the outstanding performance of two developmental aircraft in support of combat operations during Desert Storm. Joint STARS aircraft were deployed in support of Operation Joint Endeavor in Dec 95 and again from Nov to Dec 96. In Sep 96 the Defense Acquisition Board (DAB) Milestone III Review approved full rate production of a 19 E-8C program. The 93rd Air Control Wing, Robins AFB, GA, declared Joint STARS Initial Operational Capability (IOC) in Dec 97 and the system is now participating in operational and training exercises. After the Quadrennial Defense Review recommended a revision of the Joint STARS production profile the Air Force reduced Joint STARS production from 19 to 13 E-8Cs. The acquisition strategy is to procure 2 E-8Cs per year, starting in FY93, and ending in FY99, with 1 E-8C produced in FY98. This program is in Budget Activity 7 - Operational System Development.

(U) FY 1997 ($ in Thousands): (Funds contained in PE 0604770F)

(U) FY 1998 ($ in Thousands):

- (U) 4,960 Continue E-8C follow-on development and testing program
- (U) 8,664 Continue Support Systems and Crew Trainer Development
- (U) 24,350 Continue Self Defense Suite (SDS) and E-8C Follow-On Test Support (FOTS)
- (U) 17,776 Continue Government Furnished Equipment (GFE), program support, test, and other miscellaneous efforts
- (U) 59,585 Continue Life Cycle Cost Reduction Initiatives
- (U) 3,000 Initiate Radar Technology Insertion Program (RTIP)
- (U) 118,335 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207581F Joint STARS<br>PROJECT<br>0003 |

(U) FY 1999 ($ in Thousands):

| | | | |
|---|---|---|---|
| – | (U) | 6,397 | Continue E-8C follow-on development and test program (Joint STARS Integrated Maintenance Information System (JIMIS) and Site Activation Task Force (SATAF) Tech Order Verification) |
| – | (U) | 6,271 | Continue Support Systems and Crew Trainer Development |
| – | (U) | 21,079 | Continue SDS and E-8C FOTS |
| – | (U) | 16,368 | Continue GFE, program support, test, and other miscellaneous efforts |
| – | (U) | 33,498 | Continue Life Cycle Cost Reduction Initiatives and DAMA-compliant SATCOM upgrade |
| – | (U) | 40,180 | Continue RTIP development |
| – | (U) | 123,793 | Total |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 0 | 119,189 | 84,458 | TBD |
| (U) Appropriated Value | | 126,189 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. General Congressional Reductions | | 4,830 | | |
| b. Small Business Innovative Research | | 3,024 | | |
| c. Omnibus, Other Above Threshold Reprogramming | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Since FY 1998 PB | | | 39,335 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 0 | 118,335 | 123,793 | TBD |

(U) Change Summary Explanation

Funding: Joint STARS RDT&E funds for FY97 were in PE 0604770F. The appropriated value for FY98 includes an increase of $3.0 million for Cruise Missile Defense upgrades and $4.0 million for integration of the Improved Data Modem (IDM). The increase to the FY99 budgeted amount is for the Radar Technology Insertion program (RTIP). There is a pending reprogramming of $805 thousand in FY98 RDT&E for higher priority requirements.

Schedule: The FY99 Budget request reduces the production quantity from 19 to 13 E-8Cs, with FY99 the final production year. No changes to RDT&E schedule.
Technical: The RTIP effort will result in significant enhancements to the Joint STARS radar performance.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207581F Joint STARS | PROJECT<br>0003 |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Aircraft Procurement (BP 10) | 534,649 | 327,730 | 463,051 | 47,521 | 11,954 | 12,979 | 7,573 | Cont. | TBD |
| (U) Modifications (BP 11) | | | 44,179 | 30,073 | 16,091 | 17,197 | 24,202 | Cont. | TBD |
| (U) Spares (BP 16) | 0 | 72,209 | 68,192 | 87,885 | 81,557 | 38,889 | 35,305 | Cont. | TBD |

Note: Procurement began with 2 aircraft per year in FY93, FY94, FY95, and FY96.

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Required Assets Availability (RAA) | | * | | | | | | | | | | |
| (U) Production Aircraft Deliveries | * | | | | * | | X | X | X | | X | |
| (U) Full Rate Production Contract Award | | | * | | | | | | | | | |
| (U) Organic Support Capability | | | | | * | | | | | | | |
| (U) IOC | | | | | * | | | | | | | |
| (U) Mature Reliability | | | | | | | | X | | | | |
| (U) Follow-On OT&E Start | | | | | | X | | | | | | |

* Accomplished event

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207581F Joint STARS

PROJECT: 0003

**NOTE: Joint STARS RDT&E funds for FY 1997 and prior were in PE 0604770F.**

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Product Development | 0 | 87,199 | 89,179 |
| (U) Support and Management | | 4,863 | 2,703 |
| (U) Test and Evaluation | | 26,273 | 31,911 |
| (U) Total | 0 | 118,335 | 123,793 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| GMSD* | SS/CPIF | Nov 90 | 111,738 | 111,738 | 0 | 0 | 70,873 | 38,985 | 1,880 | 111,738 |
| Other Misc. Studies | Various | Various | 15,644 | 15,644 | 0 | 0 | 494 | 247 | 14,903 | 15,644 |
| Flt. Crew Sim. Dual and Assoc. | SS/CPAF/FFP | May 94 | 4,811 | 4,811 | 0 | 0 | 3,875 | 936 | 0 | 4,811 |
| MSIP Block 30 Upgrade | TBD | Various | 48,421 | 48,421 | 0 | 0 | 0 | 3,270 | 45,151 | 48,421 |
| Radar/IDM Improvements | TBD | TBD | 299,780 | 299,780 | 0 | 0 | 7,000 | 40,180 | 252,600 | 299,780 |
| Interop. Certif. Cap. GMSD | SS/CPIF | Dec 96 | 10,124 | 10,124 | 0 | 0 | 4,789 | 5,335 | 0 | 10,124 |

* Grumman Melbourne Systems Division (now Northrop Grumman)

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207581F Joint STARS

PROJECT: 0003

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Support and Management Organizations | | | | | | | | | | |
| MITRE | | Ongoing | N/A | N/A | 0 | 0 | 218 | 227 | 236 | 681 |
| Other Support. & Management | | Ongoing | N/A | N/A | 0 | 0 | 4,645 | 2,476 | 9,247 | 16,368 |
| Test and Evaluation Organizations | | | | | | | | | | |
| 3246 Test Wing Eglin AFB Range Support | PO | | N/A | N/A | 0 | 0 | 1,170 | 2,890 | 8,510 | 12,570 |
| E-8C FOTS GMSD | SS/FFP/CPFF | Aug 96 | 139,121 | 139,121 | | | 17,941 | 21,079 | 100,101 | 139,121 |
| JTF Support | Allotment | | | | | | 7,162 | 7,942 | 33,883 | 56,149 |
| Government Furnished Property | | | | | | | | | | |
| JTIDS | | Ongoing | | | | | 168 | 226 | 0 | 394 |
| Support and Management Property | | | | | | | | | | |
| Test and Evaluation Property | | | | | | | | | | |
| Subtotal Product Development | | | | | 0 | 0 | 87,199 | 89,179 | 314,534 | 490,912 |
| Subtotal Support and Management | | | | | 0 | 0 | 4,863 | 2,703 | 9,483 | 17,049 |
| Subtotal Test and Evaluation | | | | | 0 | 0 | 26,273 | 31,911 | 142,494 | 200,678 |
| Total Project | | | | | 0 | 0 | 118,335 | 123,793 | 466,511 | 708,639 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207590F Seek Eagle

| | COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total Program Element (PE) Cost | 13,550 | 16,909 | 17,590 | 22,285 | 20,019 | 18,318 | 17,542 | Continuing | Continuing |
| 2784 | Armament Standardization/Control/Munitions Material Handling Equipment | 1,125 | 1,040 | 0* | 0 | 0 | 0 | 0 | 0 | 3,317 |
| 4037 | SEEK EAGLE Certifications | 12,425 | 15,869 | 17,590 | 22,285 | 20,019 | 18,318 | 17,542 | Continuing | Continuing |
| | Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

* Funding for Project 2784 for FY99 and beyond is transferred to PE 64602F, Armament/Ordnance Development

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

The Air Force has a variety of combat aircraft and numerous stores (munitions, missiles, fuel tanks, electronic countermeasures pods, etc.). Aircraft carry these stores in countless different loading combinations determined by operational scenarios, missions, and tactics. Loading configurations change as operational plans and tactics change, and as new aircraft and stores are developed and produced. Before operational use, the Air Force must certify these configurations for safe loading, carriage, and separation (jettison and normal release), and must verify ballistics accuracy under the user-certified carriage and employment parameters. The Air Force SEEK EAGLE program completes these certifications through any combination of ground and flight testing, wind tunnel testing, advanced testing software, and engineering analysis. Over 700 aircraft-store combinations exist to be certified, with new ones added on a regular basis. Depending upon the complexity, certification takes from months to years. The SEEK EAGLE program is also responsible for insertion of new and emerging technologies into the SEEK EAGLE process and providing resources for sustainment of a viable Air Force aircraft-store certification capability. Electronic Technical Orders (TO's) are developed through the Combat Weapons Delivery Software (CWDS), creating cost savings by eliminating paper technical orders. The Armament Standardization/Control/Munitions Material Handling Equipment (MMHE), Project 2784, satisfies several USAF and Tri-service requirements for standardization of armament and support equipment and eliminates unnecessary duplication of MMHE. Starting in FY99 and out, management responsibility for Project 2784 will transfer from Seek Eagle to the Armament/Ordnance Development program, PE 64602F. Seek Eagle funds are currently budgeted to support certification for new weapons programs including F-22, JSF, SFW, WCMD, JDAM, JASSM, JSOW, AIM-9X, AIM-120 C-5, and many other inventory stores on inventory aircraft. The RDT&E Budget Activity is 7. Operational Systems Development because the PE supports fielded systems.

(U) **B. Acquisition Strategy**

Please see "Acquisition Strategy" under each individual R-2 for details.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207590F Seek Eagle

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 15,075 | 17,716 | 19,146 | 51,937 |
| (U) Appropriated Value | 15,469 | 17,716 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional General Reductions | -370 | -736 | | |
| b. SBIR | -24 | -71* | | |
| c. Omnibus or Other Above Threshold Reprogram | -1,500 | | | |
| d. Below Threshold Reprogramming | | ** | | |
| e. Recissions | -25 | | | |
| (U) Adjustments to Budget Years Since FY1998 PB | | | -1,556 | |
| (U) Current Budget Submit/FY1999 President's Budget | 13,550 | 16,909 | 17,590 | 48,049 |

(U) Change Summary Explanation:

Funding: $1.5M of FY97 funds were used for Omnibus reprogramming. FY99 funds of $1.202M were transferred to Armament/Ordnance Development (funding for Project 2784 for FY99 and beyond is transferred to PE 64602F, Armament/Ordnance Development).

* An additional $1K is pending reprogramming for additional SBIR reductions in FY98.

** An additional $20K in FY98 is pending reprogramming to fund higher Air Force priorities.

Schedule: N/A

Technical: N/A

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

Appropriation:

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Missile Procurement | 7,986 | 1,112 | 10,418 | 8,002 | 8,296 | 10,200 | 8,395 | Cont. | Cont. |
| (U) Procurement of Ammunition, AF | | 4,012 | | | 1,824 | | | | Cont. |

Note: The procurement dollars shown above are budgeted in each weapons' procurement line. Please refer to the next page for a FYDP weapon certification schedule/roadmap.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207590F Seek Eagle |

(U) D. Schedule Profile

SEEK EAGLE program does not execute in accordance with established acquisition program milestones. Each aircraft-store configuration requested by the user goes through the SEEK EAGLE process by the designated user priority.

The following chart maps the planned procurement years of Seek Eagle certification units for next generation weapons programs:

| | FY97 | FY98 | FY99 | FY00 | FY01 | FY02 | FY03 |
|---|---|---|---|---|---|---|---|
| JSOW | X | X | X | | | | |
| JDAM | | X | | | | | |
| WCMD | | X | | | X | | |
| JASSM | | | | X | X | X | |
| AIM-9X | | | | | X | | X |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207590F Seek Eagle

PROJECT: 2784

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2784 Armament Standardization/Control/Munitions Material Handling Equipment | 1,125 | 1,040 | 0* | 0 | 0 | 0 | 0 | 0 | 3,317 |
| Quantity of RDT&E Articles | | | | | | | | | |

* Funding for Project 2784 for FY99 and beyond is transferred to PE 64602F, Armament/Ordnance Development

(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.

(U) **B. Acquisition Strategy**

Funds are executed organically in support of munitions material handling equipment improvement studies, analyses, and tests.

(U) FY 1997 ($ in Thousands):

- (U) $ 970 Designed, prototyped, and tested various MMHE projects, i.e., complete testing of B-52H Yoke Fixture, JSOW Loading Pan, Rocket Module, UDL Discharge Chute, B-2/B-52 Rotary Launcher Loading Adapter, Fuze Torque Adapter, Ammo Drum Handling Bar, GCU-30 Adapter Tool, MHU-114 Stacking Fixture and Mechanical Ram Assembly; initiate design GBU Wing Container, MHU-83 Remote Control Upgrade, and AUR Container Handling Device; initiate evaluation of metal RAMS containers
- (U) $ 105 Continued design and manufacture of the Next Generation Munitions Handler Demonstrator and Aluminum Rail Set
- (U) $ 50 Continued prototype and testing of B-1B Rotary Launcher Adapter and Aluminum Rail Set
- (U) $ 1,125 Total

(U) FY 1998 ($ in Thousands):

- (U) $ 610 Design, prototype, and test various MMHE projects, i.e., prototype and test GBU Wing Container and ISO Container Handling Device; initiate design of AME Maintenance Stand, T-2 Pallet Lock Device, and Flare Assembly Fixture; complete evaluation of RAMS Containers and testing of B-1B Rotary Launcher Adapter and MHU-83 Remote Control Upgrade
- (U) $ 230 Complete design/manufacture of Next Generation Munitions Handler Demonstrator, MHU-110 Trailer Upgrade, and Aluminum Rail Set
- (U) $ 100 Initiate design of Next Generation Munitions Trailer and B-52 ALCM Pylon Loading Adapter
- (U) $ 100 Initiate ISO Container Munitions Packaging and Bottom Lift Forklift Projects
- (U) $ 1,040 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0207590F Seek Eagle — PROJECT: 2784 |

(U) FY 1999 ($ in Thousands):
- (U) $ 0 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 1,125 | 1,150 | 1,202 | 3,477 |
| (U) Appropriated Value | 1,181 | 1,150 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional General Reductions | -32 | -106 | | |
| b. SBIR | -24 | -4 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | ** | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -1,202* | |
| (U) Current Budget Submit/FY1999 President's Budget | 1,125 | 1,040 | 0* | 2,165 |

**(U) B. Program Change Summary ($ in Thousands) (Continued)**

(U) Change Summary Explanation:

Funding: Funding for Project 2784 for FY99 and out is transferred to PE 64602F, Armament/Ordnance Development.

** An additional $1K in FY98 is pending reprogramming to fund higher Air Force priorities.

Schedule: N/A

Technical: N/A

**(U) C. Other Program Funding Summary ($ in Thousands):** Not Applicable

**(U) D. Schedule Profile:** Not Applicable

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207590F Seek Eagle | PROJECT<br>2784 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Various MMHE Projects | 970 | 610 | 0 |
| (U) Next Generation Munitions Handler | 75 | 160 | 0 |
| (U) MHU-110 Trailer Upgrade | 0 | 50 | 0 |
| (U) B-1B Rotary Launcher Adapter | 50 | 0 | 0 |
| (U) Aluminum Rail Set | 30 | 20 | 0 |
| (U) Next Generation Munitions Trailer | 0 | 75 | 0 |
| (U) ISO Container Handling | 0 | 100 | 0 |
| (U) ALCM Pylon Adapter | 0 | 25 | 0 |
| (U) Total | 1,125 | 1,040 | 0* |

* Funding for Project 2784 for FY99 and out is transferred to PE 64602F, Armament/Ordnance Development

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207590F Seek Eagle |
| | PROJECT<br>2784 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program* |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Dept of Energy/ NASA | T&M | Oct 96 | N/A | N/A | 500 | 75 | 160 | 0 | 0 | 735 |
| Support and Management Organizations | | | | | | | | | | |
| TEAS/TAMS | CP | Oct 97 | N/A | N/A | 377 | 506 | 535 | 0 | 0 | 1,418 |
| AFDTC/FM | CP | Oct 97 | N/A | N/A | 130 | 160 | 120 | 0 | 0 | 410 |
| 646 SUPS/LGS | CP | Cont. | N/A | N/A | 13 | 189 | 50 | 0 | 0 | 252 |
| WL/MN | CP | Cont. | N/A | N/A | 112 | 0 | 40 | 0 | 0 | 152 |
| Test and Evaluation Organizations | | | | | | | | | | |
| 46th Test Wing | | | N/A | N/A | 20 | 195 | 135 | 0 | 0 | 350 |
| **Government Furnished Property:** Not Applicable | | | | | | | | | | |
| Subtotal Product Development | | | | | 500 | 75 | 160 | 0 | 0 | 735 |
| Subtotal Support and Management | | | | | 632 | 855 | 745 | 0 | 0 | 2,232 |
| Subtotal Test and Evaluation | | | | | 20 | 195 | 135 | 0 | 0 | 350 |
| **Total Project** | | | | | 1,152 | 1,125 | 1,040 | 0* | 0 | 3,317 |

* Funding for Project 2784 for FY99 and out is transferred to PE 64602F, Armament/Ordnance Development

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207590F Seek Eagle

PROJECT: 4037

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4037 SEEK EAGLE Certifications | 12,425 | 15,869 | 17,590 | 22,285 | 20,019 | 18,318 | 17,542 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | |

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

Air Force aircraft carry a variety of combat stores (munitions, missiles, fuel tanks, electronic countermeasures, pods, etc.) in countless different loading combinations determined by operational scenarios, missions, and tactics. Loading configurations change based on operational plans and tactics, and as new aircraft and stores are developed. Before operational use, the Air Force must certify these configurations for safe loading, carriage, and separation (jettison and normal release), and must verify ballistics accuracy under the user-specified carriage and employment parameters. The SEEK EAGLE program completes these certifications through any combination of ground and flight testing, wind tunnel testing, and engineering analysis. More than 700 aircraft-store configurations exist to be certified, with new ones added on a regular basis. Certification may take months to years to complete because of the diversity and interaction among systems being tested. The SEEK EAGLE program is also responsible for insertion of new and emerging technologies into the SEEK EAGLE process and providing resources to sustain a viable Air Force aircraft/store certification capability. Seek Eagle funds are currently budgeted to support certification for the following next generation weapons programs: SFW, WCMD, JDAM, JASSM, JSOW, AIM-9X, and AIM-120 C-5. Electronic Technical Orders (TO's) are developed through the Combat Weapons Delivery Software (CWDS).

(U) B. **Acquisition Strategy**

Procurement funds are planned and budgeted for by the Seek Eagle office, however, budget authorization is given directly to the weapon system program office. These program offices then plan the acquisition and contracting strategy.

(U) FY 1997 ($ in Thousands):

- (U) $ 230 Initiated/designed/developed F-22 data and engineering models to use for follow-on weapons certifications
- (U) $ 1,682 Continued/completed aircraft load/separation prediction capability using Applied Computational Fluid Dynamics (ACFD)
- (U) $ 8,713 Initiated/continued/completed aircraft-store certifications on fighter and bomber aircraft
- (U) $ 1,800 Initiated/continued/developed/completed various automated Technical Orders/mission planning tools using CWDS
- (U) $ 12,425 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207590F Seek Eagle |
| PROJECT<br>4037 | |

(U) FY 1998 ($ in Thousands):

- (U) $ 1,750 Initiate/continue/develop F-22 data and engineering models to use for follow-on weapons certification
- (U) $ 2,100 Continue/complete aircraft load/separation prediction capability using Applied Computational Fluid Dynamics (ACFD)
- (U) $ 2,170 Initiate/continue/develop/complete various automated Technical Orders/mission planning tools using CWDS
- (U) $ 9,849 Initiate/continue/complete aircraft-store certification on fighter and bomber aircraft
- (U) $ 15,869 Total

(U) FY 1999 ($ in Thousands):

- (U) $ 3,268 Initiate/continue/develop F-22 data and engineering models to use for follow-on weapons certification
- (U) $ 2,300 Initiate/continue/develop/complete various automated Technical Orders/mission planning tools using CWDS
- (U) $ 2,400 Continue/complete aircraft load/separation prediction capability using Applied Computational Fluid Dynamics (ACFD)
- (U) $ 9,622 Initiate/continue/complete aircraft-store certification on fighter and bomber aircraft
- (U) $ 17,590 Total

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207590F Seek Eagle

PROJECT: 4037

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 13,950 | 16,566 | 17,944 | 48,460 |
| (U) Appropriated Value | 14,288 | 16,566 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional General Reductions | -338 | -630 | | |
| b. SBIR | | -67* | | |
| c. Omnibus or Other Above Threshold Reprogram | -1500 | | | |
| d. Below Threshold Reprogramming | | ** | | |
| e. Rescissions | -25 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -354 | |
| (U) Current Budget Submit/FY1999 President's Budget | 12,425 | 15,869 | 17,590 | 45,884 |

(U) Change Summary Explanation:

Funding: FY97 reductions were for Congressional General Reductions, SBIR, and support for contingency operations. FY98 reductions were for Congressional General Reductions and SBIR.

* An additional $1 K is pending reprogramming for additional SBIR reductions in FY98.

** An additional $19K in FY98 is pending reprogramming to fund higher Air Force priorities.

Schedule: N/A

Technical: N/A

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207590F Seek Eagle |
| | PROJECT<br>4037 |

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

Appropriation:

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Missile Procurement | 7,986 | 1,112 | 10,418 | 8,002 | 8,296 | 10,200 | 8,395 | Cont. | Cont. |
| Procurement of Ammunition | | 4,012 | | | 1,824 | | | | Cont. |

Note: The procurement dollars shown above are budgeted in each weapons' procurement line.

(U) D. Schedule Profile

The SEEK EAGLE program does not execute in accordance with established acquisition program milestones. Each aircraft-store configuration requested by the user goes through SEEK EAGLE process by the designated user priority.

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207590F Seek Eagle | PROJECT<br>4037 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Process Sustainment | 1,657 | 2,100 | 2,400 |
| (U) F-22 Data & Engineering Models | 230 | 1,750 | 3,268 |
| (U) Engineering Analysis | 2,872 | 3,050 | 3,200 |
| (U) Flight Testing | 3,266 | 4,449 | 4,122 |
| (U) Wind Tunnel Testing | 1,450 | 1,300 | 1,200 |
| (U) Other | 1,800 | 2,170 | 2,300 |
| - Ballistic/ Safe Escape Analysis | | | |
| - Tech Order/P.C. Floppy Disk | | | |
| - Loading Process Development/Verification | | | |
| (U) Mission Support | 1,150 | 1,050 | 1,100 |
| (U) Total | 12,425 | 15,869 | 17,590 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207590F Seek Eagle |
| | PROJECT<br>4037 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | N/A | | | | | | | | | |
| Support and Management Organizations | | | | | | | | | | |
| Mission Support | PO/REO | Continuous | N/A | N/A | 7,167 | 1,150 | 1,050 | 1,100 | Continuing | Cont. |
| Test and Evaluation Organizations | | | | | | | | | | |
| 46th Test Wing | PO/REO | Continuous | N/A | N/A | 66,083 | 7,829 | 9,719 | 10,490 | Continuing | Cont. |
| AEDC | PO/REO | Continuous | N/A | N/A | 10,633 | 1,450 | 1,300 | 1,200 | Continuing | Cont. |
| Various | PO/REO | Continuous | N/A | N/A | 31,395 | 1,996 | 3,800 | 4,800 | Continuing | Cont. |
| **Government Furnished Property:** | Not Applicable | | | | | | | | | |
| Subtotal Product Development | | | | | N/A | | | | | |
| Subtotal Support and Management | | | | | 7,167 | 1,150 | 1,050 | 1,100 | Continuing | Cont. |
| Subtotal Test and Evaluation | | | | | 108,111 | 11,275 | 14,819 | 16,490 | Continuing | Cont. |
| **Total Project** | | | | | 115,278 | 12,425 | 15,869 | 17,590 | Continuing | Cont. |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207601F USAF Modeling and Simulation

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 25,505 | 19,807 | 14,899 | 17,621 | 16,099 | 15,365 | 11,583 | TBD | Continuing |
| 1008 National Air and Space Warfare Model (NASM) | 16,657 | 14,667 | 13,123 | 13,853 | 12,245 | 11,507 | 7,626 | TBD | Continuing |
| 1011 Joint Modeling & Simulation Integration Program (JMSIP)* | 1,995 | 0 | 0 | 0 | 0 | 0 | 0 | TBD | Continuing |
| 2888 Theater Air Command & Control Sim Facility (TACCSF)* | 0 | 5,140 | 0 | 0 | 0 | 0 | 0 | TBD | Continuing |
| 4566 Executive Agent for Air/Space Natural Environment* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | TBD | Continuing |
| 4567 Joint Modeling and Simulation System (JMASS) | 0 | 0 | 1,776 | 3,768 | 3,854 | 3,858 | 3,957 | TBD | Continuing |
| 4582 ASC Simulation and Analysis Facility (SIMAF) | 6,853 | 0 | 0 | 0 | 0 | 0 | 0 | 6,853 | 6,853 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*Projects 1011 and 4566 were trasferred to PE030861F beginning in FY 1999. Project 2888 was transferred to PE0207605F beginning in FY 1999. Reported in Justification Sheet for consistency.

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

Initiated in FY 94, this program is in budget activity 7 - Operational System Development, Research Category because it provides RDT&E funding for major USAF Modeling and Simulation efforts such as the National Air and Space Model (NASM)—the air and space element fo the Joint Simulation System (JSIMS); the Joint Modeling and Simulation System (JMASS); and manpower authorizations for JSIMS. JSIMS will be the sole readiness training simulation used by all CINCs, Services, NAFs and at all simulation centers to trainJoint Force Commanders, Joint Task Force staffs, Components and their staffs, including Joint Force Air Component Commanders and Air Operations Center personnel. JMASS provides HLA-compliant architecture for engagement level simulations.

(U) **Acquistion Strategy**

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207601F USAF Modeling and Simulation

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) FY1998 President's Budget | 25,107 | 21,718 | 24,919 | Continuing |
| (U) Appropriated Value | 26,361 | 21,718 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -631 | -1,410 | | |
| b. SBIR | -623 | -501 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | +440 | | | |
| e. Recissions | -42 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | +46 | -10,020 | |
| (U) Current Budget Submit/1999 President's Budget | 25,505 | 19,807 | 14,899 | Continuing |

(U) Change Summary Explanation:

Funding: FY97 - Below threshold reprogramming to supported increasing program activities.
FY98 - $46K is pending reprogramming to fund higher priorities.
FY99 - Realignment to higher program priority

Schedule: See individual R-2s attached

Technical: See individual R-2s attached

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) O&M (AF 3400), PE27601F | 42,824 | 29,119 | 360 | 534 | 536 | 630 | 607 | Contin | Contin |
| (U) Other Procurement (AF 834010 ADPE) | 663 | 548 | | | | | | | |

(U) **D. Schedule Profile** See individual R-2s

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207601F USAF Modeling and Simulation<br>PROJECT 1008 |

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 1008 National Air and Space Warfare Model (NASM) | 16,657 | 14,667 | 13,123 | 13,853 | 12,245 | 11,507 | 7,626 | TBD | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

This program provides funds for Air Force and Joint wargaming architecture and model development, primarily in support of battlestaff training, education, and military operations. A new wargaming model, NASM, is being developed to replace the existing Air Force standard Air Warfare Simulation (AWSIM). NASM will expand the use and role of modeling and simulation (M&S) in support of operational and acquisition decision making, and increase the interoperability between Air Force and joint efforts. NASM includes an overall USAF M&S architecture and provides a reusable, portable, scaleable, robust distributed core for other simulations. It includes an air combat resolution model to meet the needs of USAF MAJCOMs and Unified/Specified Command air components to train Air Component Commanders and their battle staffs. Primary users will be the unified command air components, Command in Chief's (CINCs), Joint Forces Air Component Commander's (JFACC), and Service components, as supported by BLUE FLAG and WPC for use in joint exercises involving air, ground, and sea campaigns. NASM is the air component portion of the evolving DoD, Joint Staff and Services Joint Simulation System (JSIMS) initiative.

(U) **Acquisition Strategy**

(U) FY 1997 ($ in Thousands):
- (U) $ 7,549 Continue development of specific air objects to support JSIMS architecture
- (U) $ 3,761 Continue NASM integration effort and operate the program management office
- (U) $ 5,197 Implement, test, field and support configuration control board (CCB) approved Re-Engineered AWSIM
- (U) $ 150 Expansion of functionality within Air Force Suite of Models (AFSOM)
- (U) $ 16,657 Total

(U) FY 1998 ($ in Thousands):
- (U) $ 9,400 Continue development of specific air objects to support JSIMS architecture
- (U) $ 3,.767 Continue NASM integration effort and operate the program manaement office
- (U) $ 1,500 Implement, test, field and support configuration control board (CCB) approved Re-Engineered AWSIM
- (U) $ 14,667 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0207601F USAF Modeling and Simulation / PROJECT: 1008 |

(U) FY 1999 ($ in Thousands):

- (U) $ 9,194 Continue development of specific air objects to support JSIMS architecture
- (U) $ 2,801 Continue NASM integration effort and operate the program management office
- (U) $ 1,128 Support and configuration manage the Re-engineered AWSIM
- (U) $ 13,123 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) 1998 President's Budget | 16,259 | 16,270 | 18,360 | Continuing |
| (U) Appropriated Value | 17,323 | 16,270 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -441 | -1,232 | | |
| b. SBIR | -623 | -371 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | +398 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -5,237 | |
| (U) Current Budget Submit/FY 99 President's Budget | 16,657 | 14,667 | 13,123 | Continuing |

(U) Change Summary Explanation:

Funding: FY97 - Adjustment supports increasing program activities.
FY98 - $34K is pending reprogramming to fund higher priorities.
FY99 - Adjustments to fund higher priorities.

Schedule: No changes

Technical: None

**(U) C. Other Program Funding Summary ($ in Thousands)** None

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207601F USAF Modeling and Simulation<br>PROJECT 1008 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) AWSIM Re-engineering | | | | | | | | | | | | X |
| (U) NASM Prototypes | X | | | | | | | | | | | |
| (U) NASM Integration | X | | | | | | | | | | | |
| (U) Initial Op Capability (IOC) 4QFY99 | | | | | | | | | | | | |
| (U) Full Op Capability (FOC) 4QFY03 | | | | | | | | | | | | |

Note: NASM development schedule coincides with the Joint Simulation System (JSIMS) schedule of Initial Operational Capability (IOC) in FY99 and Full Operational Capability (FOC) in FY03.

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207601F USAF Modeling and Simulation

PROJECT: 1008

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

| National Air & Space Warfare Model (NASM) | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Cost Categories: | | | |
| (U) a. Software development | 12,265 | 10,619 | 8,846 |
| (U) b. Contractor support | 3,477 | 3,729 | 3,946 |
| (U) c. Program Management support | 710 | 163 | 171 |
| (U) d. Travel | 205 | 156 | 160 |
| (U) Total | 16,657 | 14,667 | 13,123 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Raytheon (NASM) | TRN | 3 Mar 97 | 52,793 | 52,793 | 0 | 7,638 | 9,400 | 7,584 | 28,171 | 52,793 |
| Raytheon (AWSIM/R) | TRN | 7 Apr 94 | 9,565 | 9,565 | 5,616 | 2,625 | 602 | 618 | 104 | 9,565 |
| Hughes (AWSIM/R) | TRN | 2 Jun 94 | 5,351 | 5,351 | 2,570 | 1,449 | 617 | 642 | 73 | 5,351 |
| Support and Management Organizations | | | | | | | | | | |
| Tech Eng Mgt Spt (TEMS) | Del Order | 1 Feb 94 | 20,843 | 20,843 | 4,394 | 2,083 | 2,129 | 2,183 | 10,057 | 20,843 |
| MITRE | Contract Mod | 11 Aug 94 | 15,185 | 15,185 | 2,144 | 1,395 | 1,600 | 1,781 | 8,265 | 15,185 |
| Other | Various | Various | 20,070 | 20,070 | 16,786 | 1,467 | 319 | 315 | 1,183 | 20,070 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207601F USAF Modeling and Simulation

PROJECT: 1008

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Test and Evaluation Organizations | | | | | | | | | | |
| None | | | | | | | | | | |
| Total Project | | | 123,835 | 123,835 | 31,510 | 16,657 | 14,667 | 13,123 | 46,734 | 123,835 |

**Government Furnished Property:**

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| None | | | | | | | | | |
| Support and Management Property | | | | | | | | | |
| None | | | | | | | | | |
| Test and Evaluation Property | | | | | | | | | |
| None | | | | | | | | | |
| Subtotal Product Development | | | | 8,186 | 11,712 | 10,619 | 8,844 | 28,348 | |
| Subtotal Support and Management | | | | 23,324 | 4,900 | 4,048 | 4,276 | 19,505 | |
| Subtotal Test and Evaluation | | | | | | | | | |
| Total Project | | | | 31,510 | 16,657 | 14,667 | 13,123 | 46,743 | |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207601F USAF Modeling and Simulation

PROJECT: 4567

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4567 Joint Modeling and Simulation System (JMASS) | 0 | 0 | 1,776 | 3,768 | 3,854 | 3,858 | 3,957 | TBD | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

The Joint Modeling & Simulation System (JMASS) is a simulation support environment for the development, configuration, execution, and analysis of high fidelity, repeatable simulations with re-usable models—focus is tactical/engagement level simulations with the present concentration on electronic combat. JMASS is a full system software implementation of a modern object based simulation architecture. JMASS provides users with the tools to: Develop objects, assemble these objects into models, configure the models in a complete simulation, execute the simulation, and post process the simulation data. JMASS tools assist users in developing fully compliant objects; users concentrate on the models and analysis, not computer science.

(U) **Acquisiton Strategy**

(U) FY 1997 ($ in Thousands):
- (U) $0 Not Applicable

(U) FY 1998 ($ in Thousands):
- (U) $0 Not Applicable

(U) FY 1999 ($ in Thousands):
- (U) $ 491 High Level Architecture (HLA) Compliance
- (U) $ 245 Improved User Interface
- (U) $ 735 Develop Request For Proposal (RFP) documentation and operate the program management office
- (U) $ 305 Prototype of JMASS software on a Personal Computer (PC)
- (U) $ 1,776 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207601F USAF Modeling and Simulation<br>PROJECT 4567 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) FY 1998 President's Budget | 0 | 0 | 0 | Continuing |
| (U) Appropriated Value | | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | +1,776 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 0 | 0 | 1,776 | Continuing |

(U) Change Summary Explanation:

Funding: FY 99 adjustment of $1,776K to support JMASS architecture.

Schedule: Not Applicable

Technical: Not Applicable

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) PE64256F, Threat Simulator Development Project 3321 (EW Test Resources) | 6,685 | 4,090 | 4,100 | 2,100 | 2,100 | 2,100 | 2,100 | Continue | 25,899 |
| (U) PE 27601F, O&M (AF 3400) | | | 490 | 582 | 579 | 686 | 664 | Continue | 3,002 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207601F USAF Modeling and Simulation

PROJECT: 4567

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) JMASS Releases | | X | | | X | | | X | | | | X |
| (U) Threat and Digital System Model (DSM) Releases | | | | | | | | | | | | |
| (U) SA-2 | | | | | | | | X | | | | |
| (U) SA-3 | | | | | | | X | | | | | |
| (U) SA-5 | | | | | | | X | | | | | |
| (U) SA-6 | | | | | | | | X | | | | |
| (U) SA-8 | | | | | | | | X | | | | |
| (U) SA-10 | | | | | | | X | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207601F USAF Modeling and Simulation |
| | PROJECT<br>4567 |

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

| Joint Modeling and Simulation System (JMASS) | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Cost Categories | | | |
| (U) a. Software Development | | | 1,026 |
| (U) b. Contractor Support | | | 250 |
| (U) c. Program Management Support | | | 400 |
| (U) d. Travel | | | 100 |
| (U) Total | 0 | 0 | 1,776 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Various | Various | | | | 0 | 0 | 0 | 1,776 | continuing | continuing |
| Support and Management Organizations | | | | | | | | | | |
| None | | | | | | | | | | |
| Test and Evaluation Organizations | | | | | | | | | | |
| None | | | | | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207601F USAF Modeling and Simulation | PROJECT<br>4567 |

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

**Government Furnished Property:**

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| None | | | | | | | | | |
| Support and Management Property | | | | | | | | | |
| None | | | | | | | | | |
| Test and Evaluation Property | | | | | | | | | |
| None | | | | | | | | | |
| Subtotal Product Development | | | | 0 | 0 | 0 | 1,776 | continuing | |
| Subtotal Support and Management | | | | | | | | | |
| Subtotal Test and Evaluation | | | | | | | | | |
| Total Project | | | | 0 | 0 | 0 | 1,776 | continuing | |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207601F USAF Modeling and Simulation

PROJECT: 4582

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4582 ASC Simulation and Analysis Facility (SIMAF) | 6,853 | 0 | 0 | 0 | 0 | 0 | 0 | 6,853 | 6,853 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

Aeronautical Systems Center 's (ASC) Simulation and Analysis Facility (SIMAF), is an initiative that supports the CSAF's realization of a Joint Synthetic Battlespace in the AF's "New Vector for Modeling, Simulation & Analysis (MS&A)". The SIMAF is an addition at Wright-Patterson AFB, OH to integrate existing and emerging MS&A capabilities. SIMAF will interconnect ASC's MS&A capabilities and demonstration capabilities for AFMC product and technologies; link AFMC product Centers, AF Battle Labs, T&E infrastructure, and Industry; and jump start the AF involvement in the USD (A&T) simulation based acquisition (SBA) initiative.

(U) **Acquisition Strategy**

(U) FY 1997 ($ in Thousands):
- (U) $ 5,053 Development of hardware and software for constructive, virtual environment
- (U) $ 1,100 Renovation of "common ground" facility with the physical gateway to the synthetic battlespace environment
- (U) $ 700 Support program management activities
- (U) $ 6,853 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 Not Applicable

(U) FY 1999 ($ in Thousands):
- (U) $0 Not Applicable

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207601F USAF Modeling and Simulation<br>PROJECT 4582 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) FY1998 President's Budget | 6,853 | | | |
| (U) Appropriated Value | 7,000 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -147 | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | | |
| (U) Current Budget Submit/FY 1999 President's Budget | 6,853 | 0 | 0 | 6,853 |

(U) Change Summary Explanation:

Funding: FY 97 funding provided through Congressional add.

Schedule: Not Applicable

Technical: Not Applicable

(U) **C. Other Program Funding Summary ($ in Thousands)** None

| (U) | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207601F USAF Modeling and Simulation<br>PROJECT 4582 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Virtual Facility Development | X | X | X | X | X | | | | | | | |
| (U) Physical Facility Development | | X | X | X | X | X | X | X | | | | |
| (U) Hardware/Software Development | X | X | X | X | X | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207601F USAF Modeling and Simulation

PROJECT: 4582

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

| ASC Simulation and Analysis Facility (SIMAF) | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Cost Categories | | | |
| (U) a. Hardware/Software Development | 3,800 | | |
| (U) b. Contractor Support | 2,153 | | |
| (U) c. Program Management Support | 700 | | |
| (U) c. Travel | 200 | | |
| (U) Total | 6,853 | 0 | 0 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| ASC | | | 6,853 | 6,853 | 0 | 6,853 | 0 | 0 | 6,853 | 6,853 |
| Support and Management Organizations | | | | | | | | | | |
| None | | | | | | | | | | |
| Test and Evaluation Organizations | | | | | | | | | | |
| None | | | | | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207601F USAF Modeling and Simulation<br>PROJECT 4582 |

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

**Government Furnished Property:**

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| None | | | | | | | | | |
| Support and Management Property | | | | | | | | | |
| None | | | | | | | | | |
| Test and Evaluation Property | | | | | | | | | |
| None | | | | | | | | | |
| Subtotal Product Development | | | | 0 | 6,853 | 0 | 0 | 6,853 | |
| Subtotal Support and Management | | | | | | | | | |
| Subtotal Test and Evaluation | | | | | | | | | |
| Total Project | | | | 0 | 6,853 | 0 | 0 | 6,853 | |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207605F Wargaming and Simulation Centers

PROJECT: 2888

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2888 Theater Air Command & Control Sim Facility (TACCSF) | 0 | 5,140* | 5,287 | 5,287 | 5,613 | 6,180 | 6,477 | TBD | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*FY98 dollars are executed through PE0207601F, USAF Modeling and Simulation, but reported here for consistency.

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

This PE will provide funding for the Air Force's premier warfighter-in-the-loop simulation facility operated at Kirtland AFB, NM by Det 4, 505th Command and Control Evaluation Group (505 CCEG). On 1 Oct 97, the 505 CCEG and TACCSF will fall under the authority of the Air and Space Command and Control Agency (ASC2A). TACCSF's mission is to provide advanced distributed simulation to the warfighter for improving theater air and space warfare systems and concepts of operation. TACCSF is used by the ASC2A and other customers who require high-fidelity battle management, command, control, communications, computer, and intelligence (BMC4I) simulation for establishing system requirements, assessing interoperability, integrating actual C4I and weapon system, and conducting joint test and evaluation. TACCSF performs the operations and maintenance (O&M) and upgrade of a complex equipment system consisting of 23 Air Force and Army weapon system simulators (containing over 2 million lines of software code), 18 internal computer networks, 36 mainframe computers, and 62 tactical warfighter-in-the-loop simulator consoles. These systems interoperate with joint service simulators and live fielded equipment via wide-area networks using state-of-the-art voice and data link communications over multiple long-haul communication circuits. FY98 funding is excuted through PE0207601F, USAF Modeling and Simulation.

(U) **Acquition Strategy**

(U) FY 1997 ($ in Thousands):
- (U) $0 Total

(U) FY 1998 ($ in Thousands):
- (U) $ 3,322 Continue to maintain core structure to support users conducting RDT&E, mission rehearsal, and concepts of operations development
- (U) $ 947 Continue to support requirements definition, tes support, scenario development, analysis, system engineering support, and Verification,Validation, & Accredidation (VV&A) of core system
- (U) $ 531 Continue to upgrade the TACCSF infrastructure by conneting Distributed Interactive Simulation (DIS) and High Level Architecture (HLA)
- (U) $ 240 In support of program office including travel.
- (U) $ 100 Defense Simulation Internet (DSI) provides flexibility, dial-up connectivity between TACCSF and various other M&S facilities.
- (U) $ 5,140 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207605F Wargaming and Simulation Centers |
| | PROJECT<br>2888 |

(U) FY 1999 ($ in Thousands):

| | | |
|---|---|---|
| – | (U) $ 3,180 | Continue to maintain core structure to support users conducting RDT&E, mission rehearsal, and concepts of operation development |
| – | (U) $ 1,055 | Continue to support requirements definition, test support, scenario development, analysis, system engineering support, and VV&A of core system |
| – | (U) $ 708 | Rehost AWACS and other systems from its ten year old equipment. The models should be rehosted to take advantage of object-oriented techniques allowing the sensor models to be imported into other simulations to save money and time. This design will also support tactical data link interfaces with operational systems |
| – | (U) $ 244 | In support of approximately 175 TDY's, office supplies, and host base support |
| – | (U) $ 100 | DIS provides flexibility, dial-up connectivity between TACCSF and various other M&S facilities. |
| – | (U) $ 5,287 | Total |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) FY1998 President's Budget | 0 | 5,448 | 0 | Contiuing |
| (U) Appropriated Value | | 5,448 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | | -178 | | |
| b. SBIR | | -130 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | +5,287 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 0 | 5,140 | 5,287 | Continuing |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207605F Wargaming and Simulation Centers | PROJECT<br>2888 |

(U) Change Summary Explanation:

Funding: FY98 - $130K for additional SBIR reduction.

FY99 - Program being executed in PE0270605F, Wargaming and Simualtion Centers

Schedule: Not Applicable

Technical: Not Applicable

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) PE27603F, O&M (AF 3400) | | | 14,952 | 14,635 | 15,993 | 16,350 | 15,903 | Continue | Continue |
| (U) Other Procurement (AF 3080) | | | 523 | 527 | 556 | 557 | 561 | Continue | Continue |

**(U) D. Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Maintain Core Structure | | | | | X | | | X | X | | | X |
| (U) Continue Technical Support | | | | | X | | | X | X | | | X |
| (U) Support DIS & HLA | | | | | X | | | X | | | | |
| (U) Unit Ops Exp | | | | | X | | | X | X | | | X |
| (U) DSI Service Fee | | | | | X | | | X | X | | | X |
| (U) Rehost AWACS & MCE | | | | | | | | | X | | | X |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0207605F Wargaming and Simulation Centers

PROJECT: 2888

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Cost Categories | | | |
| (U) a. Software Development | | 3,769 | 3,842 |
| (U) b. Contractor Support | | 1,026 | 1,090 |
| (U) c. Program Management Support | | 245 | 250 |
| (U) d. Travel | | 100 | 105 |
| (U) Total | 0 | 5,140 | 5,287 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Det 4, 505th CCEG | | 1 Jan 90 | continuing | continuing | 0 | 0 | 5,140 | 5,287 | continuing | continuing |
| Support and Management Organizations | | | | | | | | | | |
| None | | | | | | | | | | |
| Test and Evaluation Organizations | | | | | | | | | | |
| None | | | | | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0207605F Wargaming and Simulation Centers | PROJECT<br>2888 |

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

**Government Furnished Property:** N/A

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| None | | | | | | | | | |
| Support and Management Property | | | | | | | | | |
| None | | | | | | | | | |
| Test and Evaluation Property | | | | | | | | | |
| None | | | | | | | | | |
| Subtotal Product Development | | | | 0 | 0 | 5,140 | 5,287 | continuing | continuing |
| Subtotal Support and Management | | | | | | | | | |
| Subtotal Test and Evaluation | | | | | | | | | |
| Total Project | | | | 0 | 0 | 5,140 | 5,287 | continuing | continuing |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208006F Mission Planning Systems

PROJECT: 3858

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3858 Air Force Mission Support System (AFMSS) | 17,606 | 14,747 | 17,090 | 17,069 | 17,262 | 17,471 | 17,764 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

(U) The Mission Planning System program was established in 1990 to consolidate mission planning system development efforts into a single unit-level mission planning system. This program maintains and preserves combat capability on old existing "legacy" planning systems which will migrate into a USAF wide standard mission planning system known as the Air Force Mission Support System (AFMSS). AFMSS acquisition strategy leverages military and commercial software integrated on Commercial-Off-The-Shelf (COTS) hardware. AFMSS encompasses evolutionary software and hardware development in an open systems architecture. AFMSS is the single unit-level mission planning system supporting all current/future aircraft and associated weapons: A/OA-10, F-15, F-16, F-22, EF-111, F-117, JSTARS, AWACS, ABCCC, U-2, AGM-130/GBU-15, JSSAM, JDAM, JSOW, B-1, B-2, B-52, KC-10, KC/EC/RC-135, C-5, C-9, C-17, C-21, C-141, MH/AH-6, MH-47, MH-53, MH-60, C/AC/EC/MC-130 and Tier II+/Tier III- Unmanned Aerial Vehicles (UAVs). AFMSS is currently being used operationally by six types of USAF aircraft and will be fielded to other types of aircraft as their software becomes available. It is also in daily use by the US Special Operations Command (USSOCOM).

(U) Mission Planning Systems are in budget activity 7, Operational System Development, because the program currently supports deployed AFMSS systems, which include transportables, non-deployable, and portable laptop workstations. AFMSS Block C1.5 software is operationally fielded and Block C2.0 is in the process of fielding to the Combat Air Forces (CAF). AFMSS Block C2.1, which merges USSOCOM and USAF requirements into one common software baseline is currently in final development and will begin operational test and evaluation in the 3rd quarter of FY98.

(U) **Acquisition Strategy:**

(U) The AFMSS program is managed by the Directorate for Mission Planning Systems, Electronic Systems Center, Hanscom AFB, Massachusetts. Contractor for the AFMSS project is Sanders, a Lockheed Martin Company, Nashua, New Hampshire. In-house (Government) work is performed by Oklahoma City-Air Logistics Center (OC-ALC), Tinker AFB, Oklahoma; Sacramento Air Logistics Center (SM-ALC), McClellan AFB, Sacramento, California; Warner Robins Air Logistics Center, (WR-ALC), Warner Robins AFB, Georgia; and Ogden Air Logistics Center (OO-ALC), Hill AFB, Utah.

(U) The Joint Mission Planning Segment (JMPS) is a continuation effort of the AFMSS Mission Planning Systems (MPS) and Portable Flight Planning Software (PFPS) directed at merging the AFMSS and the Navy's Tactical Automated Mission Planning System (TAMPS), to form a single family of systems achieving Global Command and Control System (GCCS) compatibility through compliance with the Defense Information Infrastructure and Common Operating Environment (DII/COE).

(U) JMPS is in the presolicitation phase. The current plan is to begin migration of the existing USAF platforms in the FY02-FY05 time frame while individual weapon systems transition with planned Operational Flight Program (OFP) upgrades.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0208006F Mission Planning Systems |
| | PROJECT<br>3858 |

(U) FY 1997

- (U) $14,991 Continue additional C2.0/C2.1 software requirements development.
- (U) $ 1,785 Continue AFMSS A/W/E support/integration to A/OA-10, F-15, F-16, F-22, EF-111, F-117, JSTARS, AWACS, ABCCC, AGM-130/GBU-15, JDAM, JSOW, B-1, B-2, B-52, KC-10, KC/EC/RC-135, C-5, C-9, C-21, C-17, C-141, MH/AH-6, MH-47, MH-53, MH-60, U-2, and C/AC/EC/MC-130, WCMD, and SR-71.
- (U) $ 830 Continue AFMSS/PC rearchitecture (GCCS) migration study effort.
- (U) $17,606 Total

(U) FY 1998

- (U) $ 6,493 Finalize C2.0/C2.1 Software development
- (U) $ 4,329 Begin C2.X software development.
- (U) $ 2,555 Begin JMPS rearchitecture (GCCS) migration effort.
- (U) $ 1,370 Continue AFMSS A/W/E support/integration to A/OA-10, F-15, F-16, F-22, EF-111, F-117, JSTARS, AWACS, ABCCC, AGM-130/GBU-15, JDAM, JSOW, B-1, B-2, B-52, KC-10, KC/EC/RC-135, C-5, C-9, C-21, C-17, C-141, MH/AH-6, MH-47, MH-53, MH-60, U-2, and C/AC/EC/MC-130, WCMD, and SR-71.
- (U) $14,747 Total

(U) FY 1999

- (U) $ 7,860 Continue C2.X development with release scheduled for 2nd quarter.
- (U) $ 7,860 Continue JMPS re-architecture (GCCS) migration.
- (U) $ 1,370 Continue AFMSS A/W/E support/integration to A/OA-10, F-15, F-16, F-22, EF-111, F-117, JSTARS, AWACS, ABCCC, AGM-130/GBU-15, JDAM, JSOW, B-1, B-2, B-52, KC-10, KC/EC/RC-135, C-5, C-9, C-17, C-21 C-141, MH/AH-6, MH-47, MH-53, MH-60, U-2, and C/AC/EC/MC-130, WCMD, and SR-71.
- (U) $17,090 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0208006F Mission Planning Systems — PROJECT: 3858 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998) | 17,635 | 16,526 | 17,434 | TBD |
| (U) Appropriated Value | 18,500 | 16,526 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. General Congressional Reductions | -423 | -1394 | | |
| b. Small Business Innovative Research (SBIR) | -442 | -385 | | |
| c. Below Threshold Reprogramming | | | | |
| d. Rescissions | -29 | | | |
| (U) Adjustments to Budget Years Since FY98 PB | | | -344 | |
| (U) FY 1999 President's Budget | 17,606 | 14,747 | 17,090 | TBD |

(U) Change Summary Explanation:

(U) Funding: Reductions for FY97 - $423 Inflation adjustment and - $29 in actuals. Reductions in FY98 are - $210 Federally Funded Research and Development Centers (FFRDC), - $385 reduction in SBIR, - $645 Consultant and Advisery Services, - $206, and -$86 congressional mark and -$247 general .

(U) Schedule: FY 97-98 operational testing and evaluation for ongoing C2.0 and C2.1. Presently six aircraft are operationally fielded with C2.0.

(U) Technical: AFMSS C1.5 software update release to C1.0 is operationally fielded. Other aircraft and weapons will integrate with AFMSS once C2.0/C2.1 is available.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0208006F Mission Planning Systems |
| | PROJECT<br>3858 |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement, AF WSC 833040, Theater Air Control System Improvement (TACSI) | 14,648 | 14,415 | 9,189 | 12,932 | 17,777 | 16,781 | 16,747 | Cont | TBD |
| (U) Other Procurement, AF, WSC 86190A, Initial Spares | 861 | 950 | 897 | 1079 | 1094 | 1107 | 1113 | Cont. | TBD |
| (U) Operations & Maintenance, AF, 0208006F | 18,398 | 23,064 | 25,038 | 24,923 | 28,356 | 25,044 | 26,611 | Cont | TBD |

(U) O&M funds for PE 28006F support the software and hardware maintenance costs of AFMSS and CMPS. These funds also support the maintenance of the following existing operational systems until replaced by AFMSS: Mission Support System II (MSS IIA) supports existing combat capability for the F-15 and F-16 aircraft mission planning (F/RF-4 and F-111 are now retired); Mission Data Preparation System (MDPS) supports conventional and nuclear mission planning, aircraft/weapons avionics loading, compatibility between evolving B-1B, B-52H avionics, their weapons systems, and USSTRATCOM. O&M funding supported approximately 240 older systems in FY94. By FY99, a similar amount of funding will support over AFMSS 1500 mission planning systems world-wide.

(U) There are no other related RDT&E activities for unit level mission planning in the USAF. Over 40 individual aircraft and weapons programs develop their respective software that is used in conjunction with the AFMSS core software. The aircraft and weapons software is a complimentary, synergistic effort that provides specific aircraft and weapons information and functionality to the core AFMSS software. The combined software gives the warfighter the full spectrum of mission planning and combat capabilities for their aircraft or weapon including interoperability with planned Theater Battle Management (TBM) systems.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0208006F Mission Planning Systems<br>PROJECT 3858 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) AFMSS Block C Workstation Deliveries | | X | | | | | | X | | | | |
| (U) AFMSS Block C2.0 Software Release | X | | | | | | | | | | | |
| (U) AFMSS Block C2.1 Software Release | | | | | X | | | | | | | |
| (U) AFMSS Portable Deliveries | X | | | | X | | X | | | | X | |
| (U) AFMSS Block C2.0 OT&E begin | | X | | | | | | | | | | |
| (U) AFMSS Block C2.X Software Development | | | | | | | X | | | | | |
| (U) AFMSS Block C2.X Engineering Software Releases / FQT | | | | | X | | | | X | | | |
| (U) AFMSS Block C2.X Software Release | | | | | | | | | | X | | |
| (U) CMPS Software Delivery | X | | | | X | | | | X | | | |
| (U) JMPS Migration and Rearchitecture GCCS Effort | | | | | X | | | | | | | X |
| (U) AFMSS Block C2.1 OT&E Begin | | | | | | | X | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0208006F Mission Planning Systems<br>PROJECT 3858 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Primary Software Development | 12,184 | 9,101 | 10,802 |
| (U) Aircraft/Weapons/Electronics (A/W/E) Development Spt. | 1,352 | 1,032 | 1,162 |
| (U) Systems Engineering | 1,682 | 2,506 | 2,734 |
| (U) Program Management | 1,508 | 1,386 | 1,538 |
| (U) Miscellaneous | 880 | 722 | 854 |
| (U) Total | 17,606 | 14,747 | 17,090 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0208006F Mission Planning Systems |
| | PROJECT<br>3858 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| TBD | TBD | TBD | | | | 0 | 2,000 | 4,000 | 35,962 | 41,962 |
| Lockheed Martin | CPAF | Dec 92 | 193,532 | 193,532 | 73,831 | 13,536 | 8,133 | 7,964 | | 103,464 |
| Logicon | CPAF | Aug 94 | 2,438 | 2,438 | 2,438 | 0 | 0 | 0 | 0 | 2,438 |
| Boeing | FFP | | 6,455 | 6,455 | 6,455 | 0 | 0 | 0 | 0 | 6,455 |
| Miscellaneous | | | | | 2,892 | 0 | 0 | 0 | 0 | 2,892 |
| ESC | | | | | 15,296 | 880 | 722 | 854 | 2,624 | 20,376 |
| Support and Management Organizations | | | | | | | | | | |
| FFRDC | | | | | 7,166 | 1,682 | 2,506 | 2,734 | 8,924 | 23,012 |
| Miscellaneous | | | | | 5,124 | 1,508 | 1,386 | 1,538 | 4,987 | 14,543 |
| Test and Evaluation Organizations | | | | | | | | | | |
| n/a | n/a | n/a | n/a | n/a | 0 | 0 | 0 | 0 | 0 | 0 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | | DATE: February 1998 |
|---|---|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0208006F Mission Planning Systems | | PROJECT: 3858 |

**Government Furnished Equipment:**

none

| | | | | | | |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 100,912 | 14,416 | 10,855 | 12,818 | 38,586 | 177,587 |
| Subtotal Support and Management | 12,290 | 3,190 | 3,892 | 4,272 | 13,911 | 37,555 |
| Subtotal Test and Evaluation | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | 113,202 | 17,606 | 14,747 | 17,090 | 52,497 | 215,142 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208021F Information Warfare Support

PROJECT: 0374

| COST ($ In Thousands) | FY 1997 Estimate | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 0374 Electronic Combat Support, C3 Protection/Multi-mission. Technology and Support | 1,273 | 1,299 | 1,375 | 1,401 | 1,427 | 1,431 | 6,085 | Continuing | Continuing |

(U) A. **Mission Description and Budget Item Justification** This program studies, develops and demonstrates IW/C2W prototyes to provide warning, self protection, and support to personnel and equipment against combat systems employed by enemy forces. It identifies existing military and commercial research and development efforts which can satisfy unfulfilled operational requirements as identified by the Unified Commands, and quickly bridge the gap between technology developments and meld the technology into the warfighter's operational requirements. The Secretary of Defense identified the need for this capability in 1983, and with unanimous approval of the services and the Unified Commands, JCS made this function a part of the Joint Command and Control Warfare Center (JC2WC) mission (formerly the Joint Electronic Warfare Center (JEWC). The Air Force as executive agent is responsible for the total funding of this effort.

(U) **FY 1997 ($ in Thousands):**

- (U) $499 Joint Information Warfare project for JCS J-3
- (U) $ 54 Demonstrate the capabilities of a previously developed system to several CINCs
- (U) $720 Test and demonstrate Sounder
- (U) $1273 Total

(U) **FY 1998 ($ in Thousands):**

- (U) $1299 The center has established a Joint Project Office (JPO) in response to recent tasking by the Joint Staff. This office will support the CINCs throught rapid prototyping, briefings and demonstrations of state of the art technology currently under development. The Center will conduct field demonstrations of the operational utility of IW technologies projects. This will require coordination with the Joint Staff, CINCs, service acquisition command, laboratories, and various intelligence agencies. This will include IW source and target systems analysis, operations, and demonstration, and design, development and operations effectiveness assessment systems.
- (U) $1299 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0208021F Information Warfare Support |
| | PROJECT<br>0374 |

(U) **FY 1999 ($ in Thousands):**

| | | |
|---|---|---|
| – | (U) $1375 | The center has established a Joint Project Office (JPO) in response to recent tasking by the Joint Staff. The JPO office will support the CINCs throught rapid prototyping, briefings and demonstrations of state of the art technology currently under development. The Center will conduct field demonstrations of the operational utility of IW technologies projects. This will require coordination with the Joint Staff, CINCs, service acquisition command, laboratories, and various intelligence agencies. This will include IW source and target systems analysis, operations, and demonstration, and design, development and operations effectiveness assessment systems. |
| – | (U) $1375 | Total |
| – | (U) | Work performed by: The Joint Command and Control Warfare Center at Kelly AFB TX performs independent studies and analysis leading to development of Pre-Milestone Zero prototypes for field demonstrations and operations. When technology is available in Service and Industry labs, the JC2WC arranges for the development of a prototype and field demonstration of the prototype. Laboratories include Phillips Lab at Hanscom AFB MA, and Kirtland AFB NM, The Naval Research Lab, Washington DC. When required technologies are not available within DoD, JC2WC manages contractual efforts to produce, test and demonstrate prototypes. The Center also facilitates the exchange of information between the operators in the fleet and field and the laboratories, industry and Service program managers. The JC2WC currently has an Engineering Support Contract with Southwest Research Institute (SwRI), San Antonio TX, to perform engineering analysis and design, studies, reports, systems integration, fabrication, and software development. Under JC2WC leadership, the government and contractor labs work to delivr products that support the warfighting CINCs and address operations IW/C2W shortfalls. |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0208021F Information Warfare Support<br>PROJECT 0374 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Previous President's Budget | 1273 | 1360 | 1403 |
| (U) Appropriated Value | 1329 | 1360 | |
| (U) Adjustments to Appropriated Value | | | |
| a. Cong Gen Reductions | -37 | -44 | |
| b. SBIR | -17 | -17 | |
| c. Omnibus or Other Above Threshold Reprogram | | | |
| d. Below Threshold Reprogramming | -2 | | |
| e. Recision | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -28 |
| (U) Current Budget Submit/President's Budget | 1273 | 1299 | 1375 |

(U) Change Summary Explanation:

Funding:

Schedule:

Technical: FY98 reduction eliminated development of a sofware measurement package, which handicaps the High Power Microwave project's weapon effects characterization.

(U) **C. Other Program Funding Summary ($0 in Thousands)**

(U) none

(U) **D. Schedule Profile**

**N/A**

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208031F WRM-Equipment/Secondary Items

PROJECT: 4668

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4668 Shelter Development | 0 | 0 | 1,470 | 1,493 | 1,517 | 2,632 | 2,862 | 0 | 9,974 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

This program funds development, testing and evaluation of materials, equipment, and procedures for Air Force Bare Base mobility capability better known as Harvest Falcon (HF) and Harvest Eagle (HE). Bare Base is designated and sized to support two near Major Theater Wars (MTW), which provides theater warfighters billeting, industrial, and air field capability to support a total of 68,200 combat troops, 822 aircraft at 15 austere locations... building complete bases from the ground up. Of the two systems, HF is the newest and has the greatest capability (housekeeping and airbase infrastructure). It is an outgrowth of the FY90-94 Defense Guidance that tasks the Air Force to support United States Central Command (USCENTCOM) Rapid Deployment Forces and save critical airlift resources through theater prepositioning. The outstanding reputation of the Air Force Bare Base program, established during the Gulf War, has continued in successive Military-Operations-Other-Than-War (MOOTW) throughout the world. These include Operations Southern Watch, Provide Relief, Provide Promise, Provide Comfort, Restore Hope, Sea Signal, Uphold Democracy, and Joint Endeavor. Harvest Falcon remains a very top priority with USCINCENT. The Air Force Bare Base program has had unparalleled success meeting the demands in support of MOOTW. This has taken its toll on equipment and as a result the majority of HF and HE requires comprehensive repair or replacement. Equipment has been in use over three years... well beyond design parameters AF reconstitution efforts continue, on-going MOOTW deployments delay this process. This program is in Budget Activity 7 because it supports development of operational HF/HE equipment, leading to deployment of new systems which provide measurable reductions in airlift sorties and increased operational efficiencies.

Bare Base Systems Cold Weather Package: Harvest Falcon housekeeping sets are subject to worldwide deployment and a limited capability must be established to function in extreme cold weather conditions. This effort provides freeze protection for Harvest Falcon water distribution systems (pumps, pipes, etc.) and capabilities to heat tents/shelters deployed to extreme cold weather environments.
Deployable Waste Management Systems will reduce the amount of solid, medical and hazardous waste material that must be managed and/or disposed. Solutions to be investigated include on-site incineration for solid, medical and hazardous waste materials, shredders and compactors for landfill refuse, and a closed loop waste water processing system to minimize the quantity of wasted products and reduce the need for large quantities of water to process waste at the contingency base.

(U) **Acquisition Strategy:** The SPO will evaluate and test commercial solutions to determine options for militarizing commercially-available products. It will also evaluate work performed by Wright Laboratories, which has identified plasma-arc technology as a potential solution to safely, effectively and efficiently incinerate medical and hazardous wastes. This technology also provides capability to eliminate other waste materials, such as solid wastes/garbage, and other materials placed in landfills. Contracts expected to be competitive, firm fixed price.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE: February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0208031F WRM-Equipment/Secondary Items |
| | PROJECT: 4668 |

(U) FY 1997 ($ in Thousands):
- (U) $ 0 TOTAL

(U) FY 1998 ($ in Thousands):
- (U) $ 0 TOTAL

(U) FY 1999 ($ in Thousands):
- (U) $ 600 Initiate EMD for Bare Base Systems Cold Weather Package
- (U) $ 600 Initiate EMD for Deployable Waste Management System
- (U) $ 270 Continue other technical support
- (U) $1,470 TOTAL

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208031F WRM-Equipment/Secondary Items

PROJECT: 4668

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 0 | 0 | 0 | Cont |
| (U) Appropriated Value | | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional Gen Reductions | | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogramming | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 1,470 | |
| (U) Current Budget Submit/1999 PB | 0 | 0 | 1,470 | Cont |

(U) Change Summary Explanation:

Funding: FY99 new start of $1.470M to fund crucial capabilities for HF/HE deployment kits.
Schedule: EMD to begin in FY99. Production of first end item anticipated in FY01.
Technical: New start -- no change to report.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement, AF, Other Base Maintenance and Support Program: WRM-Equipment/Secondary Items (0208031F) (WSC 845420), P-1: 99 | 21,478 | 24,048 | 35,973 | 35,757 | 37,667 | 13,179 | 13,423 | Cont | Cont |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208031F WRM-Equipment/Secondary Items

PROJECT: 4668

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| BARE BASE COLD WEATHER PKG | | | | | | | | | | | | |
| - Milestone I/II Brief | | | | | | | | | X | | | |
| - Contract Award | | | | | | | | | | X | | |
| - Preliminary Design Review | | | | | | | | | | | | X |
| DEPLOYABLE WASTE MANAGEMENT SYSTEM | | | | | | | | | | | | |
| - Milestone I/II Brief | | | | | | | | | X | | | |
| - Contract Award | | | | | | | | | | X | | |
| - Preliminary Design Review | | | | | | | | | | | | X |

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

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0208031F WRM-Equipment/Secondary Items |
| | PROJECT<br>4668 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Contracts | 0 | 0 | 550 |
| (U) A&AS Support | 0 | 0 | 450 |
| (U) Other Government Agencies | | | 180 |
| (U) Material/Equipment | | | 20 |
| (U) Other Technical Support | | | 270 |
| (U) Total | 0 | 0 | 1,470 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE: February 1998 |
|---|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0208031F WRM-Equipment/Secondary Items | PROJECT: 4668 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Bare Base Systems Cold Weather Package | TBD | TBD | 2,250 | 2,250 | 0 | 0 | 0 | 600 | Cont | Cont |
| Deployable Waste Management System | TBD | TBD | 7,940 | 7,940 | 0 | 0 | 0 | 600 | Cont | Cont |
| Sub-Total | | | 10,190 | 10,190 | 0 | 0 | 0 | 1,200 | Cont | Cont |
| Support and Management Organizations | | | | | 0 | 0 | 0 | 270 | Cont | Cont |

Test and Evaluation Organizations: N/A

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0208031F WRM-Equipment/Secondary Items<br>PROJECT 4668 |

Government Furnished Property: None

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208060F Theater Missile Defense

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 21,740 | 26,873 | 31,057 | 29,605 | 32,394 | 27,390 | 24,069 | Continuing | TBD |
| 4478 Command, Control, Communications, Computers, and Intelligence Enhancements | 13,015 | 19,288 | 23,123 | 21,229 | 23,479 | 17,264 | 14,026 | Continuing | TBD |
| 4479 Attack Operations Concept Development | 8,725 | 7,585 | 7,934 | 8,376 | 8,915 | 10,126 | 10,553 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

Air Force Theater Missile Defense (TMD) is focused in two areas: Command, Control, Communications, Computers, and Intelligence (C4I) enhancements and improvements to existing Attack Operations systems. AF TMD concentrates on defining improvements to existing operational capabilities, developing and evaluating prototypes, demonstrating as well as simulating modifications during operational concept demonstrations, and coordinating the transition of these capabilities to operational systems. C4I improvements contribute greatly to the overall effectiveness of TMD systems developed by each of the Services and the Ballistic Missile Defense Organization (Patriot, THAAD, etc.). C4I enhancements improve our ability to assess, target, plan and task attackers to counter Theater Missile (TM) threats. The C4I program encompasses JTIDS TMD Upgrades (including, for example, TMD Message Set Integration and JTIDS Range Extension), Dynamic Battle Management, Operations Decision Tools (Time Critical Target Aid (TCTA), Joint Defensive Planner, Attack Operations Decision Aid (AODA), Integrated Surveillance System (ISS), Communications Planning Module (CPM), Intel Support Systems (Intel Support Concept, Operational Intel and support tools) and integration of these systems within the Air Force and among the Services. Attack Operations focuses on improving the ability to locate, identify, target and destroy theater missiles and supporting infrastructure, including theater missile threats in production, deployment, prior to and during launch, as well as soon after launch before critical mobile targets are able to egress to hide locations. The foundation for Attack Operations is improved C4I and automatic target cueing/recognition (ATC/R) upgrades to one or more airborne platforms (Joint STARS, F-15E, Rivet Joint, U-2). The TMD program seeks to improve existing operational capability, evaluate and demonstrate prototypes, as well as simulate and demonstrate modifications during operational concept demonstrations. This program is in Budget Activity 7 because its projects are upgrades to existing operational systems.

(U) **Acquisition Strategy:** HQ Avionics Systems Center (ASC) provides the program management for the concept exploration of TMD Attack Operations. ASC conducts lab demonstrations with Wright Labs and supports Concept of Operations (CONOPS) development and requirements definition by analyzing and demonstrating measures of effectiveness for various sensor improvements and cueing schemes. HQ Electronic Systems Center (ESC) provides program management for the concept exploration of C4I enhancements. Prototypes and analysis of improvements to existing C4I assets will complement the Attack Operations effort with combined participation in Operational Concept Demonstrations. These Attack Operations and C4I analyses and demonstrations are specifically targeted against operational deficiencies identified in the TMD Mission Area Plan (MAP), are traceable to the AF and JROC Mission Need Statement (MNS) and are consistent with the Air Force and Joint TMD CONOPS and in accordance with Joint Doctrine. Integration of TMD requirements and fielding of proposed material solutions will continue beyond concept exploration in the appropriate

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0208060F Theater Missile Defense |

program element for a particular system. For example, the TMD demonstration and requirements analysis for F-15E ATC/R may transition into a F-15E Engineering & Manufacturing Development (EMD) and P3I project within the F-15E program element. Existing contracts will be used for those systems where engineering change proposals are appropriate. Systems Engineering and Technical Analysis (SETA) contracts will be used to support the requirements definition phase of TMD improvements. In those areas where new material solutions are necessary to correct a deficiency, the source selection process will be followed to establish a new contract.

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 30,585 | 29,182 | 31,682 | TBD |
| (U) Appropriated Value | 31,285 | 28,182 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional General Reductions | -700 | 1,727 | | |
| b. Small Business Innovative Research (SBIR) | | -582 | | |
| c. Omnibus or Other Above Threshold Reprogram | -8,794 | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | -51 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | 0 | | -625 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 21,740 | 26,873 | 31,057 | TBD |

(U) Change Summary Explanation:

Funding: FY97 realignment for UH-1N Simulator integration into the TACCSF simulation environment; funds realigned from 3600 to 3010 and transferred to Aircraft Procurement Post Production Charges - BP13.

Schedule: N/A

Technical: N/A

(U) **C. Other Program Funding Summary ($ in Thousands): See individual projects.**

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0208060F Theater Missile Defense |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) ATC/R Demos (F-15E/Surveillance) | | | X | X | | | X | | | | | X |
| (U) TPS-75 Expert Missile Tracker Prototypes/Contingency Support Systems Live Fire Demo | | | | | | | X | | | | | |
| (U) TACCSF | | | | X | | | | | | | | |
| (U) Intel Support Systems: ISC updates; Syria, Iran, and Iraq, and automation of country studies | | | | X | | | | | | | | |
| (U) TMD TACS systems requirements (JTIDS message upgrades, decision aids & planning tools) | | | X | | | | X | | | | | X |
| (U) Ops Concept Demonstrations | | | X | | | | X | | | | X | |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208060F Theater Missile Defense

PROJECT: 4478

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4478 Command, Control, Communications, Computers, and Intelligence Enhancements | 13,015 | 19,288 | 23,123 | 21,229 | 23,479 | 17,264 | 14,026 | Continuing | TBD |

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

C4I enhancements are needed to reduce the battle management and command & control timelines associated with the theater missile threat. The C4I program includes:

1) Operations and maintenance of the Theater Air Command and Control Simulation Facility (TACCSF) - FY98 transition to PE 27601F;

2) Procurement of four MCE/TPS-75 prototypes with expert missile tracker (EMT), correlator capability and live fire demo;

3) Intel Support Systems which include the development and revision of the Intel Support Concept (ISC), digitization of the country studies and development of processes and tools for automated application of TMD Intelligence Preparation of the Battlespace (IPB);

4) JTIDS TMD upgrades which are the development and integration of TMD messages into JTIDS host platforms and the extension of JTIDS beyond line of sight;

5) Operations Decision Support Tools which include the integration of the Time Critical Target Aid into TBM Core Systems (TBMCS) architecture, the development and migration of the Joint Defensive Planner into TBMCS and initiating the development of the Attack Operations Decision Aid and Communications Planning Module.

6) Dynamic Battle Management concept, which enhances the forward execution capabilities of the TACS to counter the short timeline of time critical targets. This includes the development, integration and test of the DBM capability on an airborne platform. The program will leverage off the capabilities of the current ground Combat Integration Capability (CIC) program which integrates and fuses various intelligence and surveillance feeds to provide the Joint Force Commander (JFC)/Joint Force Air Component Commander (JFACC) with an effective battle management capability.

(U) FY 1997 ($ in Thousands):

| | |
|---|---|
| (U) 6,055 | Completed TACCSF operations support for C4I simulation and analysis. |
| (U) 3,000 | Continued MCE/TPS-75 missile tracker and correlator capability development. |
| (U) 1,300 | Intel Support Systems - Developed Intelligence Support Plan for Combat Integration Capability (CIC); Continued development of tool for automatic application of digitized TMD IPB information. |
| (U) 2,660 | JTIDS TMD message integration into JSTARS, ABCCC and AOC; Completed JTIDS Range Extension performance and cost analysis; Continued development of TCTA (DIS compatible) and DPM V1.0 and transitioned to TBMCS; Completed DBM trade and analysis/platform impacts and CONOPS validation; Investigated procedures and advanced technology for Attack Operations Decision Aid (AODA). |
| (U) $13,015 | Total |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0208060F Theater Missile Defense — PROJECT: 4478 |

(U) FY 1998 ($ in Thousands):

| | |
|---|---|
| (U) 2,810 | Integrate Intelligence Preparation of the Battlespace (IPB) Tool with TBMCS; Adapt IPB tool for Air Intelligence Agency's Virtual Production environment; Investigate area limitation functionality and tool integration, Demonstrate automated procedures and system capabilities in Ops Concept Demonstrations, CINC experiments and Joint Exercises. |
| (U) 1,000 | Conduct MCE/TPS-75 Missile Tracking Live Fire Test and final delivery. |
| (U) 8,078 | Continue to integrate JTIDS TMD message sets into JTIDS host platforms; Begin JTIDS Range Extension prototype development and implementation; Establish Airborne DBM development environment and DBM unique prototyping/technology development; Initiate Communications and architecture analyses. |
| (U) 7,400 | Integrate JDP V1.0 and TCTA (ground targeting) with TBMCS and release; Begin AODA prototype/technology development. Explore use of promising planning tools, C2 decision aids, communication and computer processing improvements, sensor fusion technology and sensor upgrade impacts to BMC4I Theater Missile Defense connectivity. |
| (U) $19,288 | Total |

(U) FY 1999 ($ in Thousands):

| | |
|---|---|
| (U) 4,350 | Continue to adapt the IPB tool for Air Intelligence Agency's Virtual Production environment; Demonstrate improved automated procedures and IPB system capabilities in Ops Concept Demonstrations (OCDs), CINC experiments and Joint Exercises. |
| (U) 8,860 | JTIDS/Link-16 Integration: Complete integration of JTIDS/Link-16 TMD message sets onto major C2 nodes; Continue JTIDS Range Extension implementation. |
| (U) 9,913 | Operations Decision Support Tools - Upgrade JDP (deployment planner), continue to explore BMC4I/sensor improvements that compress Theater Missile engagement timelines and demonstrate integrated capabilities in OCDs, CINC experiments, and Joint Exercises. DBM platform prototypes: battle management, target nomination and communication improvements; Complete AODA prototype/technology development and design for CIC integration. |
| (U) $23,123 | Total |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0208060F Theater Missile Defense |
| | PROJECT<br>4478 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 21,860 | 21,162 | 23,588 | TBD |
| (U) Appropriated Value | 21,860 | 21,162 | | TBD |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional General Reductions | -514 | -1,456 | | |
| b. Small Business Innovative Research (SBIR) | | -418 | | |
| c. Omnibus or Other Above Threshold Reprogram | -8,794 | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | -51 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -465 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 13,015 | 19,288 | 23,123 | TBD |

(U) Change Summary Explanation:

Funding: FY97 realignment for integration of UH-1N Simulator into the TACCSF simulation environment; funds realigned from 3600 to 3010 and transferred to Aircraft Procurement Post Production Charges - BP13.

Schedule: N/A

Technical: N/A

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

| | FY1997 | FY1998 | FY1999 | FY2000 | FY2001 | FY2002 | FY2003 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| RDT&E, BMDO PMA F3261, BM/C4I | 13,115 | 12,654 | 11,701 | 5,938 | 4,958 | 10,706 | 10,736 | TBD | TBD |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0208060F Theater Missile Defense<br>PROJECT 4478 |

(U) D. **Schedule Profile:**

| | FY1997 | | | | FY1998 | | | | FY1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) TPS-75 Expert Missile Tracker Prototypes/Contingency Support Systems | | | | X | X | | | | | | | |
| (U)TACCSF | | | | X | | | | | | | | |
| (U) Intel Support Systems: ISC updates; Syria, Iran, and Iraq, and automation of country studies | | | | X | | | | X | | | | X |
| (U) TMD TACS systems requirements (JTIDS message upgrades, decision aids & planning tools) | | | X | | | | X | | | | X | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208060F Theater Missile Defense

PROJECT: 4478

(U) A. **Project Cost Breakdown ($0 in Thousands)**

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) TACCSF | 6,055 | 0 | 0 |
| (U) Intelligence Support Systems (ISC/Automated IPB) | 1,300 | 2,810 | 4,350 |
| (U) MCE/TPS-75 Missile Tracking System | 3000 | 1,000 | 0 |
| (U) JTIDS/Link-16 Integration & Beyond LOS Capability | 520 | 5,645 | 8,860 |
| (U) Dynamic Battle Management (DBM) | 300 | 3,270 | 6,378 |
| (U) Operations Decision Support Tools (planning tools, decision aids, C4I processing and sensor fusion technologies) | 1,840 | 6,563 | 3535 |
| (U) Total | 13,015 | 19,288 | 23,123 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0208060F Theater Missile Defense |
| | PROJECT<br>4478 |

(U) B. Budget Acquisition History and Planning Information ($0 in Thousands)

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Martin Marietta (TACCSF) | FFP | Oct 95 | N/A | N/A | 9,100 | 6,055 | 0 | 0 | 0 | 15,155 |
| North/Grumman (TPS-75) | FFP | Oct 95 | N/A | N/A | 0 | 2,142 | 1,000 | 0 | 0 | 3,142 |
| Zeltech/SPARTA PSR (IPB) | T&M | May 96 | N/A | N/A | 500 | 830 | 2,294 | 3,693 | Continuing | 7,317 |
| Alphatech (JDP) | T&M | Mar 95 | N/A | N/A | 0 | 840 | 0 | 0 | 0 | 840 |
| Boeing (DBM) | T&M | Dec 97 | N/A | N/A | 0 | 0 | 500 | 1,500 | Continuing | 2,000 |
| Northrop Grumman (DBM) | T&M | Dec 97 | N/A | N/A | 0 | 0 | 500 | 1,500 | Continuing | 2,000 |
| BDM (DBM) | T&M | Nov 97 | N/A | N/A | 0 | 0 | 250 | 330 | Continuing | 580 |
| For Profit Contractor (DBM) | T&M | Jan 98 | N/A | N/A | 0 | 0 | 731 | 1,135 | Continuing | 1,866 |
| Motorola (TCTA) | T&M | Mar 96 | N/A | N/A | 0 | 885 | 516 | 0 | 0 | 1,401 |
| LMCCS (JDP) | T&M | Oct 97 | N/A | N/A | | | 1,400 | 0 | 0 | 1,400 |
| For Profit Contractor (AODA) | TBD | Oct 97 | N/A | N/A | 0 | 0 | 1,316 | 2,100 | Continuing | 3,416 |
| For Profit Contractor (MSI) | TBD | Dec 97 | N/A | N/A | 0 | 0 | 1,049 | 350 | Continuing | 1,399 |
| Lock/Mart (MSI) | T&M | Mar 97 | N/A | N/A | 0 | 50 | 0 | 0 | 0 | 50 |
| For Profit Contractor (CPM) | T&M | Oct 97 | N/A | N/A | 0 | 0 | 93 | 500 | Continuing | 593 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208060F Theater Missile Defense

PROJECT: 4478

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| For Profit Contractor (Analyses) | TBD | Nov 97 | N/A | N/A | 0 | 0 | 160 | 1,194 | Continuing | 1,354 |
| MASC | T&M | Nov 96 | N/A | N/A | 0 | 370 | 0 | 0 | Continuing | 370 |
| For Profit Contractor (JRE) | TBD | Oct 97 | N/A | N/A | 0 | 0 | 2,619 | 5,152 | Continuing | 7,771 |
| **Support and Management Organizations** | | | | | | | | | | |
| FFRDC | | | N/A | N/A | 1,605 | 975 | 1,994 | 2,054 | Continuing | 6,628 |
| Non-FFRDC (ESC) | | | N/A | N/A | 1,935 | 534 | 1,040 | 1,071 | Continuing | 4,580 |
| Non-FFRDC (ACC) | | | N/A | N/A | 0 | 0 | 1,640 | 540 | Continuing | 2,180 |
| Non-FFRDC (XORFS) | | | N/A | N/A | 0 | 0 | 900 | 927 | Continuing | 1,827 |
| HQ ESC | | | N/A | N/A | 2,251 | 334 | 1,286 | 1,077 | Continuing | 4,948 |
| **Test and Evaluation Organizations** | | | | | | | | | | |
| TBD | | | | | | | | | | |
| **Government Furnished Property** | | | | | | | | | | |
| None | | | | | | | | | | |
| Subtotal Product Development | | | | | 9,600 | 11,172 | 12,428 | 17,454 | Continuing | 50,659 |
| Subtotal Support and Management | | | | | 5,791 | 1,843 | 6,860 | 5,669 | Continuing | 20,163 |
| Subtotal Test and Evaluation | | | | | 0 | 0 | 0 | 0 | 0 | 0 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208060F Theater Missile Defense

PROJECT: 4478

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Project | | | | | 15,391 | 13,015 | 19,288 | 23,123 | Continuing | 70,817 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208060F Theater Missile Defense

PROJECT: 4479

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4479 Attack Operations Concept Development | 8,725 | 7,585 | 7,934 | 8,376 | 8,915 | 10,126 | 10,553 | Continuing | TBD |

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

Improvements in Attack Operations are based on the ability to locate, identify, and destroy theater missiles, their launchers, and associated infrastructure on the ground. In addition to the enhancements to C4I, the Attack Operations Project focuses on advanced sensor and target identification capabilities, CONOPS and requirements development for TMD offensive counter-air and their optimized integration with defensive systems. Specific technologies such as automatic target cueing/recognition (ATC/R) and moving target indicator/track (MTI/T) upgrades to Joint STARS, F-15E and potentially the U-2, F-16 and UAVs are to be analyzed using constructive analysis and evaluated through Technology/Operational Concept Demonstrations and CINC Experiments along with command and control connectivity upgrades critical to their optimum employment against time-critical targets. Effectiveness and affordability parameters defined will be used in support of follow on acquisition decisions involving P3I upgrades to existing weapon systems and potential new start programs within existing/other program elements.

(U) FY 1997 ($ in Thousands):

| | |
|---|---|
| (U) 1,190 | Conducted demonstration of surveillance ATR prototype. |
| (U) 3,367 | Conducted Attack Operations Operational Concept Demonstration. |
| (U) 1,528 | Continued analysis of architectures with weapon system upgrades, improved model fidelity and threat scenarios. |
| (U) 2,640 | Conducted demonstration of F-15E ATC/R prototype. |
| (U) $8,725 | Total |

(U) FY 1998 ($ in Thousands):

| | |
|---|---|
| (U) 2,033 | Conduct Attack Operations Operational Concept Demonstration. |
| (U) 1,650 | Continue analysis of architectures with weapon system and BMC4I upgrades, incorporate model and threat scenario upgrades and perform engagement analyses for input to future year mission analysis. |
| (U) 3,902 | Conduct development of F-15E ATC/R prototype integrated with improved on/off-board sensor fusion. |
| (U) $7,585 | Total |

(U) FY 1999 ($ in Thousands):

| | |
|---|---|
| (U) 2,298 | Conduct Attack Operations Operational Concept Demonstration. |
| (U) 1,755 | Continue analysis of updated architectures with weapon system and BMC4I upgrades, incorporate obscured targets and weapon effects and perform engagement analyses for input to future year mission analysis. |
| (U) 3,881 | Conduct demonstration of F-15E ATC/R prototype with sensor fusion. |
| (U) $7,934 | Total |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208060F Theater Missile Defense

PROJECT: 4479

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 8,725 | 8,020 | 8,094 | TBD |
| (U) Appropriated Value | 8,911 | 8,020 | | TBD |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional General Reductions | -186 | -271 | | |
| b. SBIR | | -164 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -160 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 8,725 | 7,585 | 7,934 | TBD |

(U) Change Summary Explanation:

Funding: Change in FY97 due to payment of Air Force Bills. Changes in FY98 and FY99 were due to deletion of Link-16 integration in the F-15E.

Schedule: The deletion of Link-16 integration in the F-15E from this PE will delay implementation of a datalink capability in air to ground aircraft until the planned integration under the F-15E program (after FY00).

Technical: N/A

(U) **D. Schedule Profile:**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) ATC/R Demos (F-15E/Surveillance) | | | X | X | | | X | | | | | X |
| (U) Ops Concept Demonstrations | | | X | | | | X | | | | X | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208060F Theater Missile Defense

PROJECT: 4479

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Joint STARS ATC/R Demonstration/Improvements | 1,190 | 0 | 0 |
| (U) Operational Concept Demonstration | 3,367 | 2,033 | 2,298 |
| (U) Sensor Prototypes and Attack Ops Demonstrations/Sims | 1,528 | 1,650 | 1,755 |
| (U) F-15E ATC/R Demonstrations | 2,640 | 3,902 | 3,881 |
| (U) Total | 8,725 | 7,585 | 7,934 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Boeing | CPFF | Aug 94 | N/A | N/A | 772 | 0 | 0 | 0 | 0 | 772 |
| Boeing | CPFF | 30 May 86 | N/A | N/A | 890 | 0 | 0 | 0 | 0 | 890 |
| Geometric | CPFF | Mar 95 | N/A | N/A | 65 | 0 | 0 | 0 | 0 | 65 |
| Hughes-FD | CPFF | Mar 95 | N/A | N/A | 1,234 | 350 | 3,006 | 1,665 | Continuing | 6,255 |
| Norden | CPFF | Sep 94 | N/A | N/A | 540 | 0 | 0 | 0 | 0 | 540 |
| Veda | CPFF | Feb 95 | N/A | N/A | 200 | 0 | 0 | 0 | 0 | 200 |
| Lincoln Lab | MIPR | Mar 95 | N/A | N/A | 100 | 0 | 0 | 0 | 0 | 100 |
| Sverdrup | CPFF | Mar 95 | N/A | N/A | 565 | 0 | 0 | 0 | 0 | 565 |
| HSC/AL | MIPR | Aug 94 | N/A | N/A | 2,470 | 985 | 0 | 0 | 0 | 3,455 |
| Sandia Nat Labs | MIPR | Mar 95 | N/A | N/A | 8,586 | 240 | 0 | 0 | 0 | 8,826 |
| Lockheed Martin | MIPR | TBD | N/A | N/A | 0 | 1,825 | 746 | 1,521 | Continuing | 4,092 |
| Optimetrics | CPFF | TBD | N/A | N/A | 0 | 0 | 0 | 150 | Continuing | 150 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0208060F Theater Missile Defense

PROJECT: 4479

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| ESC//JTF | MIPR | TBD | N/A | N/A | 0 | 600 | 0 | 0 | 0 | 600 |
| Grumman | MIPR | Sep 96 | N/A | N/A | 0 | 350 | 0 | 0 | 0 | 350 |
| ACC/XPSAS | MIPR | TBD | N/A | N/A | 0 | 0 | 500 | 505 | Continuing | 1,005 |
| WL/AAZ | MIPR | TBD | N/A | N/A | 0 | 96 | 0 | 0 | 0 | 96 |
| WL/AAR | MIPR | TBD | N/A | N/A | 0 | 0 | 650 | 675 | Continuing | 1,325 |
| AL/CFHI | MIPR | TBD | N/A | N/A | 0 | 0 | 365 | 585 | Continuing | 950 |
| WL/AAJT | MIPR | TBD | N/A | N/A | 0 | 0 | 0 | 112 | Continuing | 112 |
| Support and Management Organizations | | | | | | | | | | |
| FFRDC | | | N/A | N/A | 757 | 648 | 210 | 230 | Continuing | 1,845 |
| Non-FFRDC | | | N/A | N/A | 471 | 355 | 160 | 192 | Continuing | 1,178 |
| HQ ASC | | | N/A | N/A | 561 | 960 | 948 | 559 | Continuing | 3.028 |
| Test and Evaluation Organizations | | | | | | | | | | |
| 28 Test/TOT | MIPR | Mar 95 | N/A | N/A | 17 | 1,316 | 950 | 1,040 | Continuing | 3,323 |
| AFSAA | MIPR | Feb 95 | N/A | N/A | 350 | 0 | 0 | 0 | 0 | 350 |
| Eglin-46 Tst Wg | | May 94 | N/A | N/A | 5,296 | 1,000 | 50 | 700 | Continuing | 7,046 |
| Government Furnished Equipment | | | | | | | | | | |
| None | | | | | | | | | | |
| Subtotal Product Development | | | | | 15,422 | 4,446 | 5,267 | 5,213 | Continuing | 30,348 |
| Subtotal Support and Management | | | | | 1,789 | 1,963 | 1,318 | 981 | Continuing | 6,051 |
| Subtotal Test and Evaluation | | | | | 5,663 | 2,316 | 1,000 | 1,740 | Continuing | 10,719 |
| Total Project | | | | | 22,874 | 8,725 | 7,585 | 7,934 | Continuing | 47,118 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0302015F E-4B National Airborne Operations Center (NAOC)

PROJECT: 4777

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4777 E-4B Aircraft Modernization | 0 | 0 | 4,233 | 17,570 | 36,622 | 25,113 | 4,260 | 0 | 87,798 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**Note: Project 4777 is an FY 99 new start.**

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

(U) This program encompasses essential infrastructure, mission equipment and interior upgrades to the E-4 Aircraft which is the airframe of the National Airborne Operational Center (NAOC). The NAOC supports the National Command Authority (NCA) and Joint Chiefs of Staff with a worldwide, survivable and enduring node of the National Military Command System (NMCS) for the exercise of their national security responsibilities throughout the full spectrum of conflict. These modifications will improve mission efficiency and effectiveness by upgrading aircraft systems and interior configurations to allow a better interface with current off-aircraft communications systems. Interior upgrades will reduce noise and increase workspace efficiency. This program is in budget activity 7 because the program is developing modifications for current operations systems.

(U) **Acquisition Strategy:**

Boeing OEM owns rights to all drawings on this aircraft under an existing Engineering Services Time and Materials contract and therefore will build the A & B specifications (When restricted technologies are involved, foreign competition is not allowed). All other contracts will be Cost Plus Award Fee (CPAF) types, Cost Plus Incentive Fee (CPIF), or a hybrid of the two types of contracts.

(U) FY 1997 ($ in Thousands):

- (U) $0 Total

(U) FY 1998 ($ in Thousands):

- (U) $0 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0302015F E-4B National Airborne Operations Center (NAOC) |
| | PROJECT<br>4777 |

(U) FY 1999 ($ in Thousands):
- (U) $ 2,091 Trade Studies(e.g., E-4B modification and GANS/GATM Analysis)
- (U) $ 2,092 Begin Developing A & B Specs
- (U) $ 50 Mission Support
- (U) $4,233 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 0 | 0 | 0 | 0 |
| (U) Appropriated Value | | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | 0 | 0 | 4,233 | 0 |
| (U) Current Budget Submit/ FY 1999 President's Budget | 0 | 0 | 4,233 | 87,798 |

(U) Change Summary Explanation:

Funding: FY 99 and out is included in the budget as a new start activity

Schedule: None

Technical: None

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0302015F E-4B National Airborne Operations Center (NAOC) |
| | PROJECT<br>4777 |

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

| | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | FY 2004 | FY 2005 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| (U) ) E-4B Major Modification, PE 0302015F | 13,379 | 13,987 | 26,938 | 35,290 | 14,625 | 35,042 | 0 | 0 | 28,125 | 167,386 |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Begin Trade Studies | | | | | | | | | X | | | |
| (U) Begin Development of A & B Specs | | | | | | | | | | X | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0302015F E-4B National Airborne Operations Center (NAOC)

PROJECT: 4777

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) System Engineering (Recurring and Non-recurring) | 0 | 0 | 2,041 |
| (U) Primary Hardware (Kits, Initial Spares, etc.) | 0 | 0 | 2,042 |
| (U) Mission Support | 0 | 0 | 150 |
| (U) Total | 0 | 0 | 4,233 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Boeing | CPAF/CPIF | TBD | TBD | TBD | 0 | 0 | 0 | 3,733 | 74,625 | 78,358 |
| Support and Management Organizations | | | | | | | | | | |
| TRW/ANSER | T & M | TBD | TBD | TBD | 0 | 0 | 0 | 350 | 8,220 | 8,570 |
| Misc. | Misc. | TBD | TBD | TBD | 0 | 0 | 0 | 150 | 680 | 830 |
| Test and Evaluation Organizations | | | | | | | | | | |
| NSA/FAA | MIPR | TBD | TBD | TBD | 0 | 0 | 0 | 0 | 40 | 40 |

**Government Furnished Property:** None

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0302015F E-4B National Airborne Operations Center (NAOC)

PROJECT: 4777

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| | | None | | | | | | | |
| Support and Management Property | | | | | | | | | |
| | | None | | | | | | | |
| Test and Evaluation Property | | | | | | | | | |
| | | None | | | | | | | |
| Subtotal Product Development | | | | 0 | 0 | 0 | 3,733 | 74,625 | 78,358 |
| Subtotal Support and Management | | | | 0 | 0 | 0 | 500 | 8,900 | 9,400 |
| Subtotal Test and Evaluation | | | | 0 | 0 | 0 | 0 | 40 | 40 |
| Total Project | | | | 0 | 0 | 0 | 4,233 | 83,565 | 87,798 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303110F Def Satellite Comm Sys (Space)

PROJECT: 2638

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2638 Defense Satellite Communications Sys | 30,098 | 9,961 | 15,641 | 9,149 | 8,756 | 2,963 | 2,220 | 5,200 | 633,415 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

(U) Defense Satellite Communications System (DSCS) is the backbone of the Government's satellite communications system, providing both secure voice and high data rate transmissions in the SHF frequency band. DSCS provides unique and vital national security communications for global command and control, crisis management, intelligence and early warning data relay, treaty monitoring and surveillance information, and diplomatic traffic. The communications relayed through DSCS support the National Command Authorities, Global Command and Control System, Diplomatic Telecommunications Service, White House Communications Agency, the Navy, the Air Force Satellite Control Network, and ground mobile forces of all services.

(U) Based on the DoD Space Architect's recommendation, the Service Life Enhancement Program (SLEP) will include additional modifications that increase the last four satellites' capacity to tactical users by more than 200%.

(U) This program is in Budget Activity 7, Operational System Development, because DSCS is a production system consisting of a fully operational satellite constellation and replenishment satellites awaiting launch.

(U) **Acquisition Strategy:**
All satellites have been acquired and four satellites remain to launch. Enhancements to satellites not launched will be accomplished through sole source contract awards.

(U) FY 1997 ($ in Thousands):
- (U) $2,898 Continued DSCS mission support activities
  - Supported program office operations
  - Conducted programmatic tradeoffs and analyses
  - Paid performance incentives for development satellites that are still on orbit and operational

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE: February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0303110F Def Satellite Comm Sys (Space) / PROJECT: 2638 |

- (U) $27,200 Continued SLEP modification
  - Completed system Critical Design Review (CDR)
  - Fabricated and assembled components for first article insertion
  - Continued to develop Low Noise Amplifier (LNA) upgrade to enhance performance and increase capacity for tactical users
  - Continued to develop satellite bandwidth modifications to increase capacity level of less capable DSCS satellites to that of satellites B8 - B14
  - Continued to develop modification kits for variable gain step attenuator and channel 5 switch to gimbaled dished antenna (GDA)
- (U) $30,098 Total

(U) FY 1998 ($ in Thousands):

- (U) $3,311 Continue DSCS mission support activities
  - Support program office operations
  - Conduct programmatic tradeoffs and analyses
  - Pay performance incentives for development satellites that are still on orbit and operational
- (U) $5,000 Continue SLEP modification
  - Conduct final assembly of first article
  - Conduct SLEP rework verification test
  - Continue LNA upgrade development to enhance performance and increase capacity for tactical users
  - Continue to develop satellite bandwidth modifications to increase capacity level of less capable DSCS satellites to that of satellites B8 - B14
- (U) $1,650 - Begin integration development to transition last two satellites to Evolved Expendable Launch Vehicles (EELVs)
- (U) $9,961 Total

(U) FY 1999 ($ in Thousands):

- (U) $3,591 Continue DSCS mission support activities
  - Support program office operations
  - Conduct programmatic tradeoffs and analyses
  - Pay performance incentives for development satellites that are still on orbit and operational
  - Investigate and develop DSCS III performance enhancements
- (U) $12,050 - Continue integration development to transition last two satellites to EELVs
- (U) $15,641 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE: February 1998 |
|---|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0303110F Def Satellite Comm Sys (Space) | PROJECT: 2638 |

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Program |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 27,279 | 10,547 | 17,589 | 634,014 |
| (U) Appropriated Value | 28,127 | 10,547 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | -589 | -345 | | |
| b. SBIR | -259 | -241 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | 2,869 | | | |
| e. Rescissions | -50 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -1,948 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 30,098 | 9,961 | 15,641 | 633,415 |

(U) Change Summary Explanation:

Funding: $2,869 FY 1997 BTR from PE 0305144F completes the development of the Service Life Enhancement Kit for the first modified DSCS satellite.

Schedule: None

Technical: None

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303110F Def Satellite Comm Sys (Space) |
| | PROJECT<br>2638 |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Missile Procurement, P-27 | 28,627* | 73,980 | 28,969 | 31,283 | 23,412 | 27,714 | 23,646 | 73,500 | 1,906,531 |

* Includes $13.5 million advanced procurement for SLEP.

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Launch DSCS/IABS 7 (Jul 99) | | | | | | | | | | | | X |
| (U) Launch DSCS/IABS 8 (May 00) | | | | | | | | | | | | |
| (U) Launch DSCS/IABS 9 (May 02) | | | | | | | | | | | | |
| (U) Launch DSCS/IABS 10 (May 03) | | | | | | | | | | | | |
| (U) SLEP Modification Program (Mar 96 - Aug 00) | | | | | | | | | | | | |
| (U) SLEP CDR (Mar 97) | | X | | | | | | | | | | |
| (U) EELV Integration (May 98 - Jan 00) | | | | | | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303110F Def Satellite Comm Sys (Space)

PROJECT: 2638

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Basic Program Activities | 2,898 | 3,311 | 3,591 |
| (U) SLEP | 27,200 | 5,000 | 0 |
| (U) EELV | 0 | 1,650 | 12,050 |
| (U) Total | 30,098 | 9,961 | 15,641 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997* | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Lockheed Martin | FFP/AF | Oct 84 | 437,500 | 437,500 | 404,637 | 28,798 | 6,697 | 1,591 | 4,100 | 445,823 |
| Miscellaneous | CPAF | Various | N/A | N/A | 124,978 | 0 | 1,650 | 12,050 | 800 | 139,478 |
| Support and Management Organizations | | | | | | | | | | |
| Aerospace Corp | PO | Various | N/A | N/A | 12,900 | 0 | 0 | 0 | 0 | 12,900 |
| Miscellaneous | Various | Various | N/A | N/A | 10,000 | 1,300 | 1,614 | 2,000 | 20,300 | 35,214 |
| Test and Evaluation Organizations | | | | | | | | | | |
| None | | | | | | | | | | |

* Tracked back to FY86. All other prior year funds included in the Miscellaneous line for Product Development Organizations.

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303110F Def Satellite Comm Sys (Space)

PROJECT: 2638

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

**Government Furnished Property:** None

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Support and Management Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Test and Evaluation Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Subtotal Product Development | | | | 529,615 | 28,798 | 8,347 | 13,641 | 4,900 | 585,301 |
| Subtotal Support and Management | | | | 22,900 | 1,300 | 1,614 | 2,000 | 20,300 | 48,114 |
| Subtotal Test and Evaluation | | | | | | | | | |
| Total Project | | | | 552,515 | 30,098 | 9,961 | 15,641 | 25,200 | 633,415 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303131F Minimum Essential Emergency Communications Network (MEECN)

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 23,307 | 32,399 | 39,230 | 44,743 | 13,332 | 1,756 | 1,213 | Continuing | Continuing |
| 2832 VLF/LF System Improvements | 9,668 | 13,868 | 23,603 | 20,505 | 1,396 | 1,488 | 1,213 | Continuing | Continuing |
| 4521 DIRECT | 13,639 | 18,531 | 3,379 | 1,205 | 271 | 268 | 0 | 0 | 37,793 |
| 4610 MEECN EHF | 0 | 0 | 12,248 | 23,033 | 11,665 | 0 | 0 | 0 | 46,946 |
| Quantity of RDT&E Articles | 0 | 0 | 7* 2/0** | 7* 4/0** | 0/4** | 0 | 0 | 0 | 0 |

(U) **NOTES:**

- Project 4521, DIRECT, was established to consolidate efforts related to DIRECT being or planned for accomplishment in PE 0603851F, ICBM Modernization Dem/Val (BPAC 1024, ICBM C2 Applications), PE 0604851F, ICBM Modernization EMD (BPAC 13C4, Strategic C4 Program), PE 0101213F, Minuteman Squadrons, and PE 0303131F, MEECN (BPAC 2832, VLF/LF Systems Improvements).
- *MMRT units **ILES units/trainers

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

(U) MEECN systems provide assured communications connectivity between the National Command Authorities (NCA) and the strategic deterrent forces. Past MEECN projects included the High Power Transmit Set (HPTS), Ground Wave Emergency Network (GWEN), and Dual Frequency MEECN Receiver (DFMR). Current projects include the Modified Miniature Receive Terminal (MMRT) with High Data Rate (HIDAR) mode, the Defense Improved Emergency Message Automated Transmission System (IEMATS) Replacement Command and Control Terminals (DIRECT), and the ICBM LCC Extremely High Frequency (EHF) System (ILES) component of MEECN EHF.

(U) This program is in Budget Activity 7 - Operational System Development, Research Category 6.6, because it supports work on currently operating systems.

(U) **Acquisition Strategy:**

(U) Modified Miniature Receive Terminal (MMRT) Program. Program to satisfy both the Air Force and Navy requirements via a joint effort with the Air Force Electronics Systems Center, Hanscom AFB, MA as the lead agency. Modifies existing Miniature Receive Terminals (MRTs). EMD contract awarded in FY96 for three platforms: the E-4B (National Airborne Operations Center (NAOC)); E-6B (Take Charge and Move Out (TACAMO)); and an option for the ICBM Launch Control Centers (LCCs). Limited ICBM LCC EMD option was exercised in 2QtrFY97 with balance of EMD to be restarted in FY99. Production contract award planned for FY00/01. Complete deployment of Air Force and Navy MMRT units by 2004.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303131F Minimum Essential Emergency Communications Network (MEECN) |

(U) DIRECT Program. A contract for EMD was awarded on 12 Jul 96. Anticipate issuing a sole source contract for production in 2QtrFY98 for eight units.

(U) ILES Program. A competitive cost plus award fee contract for EMD with firm fixed price options for production is expected. Anticipate EMD contract award in 1Qtr FY99.

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 20,842 | 34,409 | 29,019 | Continuing |
| (U) Appropriated Value | 21,902 | 34,409 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -525 | -1,236 | | |
| b. SBIR | -535 | -774 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | 2,500 | | | |
| e. Recissions | -35 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 10,211 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 23,307 | 32,399 | 39,230 | Continuing |

(U) Change Summary Explanation: $224K in FY98 is pending reprogramming to fund other priorities. FY99-03 funding adjusted to provide for acceleration of the ICBM LCC MMRT effort and to provide for MMRT airborne testing. For more details, see individual projects.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) APPN 16, Other Procurement - AF, BA-63, P-052, Electronics and Telecommunications Equip (MEECN, PE 0303131F) | | 11,683 | 1,545 | 1,094 | 35,226 | 22,046 | 10,482 | 0 | 82,108 |

**Related PEs:** PE 0603851F, ICBM Dem/Val, PE 0604851F, ICBM EMD (both in FY97 only), PE 0302015F, E-4, BA-05, P-057, and PE 0101213F, Minuteman Squadrons (MMIII Modifications), BA-07, P-013

(U) **D. Schedule Profile:** See individual projects.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303131F Minimum Essential Emergency Communications Network (MEECN) |
| | PROJECT<br>2832 |

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2832 VLF/LF System Improvements | 9,668 | 13,868 | 23,603 | 20,505 | 1,396 | 1,488 | 1,213 | Continuing | Continuing |

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

(U) The Modified Miniature Receive Terminal (MMRT) Program will modify existing Miniature Receive Terminals (MRTs) and provide High Data Rate (HIDAR) capability for installation in three platforms: the E-4B, National Airborne Operations Center (NAOC); the E-6B, Take Charge and Move Out (TACAMO); and ICBM Launch Control Centers (LCCs). This program will make VLF/LF receivers fully interoperable in all three platforms. MRT is a Very Low Frequency/Low Frequency (VLF/LF) receiver already designed, developed, and installed in the B-1 and B-52 bombers.

(U) HIDAR is a Joint Staff-directed effort to provide a fast and interoperable MEECN mode. This program will develop and test modifications required to retrofit current MEECN platforms with the HIDAR software and firmware.

(U) High Power Transmit Set (HPTS) was a joint Air Force and Navy Program to provide the E-4 and the E-6 aircraft with an improved and supportable VLF transmission capability. HPTS completed development phase in 2Qtr FY95. Procurement for the E-4 is under Departmental review.

(U) FY 1997 ($ in Thousands):

- (U) $8,783 Continued common MMRT and airborne integration development
- (U) $285 Continuing Evaluation Program (CEP)
- (U) $600 Set aside for BTR to 0305165F
- (U) $9,668 Total

(U) FY 1998 ($ in Thousands):

- (U) $12,500 Continue common MMRT and airborne integration development
- (U) $204 Secondary VLF/LF Link study/analysis
- (U) $1,068 Continuing Evaluation Program (CEP)
- (U) $96 Pending reprogramming to fund higher priorities
- (U) $13,868 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303131F Minimum Essential Emergency Communications Network (MEECN) |
| | PROJECT<br>2832 |

(U) FY 1999 ($ in Thousands):

- (U) $9,936 Continue common MMRT and airborne integration development
- (U) $2,400 MMRT Testing
- (U) $9,900 Re-start MMRT ICBM LCCs integration development
- (U) $1,367 Continuing Evaluation Program (CEP)
- (U) $23,603 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 9,668 | 14,686 | 11,778 | Continuing |
| (U) Appropriated Value | 10,489 | 14,686 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -286 | -487 | | |
| b. SBIR | -535 | -331 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Recissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 11,825 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 9,668 | 13,868 | 23,603 | Continuing |

(U) Change Summary Explanation:

Funding: $96K in FY98 is pending reprogramming to fund other priorities. FY99-03 funding adjusted to provide for acceleration of the ICBM LCC effort and to provide for MMRT airborne testing.

Schedule: Air worthiness certification delayed by six months. ICBM LCCs integration has been accelerated by one year.

Technical: None.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303131F Minimum Essential Emergency Communications Network (MEECN) |
| | PROJECT<br>2832 |

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

**Related PEs:** PE 0603851F, ICBM Dem/Val, (FY97 only), PE 0302015F, E-4, BA-05, P-057, and PE 0101213F, Minuteman Squadrons (MMIII Modifications), BA-07, P-013.

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) MMRT EMD | | | | | | | | | | | | |
| (U) EMD for Aircraft | FY96 | | | | | | | | | | | FY00 |
| (U) EMD for ICBM LCCs (Phase 1) | | X* | | | | | | X | | | | |
| (U) EMD for ICBM LCCs (Phase 2) | | | | | | | | | X* | | | FY01 |
| (U) CDR | | | | | X | | | | | | | |
| (U) A/C IOT&E | | | | | | | | | | | | X* |

*Start/Complete

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303131F Minimum Essential Emergency Communications Network (MEECN) |
| | PROJECT<br>2832 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Primary Hardware Development | 7,141 | 5,712 | 11,990 |
| (U) Software Development | 311 | 1,019 | 2,351 |
| (U) Systems Engineering | 425 | 624 | 1718 |
| (U) Development Test and Evaluation | | 1,100 | 2,996 |
| (U) Contractor Engineering Support | 379 | 451 | 673 |
| (U) Government Engineering Support | 425 | 2,962 | 1,244 |
| (U) Travel | 102 | 380 | 577 |
| (U) Miscellaneous | | 456 | 687 |
| (U) CEP | 285 | 1,068 | 1,367 |
| (U) Pending reprogramming to fund higher priorities | 600 | 96 | 0 |
| (U) Total | 9,668 | 13,868 | 23,603 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Rockwell | CPAF | Aug 92 | 13,500 | 13,500 | 13,500 | 0 | 0 | 0 | 0 | 13,500 |
| Rockwell | CPAF | Jul 96 | n/a | n/a | 40,149 | 8,256 | 8,806 | 16,732 | Continuing | 77,597 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303131F Minimum Essential Emergency Communications Network (MEECN)

PROJECT: 2832

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Support and Management Organizations | | | | | | | | | | |
| TEMS | LOE | Annual | | | 910 | 527 | 1,798 | 1,508 | Continuing | Continuing |
| SPAWAR SysCen | MIPR | Annual | | | | 285 | 1,068 | 1,367 | Continuing | Continuing |
| NavAir Warfare Center IPT | MIPR | Annual | | | | | 1,000 | 1,000 | Continuing | Continuing |
| Reprogramming | | | | | 0 | 600 | 96 | | | |
| Test and Evaluation Organizations | | | | | | | | | | |
| NavAir Warfare Center | MIPR | Annual | | | 390 | 0 | 1,100 | 2,996 | Continuing | Continuing |

**Government Furnished Property:** None.

| | Total Prior to FY 1997 | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 53,649 | 8,256 | 8,806 | 16,732 | Continuing | Continuing |
| Subtotal Support and Management | 910 | 1,412 | 3,962 | 3,875 | Continuing | Continuing |
| Subtotal Test and Evaluation | 390 | 0 | 1,100 | 2,996 | Continuing | Continuing |
| Total Project | 54,949 | 9,668 | 13,868 | 23,603 | Continuing | Continuing |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303131F Minimum Essential Emergency Communications Network (MEECN)

PROJECT: 4521

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4521 DIRECT | 13,639 | 18,531 | 3,379 | 1,205 | 271 | 268 | 0 | 0 | 37,793 |

NOTE: This project was established in Jan 96 to consolidate efforts related to DIRECT currently being or planned for accomplishment in PE 0603851F, ICBM Modernization Dem/Val (BPAC 1024, ICBM C2 Applications), PE 0604851F, ICBM Modernization EMD (BPAC 13C4, Strategic C4 Program), PE 0101213F, Minuteman Squadrons, and 0303131F, MEECN (BPAC 2832, VLF/LF System Improvements).

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

(U) The Defense IEMATS Replacement Command and Control Terminals (DIRECT), which is the Improved Emergency Message Automated Transmission System (IEMATS) replacement program, is a Strategic Nuclear Command and Control (C2) system directly supporting the Chairman of the Joint Chiefs of Staff (CJCS) and the National Command Authorities (NCA). DIRECT will provide for all current IEMATS requirements, including the build, release, and transmission of Emergency Action Messages (EAM) to allow the CJCS and warfighters to remain responsive to NCA directives. This program will procure system hardware for seven unified command centers and a software maintenance facility. DIRECT will be compatible with the Defense Message System (DMS) when it supplants the Automated Digital Network (AUTODIN) and will interface with all other EAM distribution communications systems. The Director, Joint Staff, established an urgent and compelling need to field an IEMATS replacement system no later than second quarter FY99 to insure the orderly closure of AUTODIN Switching Centers (ASC).

(U) FY 1997 ($ in Thousands):

- (U) $11,109 DIRECT Engineering and Manufacturing Development
- (U) $2,000 Automated Codebook Module (ACM)
- (U) $130 Continuing Evaluation Program (CEP)
- (U) $400 Set aside for BTR to 0305165F
- (U) $13,639 Total

(U) FY 1998 ($ in Thousands):

- (U) $18,110 Continue DIRECT Engineering and Manufacturing Development
- (U) $0 Continue Automated Codebook Module (ACM)
- (U) $293 Continuing Evaluation Program (CEP)
- (U) $128 Pending reprogramming to fund higher priorities
- (U) $18,531 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303131F Minimum Essential Emergency Communications Network (MEECN) |
| | PROJECT<br>4521 |

(U) FY 1999 ($ in Thousands):

- (U) $3,110 Continue DIRECT Engineering and Manufacturing Development
- (U) $0 Continue Automated Codebook Module (ACM)
- (U) $269 Continuing Evaluation Program (CEP)
- (U) $3,379 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 11,174 | 19,723 | 4,747 | 37,235 |
| (U) Appropriated Value | 11,413 | 19,723 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -239 | -749 | | |
| b. SBIR | | -443 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | 2,500 | | | |
| e. Recissions | -35 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -1,368 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 13,639 | 18,531 | 3,379 | 37,793 |

(U) Change Summary Explanation:

Funding: $128K in FY98 is pending reprogramming to fund higher priorities. FY99 funding reduced to fund other AF and DoD priorities. Automated Codebook Module (ACM) deferred.

Schedule: Initial Operational Capability (IOC) not later than (NLT) 2QtrFY99 necessary to eliminate dependence on AUTODIN Switching Centers (ASCs) scheduled for CY99 closure. FY98 Congressional add enables initial DIRECT fielding to occur in FY99.

Technical: None.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303131F Minimum Essential Emergency Communications Network (MEECN)

PROJECT: 4521

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) APPN 16, Other Procurement - AF, BA-63, P-052, Electronics and Telecommunications Equip (MEECN, PE 0303131F) | | 11,715 | 1,545 | 1,094 | | | | 0 | 14,705 |

**Related PEs:** PE 0603851F, ICBM Dem/Val (FY97 only).

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Development Test and Evaluation | | | X* | | | X | | | | | | |
| (U) CDR | | | | | | X* | | | | | | |
| (U) Operational Test and Evaluation | | | | | | | X* | | X | | | |
| (U) Procurement | | | | | | X* | | | | X | | |
| (U) Required DIRECT IOC | | | | | | | | | | X | | |

*Start/Complete

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303131F Minimum Essential Emergency Communications Network (MEECN) |
| | PROJECT<br>4521 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Primary Hardware Development | 2,730 | 3,699 | 588 |
| (U) Software Development | 4,003 | 7,554 | 1,312 |
| (U) Systems Engineering | 1,254 | 2,391 | 416 |
| (U) Technical Data | 84 | 161 | 28 |
| (U) Automated Codebook Module | 2,000 | 0 | 0 |
| (U) Development Test and Engineering | 120 | 230 | 40 |
| (U) Government Engineering Support | 2,001 | 2,379 | 430 |
| (U) Program Management Support | 808 | 1,541 | 268 |
| (U) Travel | 109 | 155 | 28 |
| (U) CEP | 130 | 293 | 269 |
| (U) Pending reprogramming to fund higher priorities | 400 | 128 | 0 |
| (U) Total | 13,639 | 18,531 | 3,379 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997* | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| GTE | CPAF | Jul 96 | 23,879 | 23,879 | 0 | 8,601 | 13,805 | 2,344 | 1,114 | 25,864 |
| National Security Agency (NSA) | MIPR | Annually | 5,000 | 5,000 | 500 | 2,000 | 0 | 0 | 0 | 2,500 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303131F Minimum Essential Emergency Communications Network (MEECN)

PROJECT: 4521

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997* | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Support and Management Organizations | | | | | | | | | | |
| MITRE | LOE | Annual | n/a | 8,315 | 0 | 2,201 | 3,379 | 430 | 630 | 6,640 |
| JHU-APL | LOE | Annual | n/a | | | 130 | 293 | 269 | | 692 |
| Program Office | Various | Annual | n/a | | | 187 | 696 | 296 | | 1,179 |
| Reprogramming | | | | | | 400 | 128 | | | 528 |
| Test and Evaluation Organizations | | | | | | | | | | |
| Various | Various | | n/a | 406 | 0 | 120 | 230 | 40 | 0 | 390 |

**Government Furnished Property:** None

| | Total Prior to FY 1997* | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 500 | 10,601 | 13,805 | 2,344 | 1,114 | 28,364 |
| Subtotal Support and Management | | 2,918 | 4,496 | 995 | 630 | 9,039 |
| Subtotal Test and Evaluation | | 120 | 230 | 40 | | 390 |
| Total Project | 500 | 13,639 | 18,531 | 3,379 | 1,744 | 37,793 |

* Excludes prior year funding in VLF/LF System Improvements (BPAC 2832, this PE)

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303131F Minimum Essential Emergency Communications Network (MEECN)

PROJECT: 4610

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4610 MEECN EHF | 0 | 0 | 12,248 | 23,033 | 11,665 | 0 | 0 | 0 | 46,946 |

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

(U) This MEECN project will provide reliable, secure, and survivable communications in the Extremely High Frequency (EHF) band. Specifically, this effort is currently focused on replacing the satellite-based, ground communication links with Minuteman ICBM forces. It supplants the ICBM Super High Frequency (SHF) Satellite Terminal (ISST) receipt, providing force direction/execution, and the Ultra High Frequency (UHF) report-back links. ISST relies upon the Single Channel Transponder (SCT) package aboard the Defense Satellite Communications System (DSCS). The SCT will not be flown on the DSCS after 2003. Extending the use of SCT aboard DSCS is not practical. The UHF links depend upon the Air Force Satellite Communications (AFSATCOM) packages hosted aboard the Fleet Satellite Communications (FLTSATCOM) satellites. FLTSATCOM satellites are past their life expectancy. This integrated EHF system will be called the ICBM Launch Control Center (LCC) Extremely High Frequency (EHF) System (ILES). ILES is required to meet redundancy standards established by national security directives.

(U) FY 1997 ($ in Thousands):

- (U) $0 Total - Program starts in FY99

(U) FY 1998 ($ in Thousands):

- (U) $0 Total - Program starts in FY99

(U) FY 1999 ($ in Thousands):

- (U) $10,196 Engineering and manufacturing development
- (U) $252 Development Test and Evaluation
- (U) $1,800 Program Management Support
- (U) $12,248 Total

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303131F Minimum Essential Emergency Communications Network (MEECN)

PROJECT: 4610

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 0 | 0 | 12,494 | 48,089 |
| (U) Appropriated Value | 0 | 0 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -246 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 0 | 0 | 12,248 | 46,946 |

(U) Change Summary Explanation: This program initiated in response to DoD direction with RDT&E commencing in FY99. FY99 funding reduced to fund other AF and DoD priorities.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) APPN 16, Other Procurement - AF, BA-63, P-052, Electronics and Telecommunications Equip (MEECN, PE 0303131F) | 0 | 0 | 0 | 0 | 35,226 | 22,046 | 10,482 | 0 | 70,487 |

**Related PEs:** None.

(U) **D. Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Contract Award | | | | | | | | | | X | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303131F Minimum Essential Emergency Communications Network (MEECN) |
| | PROJECT<br>4610 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Primary hardware development | | | 5,630 |
| (U) Software development | | | 1,315 |
| (U) Systems engineering | | | 1,800 |
| (U) Development Test and Evaluation | | | 252 |
| (U) Contractor engineering support | | | 275 |
| (U) Program management support | | | 1,800 |
| (U) Government engineering support | | | 580 |
| (U) Misc/Travel | | | 596 |
| (U) Total | 0 | 0 | 12,248 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| TBD | TBD | 2QtrFY99 | | | 0 | 0 | 0 | 8,745 | 26,916 | 35,661 |
| Support and Management Organizations | | | | | | | | | | |
| TBD | TBD | TBD | | | 0 | 0 | 0 | 3,251 | 10,006 | 13,257 |
| Test and Evaluation Organizations | | | | | | | | | | |
| TBD | TBD | TBD | | | 0 | 0 | 0 | 252 | 776 | 1,028 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303131F Minimum Essential Emergency Communications Network (MEECN)

PROJECT: 4610

**Government Furnished Property:** None

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | |
| TBD | | | | | | | | | |
| Support and Management Organizations | | | | | | | | | |
| TBD | | | | | | | | | |
| Test and Evaluation Organizations | | | | | | | | | |
| TBD | | | | | | | | | |

| | Total Prior to FY 1997* | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|
| Subtotal Product Development | | | | 8,745 | 26,916 | 35,661 |
| Subtotal Support and Management | | | | 3,251 | 10,006 | 13,257 |
| Subtotal Test and Evaluation | | | | 252 | 776 | 1,028 |
| Total Project | | | | 12,248 | 37,698 | 49,946 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303140F Information Systems Security Program

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 6,667 | 4,961 | 8,420 | 8,137 | 7,422 | 7,154 | 7,243 | Continuing | TBD |
| 7820 Computer Security RDT&E: Firestarter | 6,667 | 3,321 | 4,460 | 4,923 | 5,477 | 5,218 | 5,316 | Continuing | TBD |
| 4585 Cryptologic 2000 | 0 | 1,640 | 1,999 | 1,262 | 0 | 0 | 0 | 0 | 4,901 |
| 4579 Information Warfare | 0 | 0 | 1,961 | 1,952 | 1,945 | 1,936 | 1,927 | Continuing | TBD |
| Quantity of RDT&E Articles | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

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

This program provides the capability to protect and defend USAF Command, Control, Communications, Computers, and Intelligence, Surveillance, and Reconnaissance (C4ISR) and Weapon Systems from IW attacks and recover from those attacks. Primarily, the project does research and development of information protection tools and transitions them to operational systems. It also provides the acquisition community and operational warfighters the ability to manage their own risks relative to mission, task, threat, and vulnerability information and to mitigate IW risks based on rank-ordered countermeasure recommendations. The program element consists of three complimentary projects.

The computer security project directs the R&D of Information Protection technology and tools to defend AF C4ISR systems, with emphasis on computer and network systems security, damage assessment and recovery, and multi-level systems security. This project focuses on protection and defense of the Air Force, Joint, National, and Defense Information Infrastructures. This R&D provides adequate access control, integrity, assured services and meets warfighter's requirements. The Cryptologic 2020 project comprises R&D for the Air Force Electronic Key Management System (AFEKMS). The AFEKMS, in concert with NSA's EKMS, provides a secure and flexible capability for the electronic generation, distribution, and management of key material, voice callwords, and Communications Security (COMSEC) publications for the F-22. AFEKMS replaces the existing physical distribution and management system providing COMSEC KEYS for USAF Information Protection. The Air Force unique AFEKMS software is required because the production software developed by NSA cannot provide the capabilities to distribute the system keys in the format needed by the F-22 Mission Support System. The Information Warfare project comprises R&D for Vulnerability Assessment/Risk Management (IW VA/RM) and Technology planning to build info protect into all AF C2, ISR, and weapons systems. This program is in budget activity 7, Operational System Development, because it addresses the development and transition of information security, protection and defensive capabilities and technologies to protect, detect, respond to, and defend against information attack by new and emerging IW threats.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303140F Information Systems Security Program

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 6,548 | 5,298 | 6,589 | TBD |
| (U) Appropriated Value | 6,900 | 5,298 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -182 | -215 | | |
| b. SBIR | -170 | -122 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | +130 | | | |
| e. Rescissions | -11 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 1,831 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 6,667 | 4,961 | 8,420 | TBD |

(U) Change Summary Explanation:

Funding: FY99 funds added during 99 APOM for Information Warfare Vulnerability Assessment/Risk Management (VA/RM) Project.
FY97 reprogramming of $130,000 to initiate early VA/RM prototyping efforts.

Schedule: N/A

Technical: IW/VA/RM Project to build info protect into all C2, ISR, communications, and weapons systems.

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

(U) For research and development efforts pursued under Program Element (PE) 33140F there is complementary work being performed under PE 35167G which addresses the development of generic technology in the area of information security. Products from PE 33140F transition to other agencies through PE 64740F Computer Resources Management Technology Transition.

(U) D. **Schedule Profile** See individual project schedules.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303140F Information Systems Security Program | PROJECT<br>7820 |

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 7820 Computer Security RDT&E: Firestarter | 6,667 | 3,321 | 4,460 | 4,923 | 5,477 | 5,218 | 5,316 | Continuing | TBD |

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

This program directs the Research & Development (R&D) of Information Protect technology/tools to provide the capability to defend USAF Command, Control, Communications, Computer, and Intelligence (C4I) Systems from Information Warfare (IW) Cyber attacks and to recover from those attacks. As the USAF single manager for Information Protect (R&D), this program directs C4I system Information Protect R&D with emphasis in computer/network systems security, damage assessment and recovery, and mullet-level security. With the advent of the information age, the battlefield commander's ability to fight and win becomes more dependent upon the availability, timeliness, and integrity of the information flow/processing capability available. The requirement for global presence and global power has demanded increasing reliance on these advanced information systems with global accessibility. The susceptibilities inherent in such reliance and accessibility has heightened the awareness that the National Information Infrastructure (NII) and the Defense Information Infrastructure (DII) must be protected against attack.

Emphasis is therefore placed on R&D areas that provide deterrence of attack through cyberspace surveillance, Tactical Indications & Warning (I&W), intrusion detection and characterization of attack. As adversaries may gain access to critical AF Force information system through a variety of means, including the Internet, other dial-connections, and DSNET, this technology will provide the capability of collecting, integrating, and displaying threat, vulnerability, and system data indicating an attack is about to take place and./or is taking place. Specifically this R&D supports Air Force requirements for Global Engagement by providing the technology that will protect the critical information infrastructure and systems necessary for the Air Force to carry out mission requirements. Current Air Force systems such as the Combat Information Transport Systems (CITS), Theater Deployable Communications (TDC) and Theater Battle Management - Core Systems (TBMCS) leverage the technology from this project to meet their Info Protect needs/requirements. Additionally, this project utilizes Info Assurance technology investments by DARPA as a jump-start for providing solution to Air Force requirements and cooperates with DISA and other services/agencies to ensure DII info protect requirements are complied with.

Also, R&D is required in automated damage assessment and recovery processes because Air Force does not currently have the automated assessment, planning and decision tools to support prudent Information Operations damage recovery. Summarizing, this program is in budget activity 7-Operational System Development, Research category 6.7 because it addresses the development and transition of communications and computer network Information Protection technologies/tools in order to protect, detect, defend and respond to information attack against Air Force Network Control Centers (AFNCCs), Theater Deployable Communications (TDC) systems and the National/Defense Information Infrastructure.

(U) **Acquisition Strategy:**

All major contracts within this Program Element are awarded after full and open competition.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303140F Information Systems Security Program |
| | PROJECT<br>7820 |

(U) FY 1997 ($ in Thousands):

| | | | |
|---|---|---|---|
| – | (U) | $230 | Initiate development of secure data handling system for F-22 Integrated Weapon Systems (IWS) Data Base |
| – | (U) | $545 | Develop mechanisms to protect databases from IW attacks |
| – | (U) | $545 | Continue development of security analysis tools for Base Information Protection |
| – | (U) | $710 | Initiate development of secure interoperable distributed computing system |
| – | (U) | $1,100 | Prototype adaptive voice/data networks |
| – | (U) | $250 | Initiate effort to develop technology for secure distributed collaborative planning |
| – | (U) | $150 | Initiate effort to transition DARPA intrusion detection technology the Air Force Information Warfare Center (AFIWC) |
| – | (U) | $400 | Initiate effort to demonstrate INFOSEC for Air Force Mission Support System (AFMSS) |
| – | (U) | $2,607 | Complete development of Electronic Key Management System (Tier 1) |
| – | (U) | $130 | Initiate Vulnerability Assessment & Risk Management toolset prototyping |
| – | (U) | $6,667 | Total |

(U) FY 1998 ($ in Thousands):

| | | | |
|---|---|---|---|
| – | (U) | $430 | Continue development of secure interoperable distributed computing systems |
| – | (U) | $430 | Prototype security analysis tools for Base Information Protection (BIP) |
| – | (U) | $430 | Continue effort to transition DARPA intrusion detection technology the Air Force Information Warfare Center (AFIWC) and BIP |
| – | (U) | $430 | Continue effort to demonstrate INFOSEC for Air Force Network Control Centers (AFNCCs) |
| – | (U) | $430 | Continue effort to develop technology for secure distributed collaborative planning |
| – | (U) | $550 | Continue investigation of techniques for commercial software evaluation |
| – | (U) | $621 | Develop prototype secure wrapper to protect systems from COTS software security risks |
| – | (U) | $3,321 | Total |

(U) FY 1999 ($ in Thousands):

| | | | |
|---|---|---|---|
| – | (U) | $256 | Continue development of secure data handling system for F-22 Integrated Weapon Systems (IWS) Data Base |
| – | (U) | $710 | Continue development of secure interoperable distributed computing systems |
| – | (U) | $750 | Continue development of technology for self-healing network system |
| – | (U) | $744 | Develop methodologies for commercial software evaluation |
| – | (U) | $510 | Complete effort to transition DARPA intrusion detection technology the Air Force Information Warfare Center (AFIWC) and BIP |
| – | (U) | $490 | Complete effort to demonstrate INFOSEC for Air Force Network Control Centers (AFNCCs) |
| – | (U) | $500 | Initiate effort to transition secure wrapper technologies into Air Force systems. |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303140F Information Systems Security Program |
| | PROJECT<br>7820 |

- (U) $500 Initiate effort for automatic capability to trace source of intrusions
- (U) $4,460 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 6,548 | 3,561 | 4,550 | TBD |
| (U) Appropriated Value | 6,900 | 3,561 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -182 | -158 | | |
| b. SBIR | -170 | -82 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | +130 | | | |
| (U) Adjustments to Budget Years Since FY 1997 PB | -11 | | -90 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 6,667 | 3,321 | 4,460 | TBD |

(U) Change Summary Explanation:

Funding: FY97 reprogramming of $130,000 to initiate early VA/RM tool set prototyping efforts

Schedule: Initiating VA/RM toolset prototyping accelerates delivery to SPOs by 18 months.

Technical: None.

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

(U) Not applicable

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303140F Information Systems Security Program

PROJECT: 7820

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Requirements Review Board | | | * | | | | X | | | | X | |
| (U) AFNCC INFOSEC Transition | | | | * | | | X | | | | X | |
| (U) Adaptive Voice/Data Network Demonstrations | | | | | | | X | | | | | |
| (U) Secure Wrapper Development | | | | | | | X | | | | | |
| (U) Self-Healing Network Demonstration | | | | | | | | | | | X | |
| (U) F-22 IWS DB | | | | | | | | | X | | | X |
| (U) Secure Interoperable Distributed Computing System | | | | | | | | | | | | X |
| (U) Trusted Rubix | | * | | | * | | | | | | | |
| (U) Theater Battle Management Secure Interfaces | | | | | * | | | | | | | |
| (U) Begin Development Methodology for Commercial Software Evaluation | | | | | | | | | X | | | |
| (U) DARPA Information Assurance Technology Transition | | | | | | | | | | | X | |
| (U)Initiate Secure Wrapper Technology Transition | | | | | | | | | X | | | |
| (U) Initiate Technology for Tracing Sources of Intrusions | | | | | | | | | X | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303140F Information Systems Security Program |
| | PROJECT<br>7820 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Secure Data Handling System | 630 | 0 | 256 |
| (U) Database Protection Mechanisms | 545 | 411 | |
| (U) Security Analysis Tools | 545 | 430 | |
| (U) DARPA Technology Insertion/Transition | 150 | 860 | 510 |
| (U) Secure Distributed Collaborative Planning | 960 | 860 | 710 |
| (U) IP Integration Framework | | 760 | 490 |
| (U) Adaptive Voice/Data Networks | 1,100 | 0 | 750 |
| (U) Electronic Key Management System | 2,607 | | |
| (U) Traceback/Forensics | | | 500 |
| (U) Wrappers to Secure COTS | | | 500 |
| (U) VA/RM toolset prototyping | 130 | | |
| (U) COTS S/W Evaluation | | | 744 |
| (U) Total | 6,667 | 3,321 | 4,460 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| FFRDC (MITRE) | MIPR | On-Going | | | 0 | 460 | 660 | 700 | | 1,420 |
| Multiple Contractors | CPFF | On-Going | | | 0 | 6,107 | 2,286 | 2,835 | Continuing | TBD |
| Universities | CPFF | On-Going | | | 0 | 100 | 375 | 925 | | 1,400 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303140F Information Systems Security Program

PROJECT: 7820

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Support and Management Organizations | | | | | | | | | | |
| N/A | | | | | | | | | | |
| Test and Evaluation Organizations | | | | | | | | | | |
| N/A | | | | | | | | | | |

**Government Furnished Property:**

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Support and Management Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Test and Evaluation Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Subtotal Product Development | | | | 0 | 3,321 | 4,460 | Continuing | TBD | |
| Subtotal Support and Management | | | | 0 | 0 | 0 | 0 | | |
| Subtotal Test and Evaluation | | | | 0 | 0 | 0 | 0 | | |
| Total Project | | | | 0 | 3,321 | 4,460 | Continuing | TBD | |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303140F Information Systems Security Program

PROJECT: 4585

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4585 Cryptologic 2000 | 0 | 1,640 | 1,999 | 1,262 | 0 | 0 | 0 | 0 | 4,901 |

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

The Cryptologic project consists of the Air Force Electronic Key Management Systems (AFEKMS). AFEKMS, in concert with NSA's EKMS, provides a secure and flexible capability for the electronic generation, distribution, accounting, and management of key material, voice callwords, and Communications Security (COMSEC) publications for the F-22 and all AF weapon systems. AFEKMS replaces the existing physical distribution and management system providing COMSEC keying material for USAF Information Protection. Information Protection emphasizes access control, multi-level secure databases, trusted computing and information integrity. AFEKMS is a three tier system structure in a hierarchical arrangement. This tiered structure provides "wholesale" to "retail" to "consumer" capability to distribute, manage and account for COMSEC keying material. Tier 1 installations comprise the "wholesale" capability. Tier 2 installations comprise the distribution network and tier 3 comprises the "retail locations" where keying material leaves the AFEKMS and enters the End Item COMSEC Equipment (EICE) – the consumer.

Acquisition includes Commercial Off The Shelf (COTS) computers and software, contractor developed application software, Government Furnished Equipment (GFE) and software such as the NSA's Local COMSEC Management Software (LCMS). Also, USAF developed application software (UAS) is necessary for unique systems such as the F-22 and unique key fill requirements of EICE for other airborne platforms. The F-22 platform employs KOV-5 modules and uses three types of keys (system keys and codes, traffic keys, and Firefly session keys and parameters). Using a Data Transfer Device (DTD), these keys are laded directly into the KOV-5 and ground based KS-5 using a Firefly process. The F-22 employs a unique process for getting cryptographic keys into the KOV-5 onboard the F-22 platform. This project enhances NSA developed EKMS S/W to meet F-22 unique requirements. It also upgrades the DTD to correct speed, storage, and operability deficiencies.

(U) **Acquisition Strategy:**

All major contracts within this Program Element are awarded after full and open competition.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303140F Information Systems Security Program |
| | PROJECT<br>4585 |

(U) FY 1997 ($ in Thousands):
- (U) $0
- (U) $0 Total

(U) FY 1998 ($ in Thousands):
- (U) $620 Continue LCMS application software development (F-22)
- (U) $703 Initiative DMD/DTD support software development
- (U) $317 Initiate DMD Phase 1 development
- (U) $1,640 Total

(U) FY 1999 ($ in Thousands):
- (U) $250 Complete LCMS application software development (F-22)
- (U) $189 Continue DMD/DTD software support development and system integration
- (U) $1,560 Initiate DMD Phase 2 development
- (U) $1,999 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303140F Information Systems Security Program |
| | PROJECT<br>4585 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 0 | 1,737 | 2,039 | 5,069 |
| (U) Appropriated Value | 0 | 1,737 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | | -57 | | |
| b. SBIR | | -40 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1997 PB | | | -40 | |
| (U) Current Budget Submit/FY 1999 President's Budget | | 1,640 | 1,999 | 4,901 |

(U) Change Summary Explanation:

Funding: None

Schedule: None

Technical: None

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

N/A

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303140F Information Systems Security Program<br>PROJECT 4585 |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Complete F-22 UAS Development | | | | | | | | | | | | X |
| (U) Initiate DMD Phase 1 Development | | | | | * | | | | | | | |
| (U) Initiate DMD Phase 2 Development | | | | | | | | | X | | | |
| (U) Initiate DMD/DTD Support Software Development | | | | | * | | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303140F Information Systems Security Program |
| | PROJECT<br>4585 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Software Development | 0 | 1,640 | 1,999 |
| (U) Total | 0 | 1,640 | 1,999 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Motorola Inc. Space & Systems Technology Group (F19628-97-C-0600) | SS/CPFF | APR 97 | | | 0 | 0 | 585 | 245 | 0 | 830 |
| SAIC Software & Systems Integration Group (GS-35F-44616) | BPA | MAY 98 | | | 0 | 0 | 1,055 | 1,754 | 0 | 2,809 |
| Support and Management Organizations | | | | | | | | | | |
| N/A | | | | | | | | | | |
| Test and Evaluation Organizations | | | | | | | | | | |
| N/A | | | | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303140F Information Systems Security Program

PROJECT: 4585

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

**Government Furnished Property:**

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Support and Management Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Test and Evaluation Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Subtotal Product Development | | | | 0 | 1,640 | 1,999 | 0 | 3,639 | |
| Subtotal Support and Management | | | | 0 | 0 | 0 | 0 | 0 | |
| Subtotal Test and Evaluation | | | | 0 | 0 | 0 | 0 | 0 | |
| Total Project | | | | 0 | 1,640 | 1,999 | 0 | 3,639 | |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE: February 1998 |
|---|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0303140F Information Systems Security Program | PROJECT: 4579 |

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4579 Information Warfare | 0 | 0 | 1,961 | 1,952 | 1,945 | 1,936 | 1,927 | Continuing | TBD |

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

Builds information protection into all AF C2, ISR, and weapons systems. The project provides the acquisition community and operational warfighters the ability to manage the IW risks to their missions and operational tasks based on system threat and vulnerability information. Provides decision makers with countermeasures recommendations, rank-ordered based on most operational utility and relative cost. Looking across all assessment conducted on AF systems, the project also provide the USAF a unique system-of-systems perspective for managing IW risks, policy, and solutions that cut across individual system boundaries. The project consists of two complementary R&D efforts

Information Warfare Vulnerability Assessment & Risk Management (IW VA/RM). The development and sustainment of an IW VA/RM process and toolset comprising procedures, analytical resources, supporting threat, countermeasure, and vulnerability databases, and instruction and training materials. These will enable program acquisition and operational unit customer to conduct their own IW risk assessments. Provides sustainment for tool set, databases, and procedures. Libraries and databases of vulnerabilities, countermeasures, tools, and techniques will be developed and continually updated to allow customers to assess current information and quickly update their assessments and risk posture as threat and vulnerability information changes. Project accumulates results of individual assessments to synthesize an integrate USAF system-of-systems risk posture, supporting JFACC theater-level IW defense.

IW Technical Planning Integrated Product Team (IW TPIPT). Supports modernization planning for Counterinformation (CI) Mission Area and technology planning processes. Continuously identifies and evaluates commercial and Government inventory of available products that can be used to meet Counterinformation mission deficiencies. Develops and coordinates technology development and acquisition plans for resolving mission area deficiencies. Provides Government laboratories and private industry guidance on new technologies needed for the next 10 to 25 years.

(U) **Acquisition Strategy:**

All major contracts within this Program Element are awarded after full and open competition.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE |
|---|---|
| | February 1998 |
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303140F Information Systems Security Program |
| | PROJECT<br>4579 |

(U) FY 1997 ($ in Thousands):
- (U) $0
- (U) $0 Total

(U) FY 1998 ($ in Thousands):
- (U) $0
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $709 Exportable VA/RM process and toolset development
- (U) $441 Establish infrastructure: Intelligence support, metrics measurement, etc.
- (U) $370 Develop libraries and databases, system-of-systems model
- (U) $291 IW TPIPT activities, analyses, database support
- (U) $150 Integrated cross program assessments and solution development
- (U) $1,961 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303140F Information Systems Security Program |
| | PROJECT<br>4579 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 0 | 0 | 0 | 0 |
| (U) Appropriated Value | | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1997 PB | | | 1,961 | TBD |
| (U) Current Budget Submit/FY 1999 President's Budget | 0 | 0 | 1,961 | TBD |

(U) Change Summary Explanation:

Funding: FY99 funds added during FY99 APOM for Information Warfare Vulnerability Assessment & Risk Management (VA/RM) project

Schedule: See initial schedule profile below

Technical: IW VA/RM project builds info protect into all AF C2, ISR and weapons systems.

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

N/A

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303140F Information Systems Security Program<br>PROJECT 4579 |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Begin VA/RM tool set development | | | | | | | | | X | | | |
| (U) Begin infrastructure, libraries, and databases development | | | | | | | | | X | | | |
| (U) Begin developing system of systems model | | | | | | | | | | | | X |
| (U) Develop & sustain AFMC fix plan | | | | | | | | | X | | | |
| (U) Develop & sustain IW TPIPT technology database (quarterly reviews) | | | | | | | | | X | X | X | X |
| (U) Develop & sustain IW TPIPT technology development plan (annual) | | | | | | | | | | | X | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303140F Information Systems Security Program |
| | PROJECT<br>4579 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Software development | 0 | 0 | 715 |
| (U) Systems engineering support | 0 | 0 | 1,096 |
| (U) Program management support | 0 | 0 | 150 |
| (U) Total | 0 | 0 | 1,961 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Contract to be Awarded | CPFF | OCT 99 | | | 0 | 0 | 0 | 715 | TBD | TBD |
| Support and Management Organizations | | | | | | | | | | |
| FFRDC (MITRE) | MIPR | | | | 0 | 0 | 0 | 596 | Continuing | TBD |
| TEMS (various) | CPFF | | | | 0 | 0 | 0 | 500 | Continuing | TBD |
| Test and Evaluation Organizations | | | | | | | | | | |
| Test & Evaluation | | | | | 0 | 0 | 0 | 150 | Continuing | TBD |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE: February 1998 |
|---|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0303140F Information Systems Security Program | PROJECT: 4579 |

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

**Government Furnished Property:**

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Support and Management Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Test and Evaluation Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Subtotal Product Development | | | | 0 | 0 | 715 | TBD | TBD | |
| Subtotal Support and Management | | | | 0 | 0 | 1,096 | Continuing | TBD | |
| Subtotal Test and Evaluation | | | | 0 | 0 | 150 | Continuing | TBD | |
| Total Project | | | | 0 | 0 | 1,961 | Continuing | TBD | |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303141F Global Combat Support System (GCSS)

PROJECT: 4655

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4655 GCSS-AF (BLSM II) | 14,943 | 19,745 | 17,973 | 19,742 | 21,317 | 19,993 | 22,381 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

* The FY97 and outyear RDT&E funding for this project was transferred from PE 0308610F, Information Management Automation Program to PE 0303141F, Global Combat Support System - Air Force. This action was taken since the FY96 DoD Appropriations Act directed GCSS-AF to be RDT&E funded. The GCSS-AF program was broken out from PE 0308610F into this separate program element.

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

The Base Level System Modernization I (BLSM I) was the pilot program for GCSS-AF. The BLSM I program modernized three key base level pilot systems; Manpower Data Systems (MDS), Logistics Module (LOGMOD), and Air Force Operations Resource Management System (AFORMS)); to provide essential support to the mission for the Air Force in the areas of manpower, logistics, and flight records. GCSS-AF (once called BLSM II) continues the BLSM I effort with the addition of the Cargo Movement Operations System (CMOS) and the Standard Base Supply System (SBSS). GCSS-AF is the modernization program that will modernize, integrate, evolve, and maintain standard Air Force and Department of Defense (DoD) Combat Support Automated Information Systems (AISs). The products of this development will be:

(1) A Common Operating Environment (COE). Systems modernized under GCSS-AF will migrate to an open system environment to reduce maintenance cost and integrate the many stove-pipe systems into one integrated management information system of applications. Sustainment costs will be reduced with an increase in productivity through use of a Defense Information Infrastructure (DII) compliant Common Operating Environment (COE). Adaptable applications level software can then be added with minumum effort and expense.

(2) A Combat Support Information System (CSIS) consisting of supply, maintenance, civil engineering, base accounting and finance functions, personnel and manpower management, and a variety of related services which will move the Air Force into the 21st Century with the technology for warfighters to be successful in all scenarios. The CSIS will improve operational readiness by enhancing the capabilities and timeliness of all Air Force standard functional Automated Information Systems (AIS) supporting critical warfighting weapon systems. CSIS will work within an enterprise-wide shared data environment. The shared data environment will become the source of functional support data for command and control decision support systems that support the wing commander, theater battlestaffs, as well as high headquarters. The system will cover both retail and wholesale functions.

This program is in Budget Activity 7, Operational System Development, because the program modernizes Automated Information Systems (AISs). This PE contains only the RDT&E portion of GCSS-AF. No specific procurement funding is identified after FY97. O&M funding will come from the legacy systems being modernized.

(U) **Acquisition Strategy:**

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

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303141F Global Combat Support System (GCSS) |
| | PROJECT<br>4655 |

(U) **FY 1997 ($ in Thousands):**

| | | |
|---|---|---|
| – (U) | | GCSS System Contract |
| – (U) | $2,100 | Common Operating Environment (COE) Increment 1 |
| – (U) | $12,263 | Combat Support Information System (CSIS) Increment 1 |
| – (U) | | Operations |
| – (U) | $80 | Support Contractors (MITRE, TEMS, Cost) |
| – (U) | $500 | BLSM I |
| – (U) | $14,943 | Total |

(U) **FY 1998 ($ in Thousands):**

| | | |
|---|---|---|
| – (U) | | GCSS System Contract |
| – (U) | $1,625 | Common Operating Environment (COE) Increment 1 |
| – (U) | $12,489 | Combat Support Information System (CSIS) Increment 1 |
| – (U) | | Operations |
| – (U) | $760 | Support Contractors (MITRE, TEMS, Cost) |
| – (U) | $4,871 | SPO Operations |
| – (U) | $19,745 | Total |

(U) **FY 1999 ($ in Thousands):**

| | | |
|---|---|---|
| – (U) | | GCSS System Contract |
| – (U) | $1,669 | Common Operating Environment (COE) Increment 1 |
| – (U) | $10,971 | Combat Support Information System (CSIS) Increment 1 |
| – (U) | | Operations |
| – (U) | $780 | Support Contractors (MITRE, TEMS, Cost) |
| – (U) | $3,489 | SPO Operations |
| – (U) | $1,064 | Defense Information Infrastructure-Air Force (DII-AF) System Program Office (SPO) Operations |
| – (U) | $17,973 | Total |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303141F Global Combat Support System (GCSS) |
| | PROJECT<br>4655 |

| (U) B. Program Change Summary ($ in Thousands) | FY 97 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 0 | 20,894 | 18,334 | Cont. |
| (U) Appropriated Value | 0 | 20,894 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | | -695 | | |
| b. SBIR | | -454 | | |
| c. Omnibus or Other Above Threshold Reprogramming | 14,543 | | | |
| d. Below Threshold Reprogramming | 400 | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -361 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 14,943 | 19,745 | 17,973 | Cont. |

(U) Change Summary Explanation:

(U) Funding: The FY97 and outyear RDT&E funding for this project was transferred from PE 0308610F, Information Management Automation Program to PE 0303141F, Global Combat Support System - Air Force. This action was taken since the FY96 DoD Appropriations Act directed GCSS-AF be RDT&E funded and because of the high interest in this program, the GCSS-AF program was broken out from PE 0308610F into this separate program element.

(U) Schedule: Impact of funding cuts to the GCSS-AF schedule are still being assessed at this time.

(U) Technical: None.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303141F Global Combat Support System (GCSS)

PROJECT: 4655

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

| | FY 97 | FY 98 | FY 99 | FY 00 | FY 01 | FY 02 | FY 03 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Proc AF, BA 7, P-1:55, (Phase 1)* | 996 | | | | | | | | 12,512 |
| (U) Other Proc AF, BA 7, P-1:55, (Phase 2)** | 7,200 | | | | | | | | 7,200 |
| (U) O&M, AF*** | 7,900 | | | | | | | | 7,900 |
| (U) O&M (LOGMOD)**** | | 4,989 | 3,630 | 3,781 | 3,937 | 4,074 | 4,221 | TBD | TBD |
| (U) O&M (AFORMS)**** | | 3,675 | 2,111 | 2,173 | 2,246 | 2,330 | 2,423 | TBD | TBD |
| (U) O&M (SBSS)**** | | 13,816 | 15,634 | 18,304 | 17,821 | 18,775 | 19,660 | TBD | TBD |
| (U) O&M (MDS)**** | | 2,702 | 2,351 | 2,397 | 2,448 | 2,501 | 2,558 | TBD | TBD |
| (U) O&M (CMOS)**** | | 3,591 | 4,001 | 3,721 | 3,814 | 3,962 | 4,102 | TBD | TBD |
| (U) Other Proc AF, BA 7, P-1:55, (CMOS) | | 404 | 316 | 332 | 340 | 336 | 329 | TBD | TBD |

* Funding for fielding the Phase 1 prototype systems.

** Funding for enterprise license for Commercial Off-the-Shelf Software part of SBSS modernization solution

*** Support Phase I prototype systems and manpower/DBOF costs (in FY98+ these costs are in RDT&E lines shown above)

**** Legacy systems' O&M funds currently used for system support will be transitioned to support the new systems (COE and CSIS).

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Complete Phase 1 | | | X | | | | | | | | | |
| (U) Phase 2 Increment 1. | | | | | | | | | | | | |
| (U) Begin CSIS Increment 1 | X | | | | | | | | | | | |
| (U) Complete CSIS Increment 1 | | | | | | | | | X | | | |
| (U) Begin Rehost prototypes | X | | | | | | | | | | | |
| (U) Complete Rehost prototypes | | | | | | | X | | | | | |
| (U) Begin COE Increment 1 | X | | | | | | | | | | | |
| (U) Complete COE Increment 1 | | | | | | | | | X | | | |
| (U) Phase 2 Increment 2. | | | | | | | | | | | | |
| (U) Begin CSIS Increment 2 | | | | | | | | | X | | | |
| (U) Begin COE Refresh/Architecture | | | | | | | | | X | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303141F Global Combat Support System (GCSS) | PROJECT<br>4655 |

(U) A. **Project Cost Breakdown ($000 in Thousands)**

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) GCSS-AF System Contract | | | |
| (U) Common Operating Environment (COE) Inc 1 | 2,100 | 1,625 | 1,669 |
| (U) Combat Support Information System (CSIS) Inc 1 | 12,263 | 12,489 | 10,971 |
| (U) Operations | | | |
| (U) Support Contractor (MITRE, TEMS, Cost) | 80 | 760 | 780 |
| (U) SPO Operations | 0 | 4,871 | 3,489 |
| (U) DII-AF SPO Operations | | | 1,064 |
| (U) BLSM I | 500 | | |
| (U) Total. | 14,943 | 19,745 | 17,973 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303141F Global Combat Support System (GCSS)

PROJECT: 4655

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Lockheed Martin | IDIQ | 15 Aug 95 | N/A | N/A | 4,417 | 14,363 | 15,263 | 13,001 | Con. | Cont |
| Support and Management Organizations | | | | | | | | | | |
| MITRE | | Var | N/A | N/A | 73 | 35 | 395 | 380 | Cont | Cont |
| TEMS | | Var | N/A | N/A | 1,449 | 45 | 365 | 400 | Cont | Cont |
| ESC | N/A | N/A | N/A | N/A | 3,851 | 500 | 3,722 | 4,192 | Cont | Cont |
| Test and Evaluation Organizations | | | | | | | | | | |
| Not applicable. | | | | | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303141F Global Combat Support System (GCSS) |
| | PROJECT<br>4655 |

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

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| **Government Furnished Property:**<br>Not applicable. | | | | | | | | | | |
| Subtotal Product Development | | | | | 4,417 | 14,363 | 15,263 | 13,001 | Cont | Cont |
| Subtotal Support and Management | | | | | 5,373 | 580 | 4,482 | 4,972 | Cont | Cont |
| Subtotal Test and Evaluation | | | | | | | | | | |
| Total Project | | | | | 9,790 | 14,943 | 19,745 | 17,973 | Cont | Cont |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303144F Electromag Compatibility Analysis Ctr

PROJECT: 649E

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 649E Electromagnetic Compatibility Analysis Center (ECAC)* | 7,295 | 7,588 | 0 | 0 | 0 | 0 | 0 | TBD | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

***The Joint Spectrum Center budget was moved to Defense Information Systems Agency beginning in FY99.**

(U) A. **Mission Description and Budget Item Justification** The Joint Spectrum Center, formerly called the Electromagnetic Compatibility Analysis Center (ECAC), serves as the DoD focal point for electromagnetic (EM) spectrum management matters in support of the Unified Commands, Military Departments, and Defense Agencies in planning, acquisition, training, and operations. The Joint Spectrum Center receives operational guidance from the Joint Staff (J6) and policy guidance from the Assistant Secretary of Defense for Command, Control, Communications and Intelligence (ASD(C3I)). Air Force, the designated Executive Agent for the Joint Spectrum Center, is responsible for programming, budgeting, and financing the Joint Program. Joint Spectrum Center realigned from Air Force to Defense Information Systems Agency, PE 0303153K beginning in FY1999. Effective 22 December 1997, Joint Spectrum Center reports operationally to Defense Information Systems Agency. The Joint Spectrum Center is the responsible activity for DoD spectrum management and use automation for strategic, theater, and tactical operations. The Joint Spectrum Center has the responsibility for architecture and standardization of DoD automated spectrum information and management systems. Specifically, the Center designs, develops, and maintains DoD automated spectrum management systems, evaluation tools, and databases employed by the Unified Commands, Military Departments, and Defense Agencies. The Joint Spectrum Center databases are the prime sources of information for DoD use of the EM spectrum. The Joint Spectrum Center provides guidance and assistance to Office of Assistant Secretary of Defense (OASD), Joint Staff, DoD activities and Unified Commands to ensure development and acquisition of electromagnetically compatible systems and for the effective deployment of these systems in military operations. This Center is the focal point for spectrum related support, Electromagnetic Environmental Effects (E3), and EM interference resolution assistance to operational units including deployable support to CINC Joint Task Forces. The Joint Spectrum Center mission is integral to other vital activities such as Information Warfare (IW), Command and Control (C2) Protect and other defensive C3 warfare activities as directed by the Joint Staff. This program is in budget activity 7 - Operational System Development, because it involves efforts supporting operational systems development.

(U) **Acquisition Strategy:** Engineering support services for the Joint Spectrum Center are provided by contract. No in-house government capability exists, nor is it practical to develop one, that can provide the expertise necessary to fulfill the mission and responsibilities of the Joint Spectrum Center. The basic period of the current cost plus award fee contract ends 30 September 1998. The contract has provision for option to renew for an additional two years (1 October 1998 through 30 September 1999 and 1 October 1999 - 30 September 2000). Full and open competition will be used for acquisition of follow-on contract(s). At the appropriate time, a request for sources will be synopsized in the Commerce Business Daily (CBD) for the purpose of identifying potential sources for the Joint Spectrum Center support requirements.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303144F Electromag Compatibility Analysis Ctr |
| | PROJECT<br>649E |

(U) FY 1997 ($ in Thousands):
- (U) $1,975 Spectrum Policy and Spectrum Requirements Analysis support to Office of Assistant Secretary of Defense and Joint Staff
- (U) $1,300 Initiated DoD Standard Spectrum Management Information System (Spectrum XXI)
- (U) $2,943 Continued development of DoD electromagnetic compatibility databases and models and simulations
- (U) $1,077 Initiated DoD Joint Electromagnetic Effects (E3) Ordnance Program
- (U) $7,295 Total

(U) FY 1998 ($ in Thousands):
- (U) $1,845 Spectrum Policy and Spectrum Requirements Analysis support to Office of Assistant Secretary of Defense and Joint Staff
- (U) $2,245 Continue development of DoD Standard Spectrum Management Information System (Spectrum XXI)
- (U) $2,303 Continue development of DoD electromagnetic compatibility (EMC) databases and models and simulations
- (U) $1,195 Continue DoD Joint Electromagnetic Effects (E3) Ordnance Program Development
- (U) $7,588 Total

(U) FY 1999 ($ in Thousands):
- (U) $0 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303144F Electromag Compatibility Analysis Ctr | PROJECT<br>649E |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 7,307 | 7,844 | 7,973 | TBD |
| (U) Appropriated Value | 7,667 | 7,844 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -160 | -256 | | |
| b. SBIR | -200 | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | -12 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -7,973 | |
| (U) Current Budget Submit/FY99 President's Budget | 7,295 | 7,588 | 0 | TBD |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303144F Electromag Compatibility Analysis Ctr |
| | PROJECT<br>649E |

(U) Change Summary Explanation:

Funding: FY99 adjustment due to realignment of Joint Spectrum Center to Defense Information Systems Agency PE 0303153K.

Schedule: N/A

Technical: N/A

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Operations & Maintenance AF BA 1 | 11,245 | 11,940 | | | | | | TBD | TBDt |
| (U) Operations & Maintenance DISA PE0303153K | | | 14,130 | 14.268 | 13,748 | 13,900 | 14,254 | | |
| (U) Research & Development DISA PE 0303153K | | | 8,839 | 8,967 | 9,039 | 9,581 | 9,892 | | |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Decision to Exercise Contract Option | | | | X | | | | | | | | |
| (U) Exercise Contract Option | | | | | | X | | | | X | | |
| (U) Commerce Business Daily Notice for engineering support services for Joint Spectrum Center | | | | | | | | | | | | X |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303144F Electromag Compatibility Analysis Ctr | PROJECT<br>649E |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Contractor Engineering Support | 7,295 | 7,588 | 0 |
| (U) Total | 7,295 | 7,588 | 0 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE: February 1998 |
|---|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0303144F Electromag Compatibility Analysis Ctr | PROJECT: 649E |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| None | | | | | | | | | | |
| Support and Management Organizations | | | | | | | | | | |
| None | | | | | | | | | | |
| Test and Evaluation Organizations | | | | | | | | | | |
| IIT Research Institute, Annapolis MD | C/CPAF/ Allot | 17 May 95 | 17,487 | 17,487 | 3,004 | 7,045 | 7,438 | | | 17,487 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303144F Electromag Compatibility Analysis Ctr

PROJECT: 649E

**Government Furnished Property:**

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Test and Evaluation Property | | | | | | | | | |
| GFP (hardware & software) | C/CPAF | 17May95 | 1Jul95-30Sep98 | | 250 | 150 | 0 | | TBD |
| Subtotal Product Development | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal Support and Management | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal Test and Evaluation | | | | 0 | 250 | 150 | 0 | | |
| Total Project | | | | 3,004 | 7,295 | 7,588 | 0 | | 17,487 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303150F WWMCCS/Global Command and Control System

PROJECT: 4667

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4667 Global Command and Control System - AF | * | * | 13,675 | 13,176 | 15,709 | 16,522 | 14,665 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*Note 1 : Beginning in FY 1999, all funding in Program Element (PE) 0303152F was moved to PE 0303150F and the program title changed from Automated Data Processing Equipment to Global Command and Control System (GCCS). This is an effort to consolidate/centralize accounting for the AF-GCCS program, which is now the operational system of record.

Note 2 : In future exhibits, Deliberate and Crisis Action Planning and Execution Segments (DCAPES) will be submitted as a separate project (4763). For administrative purposes, FY98 & FY99 DCAPES funds will be executed in project 4763.

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

(U) The Global Command and Control System (GCCS) is the designated Command and Control migration system for the DoD. It is an integrated Command, Control, Communications, Computer, and Intelligence (C4I) system capable of supporting all echelons of the US military command structure. GCCS solves C4I interoperability problems between Service components by establishing a Defense Information Infrastructure (DII) Common Operating Environment (COE), as the first step to eliminating stovepipe systems. The AF is responsible for developing four of the modules that will make up this COE, and integration of AF unique applications with the COE. This effort is Budget Activity 7, Operational System Development, because the program develops and implements software for an operational computer network.

(U) **Acquisition Strategy:** Electronics Systems Center (ESC), Hanscom AFB, MA will manage the overall GCCS-AF program (COE and Crisis Action Planning Evolution) development. The COE development is being performed in-house to support AF contributions to the joint service GCCS program and to support AF mission applications that utilize the COE. The Crisis Action Planning Evolution and associated prototype software development will be commercially developed under the current Command and Control Product Line (CCPL) contract at ESC to deliver a Deliberate and Crisis Action Planning and Execution Segments (DCAPES). During FY 98, a contractor will be selected from the pre-qualified CCPL contractors to develop the DCAPES.

(U) FY 1997 (Funding reported in PE 0303152)
- (U) 0 Total

(U) FY 1998 (Funding reported in PE 0303152)
- (U) 0 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303150F WWMCCS/Global Command and Control System |
| | PROJECT<br>4667 |

(U) FY 1999

- (U) 3,875 GCCS Migration Support /COE Development
- (U) 7,180 Crisis Action Planning Evolution
- (U) 2,620 Prototype software development
- (U) 13,675 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 0 | 0 | 0 | TBD |
| (U) Appropriated Value | | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Year since FY 1998 PB | | | +13,675 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 0 | 0 | 13,675 | TBD |

(U) Change Summary Explanation:

Funding: Funding represents the consolidation of PE0303152 to 0303150; FY 97/98 was reported in PE 0303152. In addition to the transfer of $6,650 due to the PE consolidation in FY99, $7,025 was added to the program for development of the Deliberate and Crisis Action Planing and Execution System (DCAPES).

Schedule: The DCAPES schedule is currently being defined.

Technical: GCCS is an evolutionary system. The DII COE requirements continually evolve to solve C4I interoperability problems and to support the efficient migration/integration of C4I applications at all levels of command.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303150F WWMCCS/Global Command and Control System

PROJECT: 4667

(U) C. Other Program Funding Summary in PE 33152F ($ in Thousands)

| | FY1997 | FY1998 | FY1999 | FY2000 | FY2001 | FY 2002 | FY 2003 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| BA-7, P-50 | | | | | | | | | |
| (U) Other Procurement, Air Force | * | * | 5,819 | 5,806 | 5,783 | 5,851 | 5,871 | Continuing | TBD |
| (U) Operations and Maintenance, Air Force | * | * | 62,731 | 64,468 | 63,024 | 64,524 | 67,952 | Continuing | TBD |
| Reported as part of PE 0303152 | | | | | | | | | |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| 1.) (U) Common Operating Environment (COE) Development* | | | | | | | | | | | | |
| • Multi-Media | | | | | | | | | | X | | X |
| • Distributed Computing Services | | | | | | | | | | X | | X |
| • Office Automation | | | | | | | | | | X | | X |
| • Management Services | | | | | | | | | | X | | X |
| 2.) (U) Crisis Action Planning Enhancement | | | | | | | | | | | X | |

(U) * Note: The COE development is incremental with scheduled releases based on the Defense Information Systems Agency (DISA) DII COE schedule.

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303150F WWMCCS/Global Command and Control System

PROJECT: 4667

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Common Operating Environment (COE) Development | | | 3,875 |
| (U) Crisis Action Planning Evolution | | | 7,180 |
| (U) Prototype software development | | | 2,620 |
| (U) Total | 0* | 0* | 13,675 |

* In PE 0303152

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

**Performing Organizations:**

Product Development Organizations

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | FY 1997 | FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| (U) Rome Lab | FFP/FCA | Jun 95 | N/A | N/A | 0 | 0 | 0 | 0 | TBD | TBD |
| (U) Material Systems Group | various | various | N/A | N/A | 0 | 0 | 0 | 0 | TBD | TBD |
| (U) Electronic Systems Center | various | various | N/A | N/A | * | * | * | 9,275 | TBD | TBD |
| | | | | | 0 | | | | | |
| Support and Management Organizations | | | | | | | | | | |
| (U) TEMS | OT&M | Jun 95 | N/A | N/A | * | 0 | 0 | 1,800 | TBD | TBD |
| (U) MITRE | OT&M | Jun 95 | N/A | N/A | * | 0 | 0 | 2,600 | TBD | TBD |

Test and Evaluation Organizations

(U) Not Applicable

**Government Furnished Property:** None

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303150F WWMCCS/Global Command and Control System

PROJECT: 4667

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Subtotal Product Development | | | | * | * | * | 13,675 | TBD | TBD |
| Subtotal Support and Management | | | | * | 0 | 0 | 0 | TBD | TBD |
| Subtotal Test & Evaluation | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | | | | * | 0 | 0 | 13,675 | TBD | TBD |

* Reported in PE 0303152

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303152F Automated Data Processing Equipment

PROJECT: 4485

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4485 AF-GCCS | 7,277 | 6,741 | * | * | * | * | * | * | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*Note: Beginning in FY 1999, all funding in Program Element (PE) 0303152F was transferred to PE 0303150F and the program title changed from Automated Data Processing Equipment to Global Command and Control System (GCCS). This is an effort to consolidate/centralize accounting for the AF-GCCS program, which is now the operational system of record. Total cost for this PE has been transferred to PE 0303150F and will be included in that amount.

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

(U) The Global Command and Control System (GCCS) is the designated Command and Control migration system for the DoD. It is an integrated Command, Control, Communications, Computer, and Intelligence (C4I) system capable of supporting all echelons of the US military command structure. GCCS solves C4I interoperability problems between Service components by establishing a Defense Information Infrastructure (DII) Common Operating Environment (COE), as the first step to eliminating stovepipe systems. The AF is responsible for developing four of the modules that will make up this COE, and integration of AF unique applications with the COE. This effort is Budget Activity 7, Operational System Development, because the program develops and implements software for an operational computer network.

(U) **Acquisition Strategy:** Electronics Systems Center (ESC), Hanscom AFB, MA will manage the overall GCCS-AF program (COE and Crisis Action Planning Evolution) development. The COE development is being performed in-house to support AF contributions to the joint service GCCS program and to support AF mission applications that utilize the COE. The Crisis Action Planning Evolution and associated prototype software development will be commercially developed under the current Command and Control Product Line (CCPL) contract at ESC to deliver a Deliberate and Crisis Action Planning and Execution Segments (DCAPES). During FY 98, a contractor will be selected from the pre-qualified CCPL contractors to develop the DCAPES.

(U) FY 1997
- (U) 4,605 COE Development
- (U) 1,872 Crisis Action Planning Evolution
- (U) 800 Enhanced the Operational Tasking and Priority System (OT&P) to support user identified Functional Process Improvements
- (U) 7,277 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303152F Automated Data Processing Equipment |
| | PROJECT<br>4485 |

(U) FY 1998

- (U) 3,046 COE Development
- (U) 2,592 Crisis Action Planning Evolution
- (U) 1,103 GCCS Migration Support
- (U) 6,741 Total

(U) FY 1999 (Funding reported in PE 0303150)

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 7,299 | 6,820 | 6,650 | TBD |
| (U) Appropriated Value | 7,481 | 7,820 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -157 | -910 | | |
| b. SBIR | -25 | -169 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | -10 | | | |
| e. Rescissions | -12 | | | |
| (U) Adjustments to Budget Year since FY 1998 PB | | | -6,650 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 7,277 | 6,741 | 0 | TBD |

(U) Change Summary Explanation:

Funding: FY 99 funds transferred to PE 0303150 due to PE consolidation.
Schedule: No change
Technical: GCCS is an evolutionary system. The DII COE requirements continually evolve to solve C4I interoperability problems and to support the efficient migration/integration of C4I applications at all levels of command.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303152F Automated Data Processing Equipment |
| | PROJECT<br>4485 |

(U) C. Other Program Funding Summary in PE 33152F ($ in Thousands)

| | FY1997 | FY1998 | FY1999 | FY2000 | FY2001 | FY 2002 | FY 2003 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| BA-7, P-50 | | | | | | | | | |
| (U) Other Procurement, Air Force | 9,830 | 7,079 | * | * | * | * | * | * | TBD |
| (U) Operations and Maintenance, Air Force | 14,364 | 10 | * | * | * | * | * | * | TBD |

* Reported as part of PE 0303150

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| 1.) (U) Common Operating Environment (COE) Development* | | | | | | | | | | | | |
| • Multi-Media | | | | X | | X | | X | | | | |
| • Distributed Computing Services | | | | X | | X | | X | | | | |
| • Office Automation | | | | X | | X | | X | | | | |
| • Management Services | | | | X | | X | | X | | | | |
| 2.) (U) Crisis Action Planning Enhancement | | | | X | | | | X | | | | |

(U) * Note: The COE development is incremental with scheduled releases based on the Defense Information Systems Agency (DISA) DII COE schedule, FY 99 schedule reported as part of PE 0303150.

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303152F Automated Data Processing Equipment

PROJECT: 4485

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Common Operating Environment (COE) Development | 4,492 | 3,046 | |
| (U) Crisis Action Planning Evolution | 1,872 | 2,592 | |
| (U) Operational Testing and Planning (OT&P) Enhancement | 913 | | |
| (U) GCCS Migration Support | | 1,103 | |
| (U) Total | 7,277 | 6,741 | 0* |

*Funding moved to PE 0303150F

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

**Performing Organizations:**

Product Development Organizations

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | FY 1997 | FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| (U) Rome Lab | FFP/FCA | Jun 95 | N/A | N/A | 250 | 0 | 0 | 0 | | 250 |
| (U) Material Systems Group | various | various | N/A | N/A | 1,400 | 0 | 0 | 0 | | 1,400 |
| (U) Miscellaneous | various | various | N/A | N/A | 85 | 0 | 0 | 0 | | 85 |
| (U) Electronic Systems Center | various | various | N/A | N/A | 0 | 2,177 | 2,941 | * | | *13,972 |

Support and Management Organizations

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| (U) TEMS | OT&M | Jun 95 | N/A | N/A | 150 | 1,500 | 1,200 | 0 | | 2,850 |
| (U) MITRE | OT&M | Jun 95 | N/A | N/A | 0 | 3,600 | 2,600 | 0 | | 6,200 |
| (U) Miscellaneous | various | various | N/A | N/A | 15 | | 0 | 0 | | 15 |

Test and Evaluation Organizations

(U) Not Applicable

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303152F Automated Data Processing Equipment<br>PROJECT 4485 |

**Government Furnished Property:** None

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | FY 1997 | FY 1998 | Budget* FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| N/A | | | | | | | | | |
| Subtotal Product Development | | | | 1,735 | 7,277 | 6,741 | 0 | 0 | 15,707 |
| SubtotalSupport and Management | | | | 165 | | 0 | 0 | 0 | 165 |
| Subtotal T&E | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| (U) Total | | | | 1,900 | 7,277 | 6,741 | 0 | 0 | 15,872 |

* Reported in PE 0303150
Total progarm costs reflect only those costs included in this PE through FY98

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303601F MILSTAR Satellite Comm Sys (Space)

PROJECT: 2487

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2487 MILSTAR (AF Terminals) | 21,752 | 11,450 | 2,352 | 15,736 | 30,140 | 2,410 | 403 | 800 | 1,937,934 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Note: FY96 funding was for Milstar EHF terminals only. Funding includes Milstar EHF terminals, SHF terminals and UHF SATCOM from FY97 and beyond. UHF SATCOM FY96 and prior year funding is in PE 0303606F (UHF SATCOM). SHF terminals prior year funding is in PE 0303605F. All programs prior year funding is included in total program cost.

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

Military Satellite Communications (MILSATCOM) provides worldwide communications to strategic and tactical warfighters. The MILSATCOM Terminals Program contains efforts to develop equipment for Air Force users to communicate over military satellites, including Milstar, Ultra High Frequency (UHF) satellites, and Defense Satellite Communication System (DSCS). Global Broadcast Service (GBS) is a joint program to implement a world-wide, high-capacity satellite broadcast information system that will provide a continuous, high speed, one-way flow of high volume classified and unclassified data, imagery and other information to forces in garrison, deployed, or on the move. Milstar ground and airborne Command Post Terminals (CPT) enhancements, which were procured in FY93 through two contractors, are continuing. The Air Force's Milstar tactical terminals, the Single Channel Anti-Jam Manportable (SCAMP) and the Secure, Mobile, Anti-Jam, Reliable, Tactical Terminal (SMART-T), are funded by the Air Force and procured by the Army. Increasing requirements for UHF satellite capacity, coupled with limited channel capacity, led the Joint Staff to mandate new standards for UHF users that are designed to improve satellite access and efficiency by utilizing Demand Assigned Multiple Access (DAMA) techniques. Development efforts in the UHF SATCOM program are primarily focused on the Network Control System (NCS) and ground and airborne DAMA terminals design and implementation. DSCS terminal procurement efforts sustain and modernize the Ground Mobile Forces terminal and the Jam-Resistant Secure Communications (JRSC) subnet of DSCS. This effort is funded in Budget Activity 7 Operational System Development because it has completed a Milestone III review and is in production.

(U) **Acquisition Strategy:**

All eighty-one Milstar Command Post terminals have been procured with investment funds. Software enhancements, testing, EDM repair, program, and technical support are continuing. These efforts will be modifications to existing contracts.

(U) FY 1997

- (U) $4,233 Continued MILSATCOM Terminals program support activities
- (U) $13,671 Developed CPT upgrades and modifications
- (U) $506 Continued UHF and AFSATCOM terminal modifications
- (U) $755 Continued Milstar testing activities
- (U) $2,587 Completed Network Control System enhancements and conducted worldwide system test
- (U) $21,752 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303601F MILSTAR Satellite Comm Sys (Space) |
| | PROJECT<br>2487 |

(U) FY 1998 ($ in Thousands):

- (U) $3,324 Continue basic activities to support MILSATCOM terminals
- (U) $6,172 Develop CPT upgrades and processor modifications
- (U) $1,354 Continue Milstar testing activities
- (U) $600 Network Control System Milstandard upgrade
- (U) $11,450 Total

(U) FY 1999 ($ in Thousands):

- (U) $1,470 Continue MILSATCOM terminals support activities
- (U) $882 Develop CPT upgrades and processor modifications
- (U) $2,352 Total

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Previous President's Budget (FY1998) | 19,289 | 12,871 | 8,799 |
| (U) Appropriated Value | 20,348 | 12,871 | |
| (U) Adjustments to Appropriated Value | | | |
| a. Congressional General Reductions | -904 | -1,421 | |
| b. SBIR | -155 | | |
| c. Omnibus and Other Above Threshold Reprogram | | | |
| d. Below Threshold Reprogramming | +2,495 | | |
| e. Rescissions | -32 | | |
| (U) Adjustments to Budget Years Since FY1998 PB | | | -6,447 |
| (U) Current Budget Submit/FY1999 President's Budget | 21,752 | 11,450 | 2,352 |

(U) Change Summary Explanation:

Funding: FY99 adjustment funded higher priority AF and DoD requirements and inflation reductions.
Schedule: Not Applicable.
Technical: Not Applicable

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303601F MILSTAR Satellite Comm Sys (Space) |
| | PROJECT<br>2487 |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Aircraft Procurement, Air Force, P-58 | 21,111 | 15,009 | 10,364 | 25,505 | 35,243 | 81,536 | 101,450 | Cont | Cont |
| (U) Other Procurement, Air Force, P-70 | 58,356 | 18,087 | 28,233 | 44,541 | 32,187 | 28,174 | 21,455 | Cont | Cont |

Procurement funding does not include spares.

**Related RDT&E:** PE 64479F Milstar LDR/MDR Satellite Communications
PE 33110F Defense Satellite Communications System (DSCS)
PE 63854F Global Broadcast Service

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) CPT Upgrades Delivery and Production | | | | | | | | | | | | x |
| (U) CPT IOT&E Phase II | | | x | | | | | | | | | |
| (U) CPT IOC I | | | x | | | | | | | | | |
| (U) SCAMP Deliveries Begin | | | | | | | | | x | | | |
| (U) SMART-T Low-Rate Initial Production Begins | | x | | | | | | | | | | |
| (U) UHF Network Control System | | | | | | | | | | | | |
| (U) Deliveries | | x | x | | | | | | | | | |
| (U) Worldwide System Test | | | x | | | | | | | | | |
| (U) Airborne DAMA Terminal Upgrade | | | | | | | | | | | | |
| (U) Contract Award/Option | | | | | | x | | | | x | | |
| (U) Deliveries | | x | x | x | | | x | x | x | x | x | x |
| (U) Ground DAMA Terminal Deliveries | | | x | x | x | x | x | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0303601F MILSTAR Satellite Comm Sys (Space)

PROJECT: 2487

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) CPT Upgrades | 13,671 | 6,172 | 882 |
| (U) UHF Upgrades | 506 | | |
| (U) Testing Support/Studies | 755 | 1,354 | |
| (U) SPO Ops (PSA, TDY, Trng, Sup/Equip, Ktr Spt/Conv) | 4,233 | 3,324 | 1,470 |
| (U) Network Control System World Wide system test | 2,587 | 600 | |
| (U) Total | 21,752* | 11,450 | 2,352 |

* Does not reflect BTR of -$700,000.

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Raytheon Corp | FPIF/FFP | Jun 85 | 891,382 | 891,382 | 870,453 | 9,504 | 2,965 | 882 | 7,578 | 891,382 |
| Rockwell | CPIF | Aug 93 | 43,068 | 43,068 | 43,068 | 0 | 0 | 0 | 0 | 43,068 |
| Miscellaneous | Various | Various | N/A | N/A | 649,764 | 2,340 | 221 | 0 | 29,114 | 681,439 |
| ViaSat | C/FFP | Oct 95 | 3,087 | 3,087 | 0 | 2,587 | 500 | 0 | 0 | 3,087 |
| Support and Management Organizations | | | | | | | | | | |
| MITRE | CPAF | Various | N/A | N/A | 92,958 | 3,402 | 3,700 | 672 | 4,649 | 105,381 |
| SPT Contractors | Various | Various | N/A | N/A | 151,985 | 2,181 | 1,396 | 378 | 2,110 | 158,050 |
| Tecolote | Various | Various | N/A | N/A | 1,380 | 0 | 586 | 0 | 0 | 1,966 |
| Miscellaneous | Various | Various | N/A | N/A | 17,850 | 1,178 | 728 | 420 | 2,617 | 22,793 |
| Test and Evaluation Organizations | | | | | | | | | | |
| Wright-Labs | AF-616* | N/A | N/A | N/A | 20,091 | 522 | 1,354 | 0 | 3,418 | 25,385 |
| Miscellaneous | Various | Various | N/A | N/A | 5,345 | 38 | 0 | 0 | 0 | 5,383 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0303601F MILSTAR Satellite Comm Sys (Space) | PROJECT<br>2487 |

Government Furnished Property: N/A

Product Development Property N/A

Support and Management Property N/A

Test and Evaluation Property N/A

| | | | | | | |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 1,563,285 | 14,431 | 3,686 | 882 | 36,692 | 1,618,976 |
| Subtotal Support and Management | 264,173 | 6,761 | 6,410 | 1,470 | 9,376 | 288,190 |
| Subtotal Test and Evaluation | 25,436 | 560 | 1,354 | 0 | 3,418 | 30,768 |
| Total Project | 1,852,894 | 21,752 | 11,450 | 2,352 | 49,486 | 1,937,934 |

* An AF-616 is an internal transfer of funds between AF organizations.

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305099F Global Air Traffic Management (GATM)

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 0 | 0 | 27,056 | 18,155 | 10,695 | 9,776 | 7,806 | TBD | TBD |
| 4689 Global Access Architecture | 0 | 0 | 24,899 | 6,637 | 8,750 | 9,776 | 7,806 | TBD | TBD |
| 4690 VHF Integration | 0 | 0 | 2,157 | 11,518 | 1,945 | 0 | 0 | 0 | 15,620 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 1* | 0 | 0 | 0 | 0 | 1* |

* Mod kit not separately priced.

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

4689: Global Air Traffic Management: This effort supports global air traffic operations through the development and acquisition of aviation equipment that will meet the DoD mission and comply with appropriate civil standards. This project will ensure interoperability between multiple platforms and air traffic control functions within the DoD and Federal Aviation Administration (FAA). Common system engineering support, architecture analyses and evaluations will address the requirements of the special operations fleet, fighters, uninhabited air vehicles, common flight management systems, and special mission aircraft. The Global Air Traffic Operations / Mobility Command and Control (GATO/MC2) System Program Office (SPO) will assist the Major Commands (MAJCOMs) in the development of operational architectures to meet evolving GATM requirements. The SPO will develop and maintain an acquisition master plan addressing performance, schedule, and cost of various aircraft and C2 programs. In addition, this project will formulate a product catalog providing MAJCOMs and SPOs a readily available source of certifiable common GATM systems to allow a rapid acquisition of the necessary equipment and logistics support. This project supports the definition of requirements for ACAT III projects across multiple weapon systems. Funding was sharply increased in FY99 in recognition of need to perform architectural analyses. This endeavor consists of low technical risk system engineering efforts supporting fielded weapon systems, utilizing Commercial Off-The-Shelf (COTS) and Non-Developmental Items (NDI), and is assigned to Budget Activity 7, Operational Systems Development.

4690: VHF Integration: Program integrates VHF communication and navigation equipment onto the MC-130H Combat Talon II aircraft to comply with changing airspace access criteria. Project investigates cost-effective solutions such as integration of Multi Mode receiver (MMR) and modification of the Very High Frequency (VHF) military radio to add 8.33 kHz channel spacing capability. The MMR may incorporate a Microwave Landing System (MLS), Protected Instrument Landing System and Differential Global Positioning System. These modifications would enable the MC-130H and other Air Force Special Operations Command (AFSOC) aircraft to comply with changing International Civil Aviation Organization (ICAO) airspace access criteria. Effort includes engineering design work, mod kit design, and kit proofing. The MC-130H and other Special Operations Forces (SOF) aircraft have software that is highly unique and specialized. Modification of the software will involve changing the code, testing the changes, and updating software documentation and maintenance technical orders. This program will develop mission essential capability for fielded weapon systems and is assigned Budget Activity 7, Operational Systems Development.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305099F Global Air Traffic Management (GATM) |

(U) **Acquisition Strategy:**

4689: The GATM Global Access Architecture acquisition strategy enables the GATO/MC2 SPO to guide equipment acquisition supporting global air traffic operations. The SPO will ensure standardization and certification of USAF platforms/systems that operate in the national and global air traffic environments. The SPO will also provide technical expertise and interface with appropriate product/support centers, battle labs, and Department of Defense (DOD) research and development facilities in the execution of assigned tasks. Program Research and Development Agreements (PRDAs), Cooperative Research and Development Agreements (CRDAs), and Indefinite Delivery/Indefinite Quantity (ID/IQ) contracts will be competitively awarded.

4690: The integration acquisition strategy for AFSOC communication/navigation modifications enables the GATO/MC2 SPO to use existing contracts, when possible, to assist in the technical design and integration. The modifications will be accomplished under the SOF Integrated Weapons System Support Program (IWSSP) contract.

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998) | 0 | 0 | 0 | 0 |
| (U) Appropriated Value | | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY1998 PB | | | 27,056 | TBD |
| (U) Current Budget Submit/1999 President's Budget | 0 | 0 | 27,056 | TBD |

(U) Change Summary Explanation:

Funding: FY97 reprogramming was approved by Congress and is not reflected in these numbers. It includes a $3,036K increase to support the development of a common architecture for Communication, Navigation, Surveillance / Air Traffic Management (CNS/ATM) requirements. Common system engineering support included $27,056K in FY99. Such a large investment in one year attempts to accomplish architectural analyses for multiple platforms, providing data in the following years when it is needed the most. FY 99 New Start Program

Schedule: N/A

Technical: N/A

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305099F Global Air Traffic Management (GATM) |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Aircraft Procurement, AF, BA-7, C-5 Mods, Avionics Modernization Program, PE 0401119F | | | | 107,761 | 59,942 | 127,779 | 111,260 | 189,353 | 596,095 |
| (U) RDT&E, AF, BA-7, Avionics Modernization Program, PE 0401119F, C-5 Airlift Squadrons | | 9,751 | 48,904 | | | | | | 58,655 |
| (U) Aircraft Procurement, AF, BA-7, AFSOC VHF Integration, PE 0404011F | | | | | 3,028 | 2,147 | 1,086 | | 6,261 |
| (U) Aircraft Procurement, AF, BA-7, VC-25, PE 0401314F | | | 5,447 | 9,000 | | 1,000 | 1,000 | | 16,447 |
| (U) Aircraft Procurement, AF, BA-7, KC-135, PE 0401218F | | | 78,000 | 137,000 | 168,000 | 166,000 | 209,000 | | 758,000 |
| (U) Aircraft Procurement, AF, BA-7, KC-10, PE 040219F | | | 19,847 | 25,896 | 27,091 | 32,470 | 18,300 | | 123,604 |
| (U) Aircraft Procurement, AF, BA-7, E-3, PE 0207417F | | | 3,000 | | | | | TBD | TBD |
| (U) Aircraft Procurement, AF, BA-7, E-4, PE 0302015F | | | 7,000 | | | | | TBD | TBD |
| (U) Aircraft Procurement, AF, BA-7, C-21, PE 0401314F | | | 43,300 | 34,120 | 35,160 | | | TBD | TBD |
| (U) Aircraft Procurement, AF, BA-7, Other, GATO/MC2 SPO, PE 0305099F | | 1,800 | | | | | | | 1,800 |
| (U) Aircraft Procurement, AF, BA-7, C-32, PE 0401314F | | | | | 8,700 | 6,000 | | | 14,700 |
| (U) Aircraft Procurement, AF, BA-7, C-9, PE 0401314F | | | 3,910 | 20,050 | 14,350 | 23,900 | 13,130 | 110 | 75,450 |
| (U) Aircraft Procurement, AF, BA-7, C-20, PE 0401314F | | | 3,340 | 25,350 | 50 | 7,600 | 10,200 | | 46,540 |
| (U) Aircraft Procurement, AF, BA-7, C-141, PE 0401119F | | | 18,200 | 1,800 | | | | | 20,000 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305099F Global Air Traffic Management (GATM) |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) GATM (See individual R-2 exhibits for schedule profiles) | | | | | | | | | | | | |
| (U) VHF Integration (See individual R-2 exhibits for schedule profiles) | | | | | | | | | | | | |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305099F Global Air Traffic Management (GATM)

PROJECT: 4689

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4689 Global Access Architecture | 0 | 0 | 24,899 | 6,637 | 8,750 | 9,776 | 7,806 | TBD | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

4689: Global Air Traffic Management: This effort supports global air traffic operations through the development and acquisition of aviation equipment that will meet the DoD mission and comply with appropriate civil standards. This project will ensure interoperability between multiple platforms and air traffic control functions within the DoD and Federal Aviation Administration (FAA). Common system engineering support, architecture analyses and evaluations will address the requirements of the special operations fleet, fighters, uninhabited air vehicles, common flight management systems, and special mission aircraft. The Global Air Traffic Operations / Mobility Command and Control (GATO/MC2) System Program Office (SPO) will assist the Major Commands (MAJCOMs) in the development of operational architectures to meet evolving GATM requirements. The SPO will develop and maintain an acquisition master plan addressing performance, schedule, and cost of various aircraft and C2 programs. In addition, this project will formulate a product catalog providing MAJCOMs and SPOs a readily available source of certifiable common GATM systems to allow a rapid acquisition of the necessary equipment and logistics support. This project supports the definition of requirements for ACAT III projects across multiple weapon systems. Funding was sharply increased in FY99 in recognition of need to perform architectural analyses. This endeavor consists of low technical risk system engineering efforts supporting fielded weapon systems, utilizing Commercial Off-The-Shelf (COTS) and Non-Developmental Items (NDI), and is assigned to Budget Activity 7, Operational Systems Development.

(U) FY 1997 ($ in Thousands):
- (U) $ 0 Total

(U) FY 1998 ($ in Thousands):
- (U) $ 0 Total

(U) FY 1999 ($ in Thousands):
- (U) $ 4,698 Continue system architecture analyses and evaluations for the various platforms
- (U) $ 9,357 Begin development of common system architectures
- (U) $ 8,625 Initiate miniaturization and modular system prototype developments
- (U) $ 2,219 Begin GPS/NAVWAR integration evaluations
- (U) $24,899 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE |
|---|---|
| | February 1998 |
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305099F Global Air Traffic Management (GATM) |
| | PROJECT<br>4689 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998) | 0 | 0 | 0 | 0 |
| (U) Appropriated Value | | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY1998 PB | | | 24,899 | TBD |
| (U) Current Budget Submit/1999 President's Budget | 0 | 0 | 24,899 | TBD |

(U) Change Summary Explanation:

Funding: FY97 reprogramming was approved by Congress and is not reflected in these numbers. It includes a $3,036K increase to support the development of a common architecture for Communication, Navigation, Surveillance / Air Traffic Management (CNS/ATM) requirements. Common system engineering support included $27,056K in FY99. Such a large investment in one year attempts to accomplish architectural analyses for multiple platforms, providing data in the following years when it is needed the most. FY99 New Start Program

Schedule: N/A

Technical: N/A

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305099F Global Air Traffic Management (GATM) |
| | PROJECT<br>4689 |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Aircraft Procurement, AF, BA-7, C-5 Mods, Avionics Modernization Program, PE 0401119F | | | | 107,761 | 59,942 | 127,779 | 111,260 | 189,353 | 596,095 |
| (U) RDT&E, AF, BA-7, Avionics Modernization Program, PE 0401119F, C-5 Airlift Squadrons | | 9,751 | 48,904 | | | | | | 58,655 |
| (U) Aircraft Procurement, AF, BA-7, AFSOC VHF Integration, PE 0404011F | | | | | 3,028 | 2,147 | 1,086 | | 6,261 |
| (U) Aircraft Procurement, AF, BA-7, VC-25, PE 0401314F | | | 5,447 | 9,000 | | 1,000 | 1,000 | | 16,447 |
| (U) Aircraft Procurement, AF, BA-7, KC-135, PE 0401218F | | | 78,000 | 137,000 | 168,000 | 166,000 | 209,000 | | 758,000 |
| (U) Aircraft Procurement, AF, BA-7, KC-10, PE 040219F | | | 19,847 | 25,896 | 27,091 | 32,470 | 18,300 | | 123,604 |
| (U) Aircraft Procurement, AF, BA-7, E-3, PE 0207417F | | | 3,000 | | | | | TBD | TBD |
| (U) Aircraft Procurement, AF, BA-7, E-4, PE 0302015F | | | 7,000 | | | | | TBD | TBD |
| (U) Aircraft Procurement, AF, BA-7, C-21, PE 0401314F | | | 43,300 | | | | | | |
| (U) Aircraft Procurement, AF, BA-7, Other, GATO/MC2 SPO, 0305099F | | 1,800 | | | | | | | 1,800 |
| (U) Aircraft Procurement, AF, BA-7, C-32, PE 0401314F | | | | | 8,700 | 6,000 | | | 14,700 |
| (U) Aircraft Procurement, AF, BA-7, C-9, PE 0401314F | | | 3,910 | 20,050 | 14,350 | 23,900 | 13,130 | 110 | 75,450 |
| (U) Aircraft Procurement, AF, BA-7, C-20, PE 0401314F | | | 3,340 | 25,350 | 50 | 7,600 | 10,200 | | 46,540 |
| (U) Aircraft Procurement, AF, BA-7, C-141, PE 0401119F | | | 18,200 | 1,800 | | | | | 20,000 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305099F Global Air Traffic Management (GATM) |
| | PROJECT<br>4689 |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Development of Common System Architectures | | | | | | | | | | X | | |
| (U) Miniaturization and Modular System Prototype Development | | | | | | | | | | X | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305099F Global Air Traffic Management (GATM)

PROJECT: 4689

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Prototypes/System Developments | | | 8,625 |
| (U) Common System Architecture Analyses | | | 2,483 |
| (U) Common System Architecture Development | | | 9,357 |
| (U) Systems Engineering/Technical Support | | | 1,918 |
| (U) GPS/NAVWAR Integration Evaluations | | | 2,219 |
| (U) Program Management Support | | | 240 |
| (U) Travel | | | 57 |
| (U) Total | 0 | 0 | 24,899 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations: Not applicable | | | | | | | | | | |
| Support and Management Organizations | | | | | | | | | | |
| ESC | TBD | | | | | | | 24,899 | TBD | TBD |
| Test and Evaluation Organizations | | | | | | | | | | |
| TBD | TBD | | | | | | | TBD | TBD | TBD |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305099F Global Air Traffic Management (GATM) |
| | PROJECT<br>4689 |

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

**Government Furnished Property:** None

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Product Development | | | | | | | | 24,899 | TBD | TBD |
| Subtotal Support and Management | | | | | | | | TBD | TBD | TBD |
| Subtotal Test and Evaluation | | | | | | | | | | |
| Total Project | | | | | 0 | 0 | 0 | 24,899 | TBD | TBD |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305099F Global Air Traffic Management (GATM)

PROJECT: 4690

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4690 VHF Integration | 0 | 0 | 2,157 | 11,518 | 1,945 | 0 | 0 | 0 | 15,620 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 1* | 0 | 0 | 0 | 0 | 1* |

* Mod kit not separately priced.

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

4690: VHF Integration: Program integrates VHF communication and navigation equipment onto the MC-130H Combat Talon II aircraft to comply with changing airspace access criteria. Project investigates cost-effective solutions such as integration of Multi Mode Receiver (MMR) and modification of the Very High Frequency (VHF) military radio to add 8.33 kHz channel spacing capability. The MMR may incorporate a Microwave Landing System (MLS), Protected Instrument Landing System and Differential Global Positioning System. These modifications would enable the MC-130H and other AFSOC aircraft to comply with changing International Civil Aviation Organization (ICAO) airspace access criteria. Effort includes engineering design work, mod kit design, and kit proofing. The MC-130H and other Special Operations Forces (SOF) aircraft have software that is highly unique and specialized. Modification of the software will involve changing the code, testing the changes, and updating software documentation and maintenance technical orders. This program will develop mission essential capability for fielded weapon systems and is assigned Budget Activity 7, Operational Systems Development.

(U) FY 1997 ($ in Thousands):
- (U) $ 0 Total

(U) FY 1998 ($ in Thousands):
- (U) $ 0 Total

(U) FY 1999 ($ in Thousands):
- (U) 1,157 Systems engineering
- (U) 700 Software engineering
- (U) 300 Management and Support
- (U) $ 2,157 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305099F Global Air Traffic Management (GATM) |
| | PROJECT<br>4690 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998) | 0 | 0 | 0 | 0 |
| (U) Appropriated Value | | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY1998 PB | | | 2,157 | |
| (U) Current Budget Submit/1999 President's Budget | 0 | 0 | 2,157 | 15,620 |

(U) Change Summary Explanation:

Funding: FY 99 New Start Program

Schedule: N/A

Technical: N/A

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305099F Global Air Traffic Management (GATM) |
| | PROJECT<br>4690 |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Aircraft Procurement, AF, Special Operations Forces, PE 0404011F | | | | | 3,028 | 2,147 | 1,086 | 0 | 6,261 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Contract Award | | | | | | | | | X | | | |
| (U) PDR | | | | | | | | | | | X | |
| (U) CDR | | | | | | | | | | | | X |
| (U) First Article Testing (2Q/00) | | | | | | | | | | | | |
| (U) Begin Kit Production (3Q/00) | | | | | | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305099F Global Air Traffic Management (GATM)

PROJECT: 4690

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Software engineering | | | 700 |
| (U) System engineering | | | 1,157 |
| (U) Management and Support | | | 300 |
| (U) Total | 0 | 0 | 2,157 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| IWSSP Contractor | TBD | Dec 98 | | 6,807 | 0 | 0 | 0 | 1,857 | 11,763 | 13,620 |
| Support and Management Organizations | | | | | | | | | | |
| WR-ALC/LU | TBD | | | | | | | 100 | 800 | 900 |
| ASC/LU | TBD | | | | | | | 200 | 900 | 1,100 |
| Test and Evaluation Organizations | | | | | | | | | | |
| TBD | | | | | | | | TBD | TBD | TBD |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305099F Global Air Traffic Management (GATM) |
| | PROJECT<br>4690 |

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

**Government Furnished Property:** Government will provide VHF radios and Multi Mode Receivers to the contractor.

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| TBD | | | | | | | | | TBD |
| Support and Management Property | | | | | | | | | |
| TBD | | | | | | | | | TBD |
| Test and Evaluation Property | | | | | | | | | |
| TBD | | | | | | | | | TBD |
| Subtotal Product Development | | | | | | | 1,857 | 11,763 | 13,620 |
| Subtotal Support and Management | | | | | | | 300 | 1,700 | 2,000 |
| Subtotal Test and Evaluation | | | | | | | TBD | TBD | TBD |
| Total Project | | | | 0 | 0 | 0 | 2,157 | 13,463 | 15,620 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305110F Satellite Control Network (Space)

PROJECT: 3276

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3276 Satellite Control Network | 67,804 | 73,496 | 56,622 | 100,645 | 101,383 | 98,404 | 94,640 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) A. Mission Description and Budget Item Justification

(U) The Air Force Satellite Control Network (AFSCN) mission is to fly operational USAF and other DoD satellites. The AFSCN also provides launch & early orbit tracking operations in support of all major US launches. Air Force Space Command (AFSPC) performs operations and maintenance and Air Force Materiel Command (AFMC) performs modernization and sustainment of the system to meet requirements validated by a HQ USAF approved Operational Requirements Document (ORD). This effort funds the development and acquisition of this integrated national satellite telemetry, tracking, commanding, and data relay capability to meet the requirements of the growing inventory of operational and developmental DoD, National, Civil, and foreign satellite systems. Improvement and Modernization efforts in command & control, communications, and range elements of the AFSCN will ensure DoD space systems are operationally ready to support the CINCs' warfighting requirements.

(U) The AFSCN consists of four segments: Command & Control, Communications, Range, and Support. The system is a global infrastructure of control centers, remote tracking stations, and communications links that provide the highly reliable command and control, communications, and range systems required to support the nation's surveillance, navigation, communications, and weather satellite operations. The AFSCN is the DoD common user network that provides satellite state-of-health, tracking, telemetry, and commanding (TT&C) for the following operational satellite systems: DMSP, GPS, DSCS, DSP, FLTSAT, MILSTAR, UHF F/O, Skynet, NATO II/IV, and Classified Programs.

(U) AFSCN Improvement and Modernization (I&M): AFSCN I&M is an on-going program of replacements and upgrades which will replace non-standard, unsupportable equipment with more reliable, maintainable and standardized hardware and software. This new equipment will enable AFSPC satellite operations to be performed with fewer, lower skilled personnel and will significantly reduce hardware/software maintenance costs. The principal efforts within this program are: Network Operations Upgrades (Command & Control System Upgrades), Communications Upgrades, and Range Upgrades.

(U) NETWORK OPERATIONS UPGRADES: The current Resource Management System (RMS), which deconflicts and allocates network telemetry, tracking & command assets to support operational space vehicles, will be replaced with an automated, Year 2000-compliant system which includes network resource scheduling and orbit analysis functions to include ephemeris and events generation, radio frequency interference detection and collision avoidance. This evolution offers tremendous potential for reducing satellite control O&M costs through enhanced commonality and standardization, simplified operations, and automation. Commercial off-the-shelf (COTS) hardware and software will be procured for the new Resource Management System. The software portions will be modified to meet AFSPC's operational requirements.

(U) COMMUNICATIONS UPGRADES: This effort will transition the current, costly point-to-point AFSCN communications network to a communications grid system that integrates government and commercial networks as technology becomes available. Several standardization efforts are being implemented to improve and modernize the

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305110F Satellite Control Network (Space) |
| | PROJECT<br>3276 |

communications and ground segment elements of the AFSCN, including: Archival recording systems to replace obsolete, manpower-intensive analog equipment with automated, standardized digital COTS systems; a Centralized Control and Monitor (CC&M) system which will consolidate communications operations, provide remote control of tracking station equipment, and increase fault detection and isolation capabilities to reduce O&M costs; Wide Area Network Interface Units (WANIU) which standardize hardware and reduce O&M costs for performing multiplexing functions in the AFSCN, as well as provide an Asynchronous Transfer Mode (ATM) interface; and Operational Switch Replacement (OSR) to provide increased capacity, reliability, data quality, and user access.

(U) RANGE UPGRADES: This effort will upgrade the current Automated Remote Tracking Station (ARTS) and other Range assets. Several integrated projects will standardize the remote tracking stations, upgrade and/or replace outdated equipment in order to reduce failures, correct operational deficiencies, and reduce operating and sustainment costs.

(U) This effort is in Budget Activity 7, Operational System Development, because it supports a fielded system.

(U) ACQUISITION STRATEGY: The primary objective of the AFSCN I&M program is to reduce the cost of satellite control operations while maintaining or improving reliability, maintainability, operability, and capability of current systems. A combination of performance-based specifications and commercial/industrial specifications and standards was used for these acquisitions and was tailored to state only the Government's minimum performance needs. All development contracts were competitively awarded and utilized commercial practices and streamlining to the maximum extent possible.

The AFSCN utilized multiple development contracts in the past. Starting in FY96, a new streamlined contracting strategy was implemented with the award of three new contracts. The new strategy resulted in the Range & Communications Development Contract (RCDC), the Network Operations Upgrade Contract (NOUC), and the Network Integration Contract (NIC). Integration efforts had previously been spread across functional and contracting lines; but with the new AFSCN contracting strategy, the NIC contractor will be responsible for inter-segment integration. Development upgrades will be designed to be flexible in meeting new satellite program requirements while minimizing sustainment costs by taking advantage of development efforts in satellite control over a large number of government and non-government development activities. It is believed that these objectives can best be reached by developing systems with an open software design and a distributed system architecture using COTS products wherever feasible.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305110F Satellite Control Network (Space) |
| | PROJECT<br>3276 |

(U) FY 1997 ($ in Thousands)

(U) $22,349 **Network Operations Upgrades (Command and Control System Upgrades):**
(U) Continued software development of Resource Scheduling, Basic Orbit Service, and Network Performance capabilities. Began effort to field and sustain an early schedule input and dissemination capability until RMS delivery. Initiated effort to move the primary orbit analysis functions of RMS to Falcon AFB for use by the Inter-Range Operations organization. Continued development of the common HMI and the common satellite control architecture and its underlying requirements base. Initiated effort to standardize satellite operations training for all AFSPC satellite control systems. Continued developing priority user-requested modifications to command and control systems.

(U) $32,266 **Communications Upgrades:**
(U) Continued supporting hardware and software integration of standardized COTS archival recorder units at Remote Tracking Stations (RTS). Continued development of WANIU and began operational testing of prototype in AFSCN. Continued CC&M development. Continued Operational Switch Replacement studies and requirements analysis.

(U) $11,189 **Network Integration and Systems Engineering:**
(U) Continued system engineering and integration of hardware/software to meet evolving satellite program requirements at Operational Control Nodes (OCNs) and RTSs.

(U) $2,000 **Approved Below Threshold Reprogramming**
(U) Funds have been identified to support Combat Survivor Evader Locator (CSEL).

(U) $67,804 **Total**

(U) FY 1998 ($ in Thousands)

(U) $20,423 **Network Operations Upgrades (Command and Control System Upgrades):**
(U) Develop, test, and field Resource Scheduling, Basic Orbit Service, Control and Status, and Network Performance capabilities in primary locations. Begin implementation of additional orbit service capabilities into RMS. Complete common HMI and common satellite control architecture study to finish SSCS effort and make results available to satellite SPOs.

(U) $33,908 **Communications Upgrades:**
(U) Continue supporting hardware and software installation of standardized COTS archival recorder units at RTSs. Continue development, integration, and test of WANIUs into the AFSCN. Complete CC&M development and deliver baseline system. Begin development of Operational Switch Replacement.

(U) $12,167 **Network Integration and Systems Engineering:**
(U) Continue system engineering and integration of hardware/software to meet evolving satellite program requirements at OCNs and RTSs.

(U) $6,998 **Approved Below Threshold Reprogramming:**
Funds have been identified to support Combat Survivor Evader Locator (CSEL) and Global Positioning System (GPS) III modernization.

(U) $73,496 **Total**

(U) FY 1999 ($ in Thousands)

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0305110F Satellite Control Network (Space) / PROJECT: 3276 |

(U) $5,544 **Network Operations Upgrades (Command and Control System Upgrades):**
(U) Begin Resource Scheduling integration and test of orbit service at back-up operational location.

(U) $36,936 **Communications Upgrades:**
(U) Complete Archival Recorder System and CC&M development projects. Continue developing Operational Switch Replacement. Support WANIU installation at RTSs and OCNs.

(U) $3,180 **Range Upgrades:**
(U) Begin development of antenna upgrades. Current 1960's technology antennas are very expensive to maintain. Modern designs are available off-the-shelf to provide increased performance, reduced interference (required by FCC allocation of adjacent frequencies to Commercial users), and multi-frequency alternatives.

(U) $10,962 **Network Integration and Systems Engineering:**
(U) Continue system engineering an integration of hardware/software to meet evolving satellite program requirements at OCNs and RTSs.

(U) $56,622 **Total**

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305110F Satellite Control Network (Space) |
| | PROJECT<br>3276 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 82,640 | 80,011 | 104,061 | Continuing |
| (U) Appropriated Value | 86,960 | 80,011 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | -2,062 | -4513 | | |
| b. SBIR | -2,258 | -2002 | | |
| c. Omnibus and Other Above Threshold Reprogram | -14,000 | | | |
| d. Below Threshold Reprogramming | -700 | | | |
| e. Rescissions | -136 | | | |
| (U) Adjustments to Budget Years since FY 1998 PB | | | -47,439 | |
| (U) Current Budget Submit/1999 President's Budget | 67,804 | 73,496 | 56,622 | Continuing |

(U) Change Summary Explanation ($ in Thousands):
Funding: The following FY97 and FY98 reprogrammings were accomplished after database lock and are not reflected in the amounts above: FY97 -- $2,000 to support CSEL program; FY98 – $6,998 reprogrammed to support CSEL ($1,999) and GPS modernization ($4,999); FY99 adjustments fund higher Air Force and DoD priorities.
Schedule: RC3M start delayed two years to FY00; C&S Processor start delayed two years to FY00
Technical: Development of Standard Satellite Control Subsystem (SSCS), a common core C2 upgrade for satellite control, was restructured and descoped, and will conclude in FY98; descoped antenna upgrades effort in identification and implementation of improved ranging and modulation techniques.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement, AF; Budget Activity: 03; P-65; AFSCN | 7,237 | 22,459 | 26,007 | 23,987 | 32,658 | 40,850 | 41,771 | Continue | Continue |

**Related RDT&E:**
(U) Not Applicable.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305110F Satellite Control Network (Space)

PROJECT: 3276

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| **Communications Upgrades** | | | | | | | | | | | | |
| Archival CDR | | | X | | | | | | | | | |
| RTS archival IOC | | | | | | | | | X | | | |
| CC&M CDR | | | | X | | | | | | | | |
| CC&M IOC | | | | | | | | | X | | | |
| WANIU CDR | | | | | | | X | | | | | |
| OSR CDR | | | | | | | | X | | | | |
| **Network Operations Upgrades** | | | | | | | | | | | | |
| Resource Management CDR | | | | X | | | | | | | | |
| Resource Management IOC | | | | | | | | | | X | | |
| **Range Upgrades** | | | | | | | | | | | | |
| Start antenna upgrades | | | | | | | | | | X | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305110F Satellite Control Network (Space)

PROJECT: 3276

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Network Ops Upgrades (Command and Control Upgrades) | 22,349 | 20,423 | 5,544 |
| (U) Communications Upgrades | 32,266 | 33,908 | 36,936 |
| (U) Range Upgrades | 0 | 0 | 3,180 |
| (U) Network Integration and Systems Engineering | 11,189 | 12,167 | 10,962 |
| (U) Approved Below Threshold Reprogramming | 2,000 | 6,998 | 0 |
| (U) Total | 67,804 | 73,496 | 56,622 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC* | Project Office EAC | Total Prior to FY 1997 | FY 1997 | FY 1998 | FY 1999 | To Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Multiple | Multiple | Multiple | 72,296 | 72,296 | 72,296 | 0 | 0 | 0 | 0 | 72,296 |
| Lockheed Martin | C/CPAF | Mar 96 | 94,004 | 175,140 | | 32,266 | 33,908 | 36,936 | continuing | continuing |
| Lockheed Martin | C/CPAF | Apr 96 | 52,258 | 118,400 | | 22,349 | 20,423 | 5,544 | continuing | continuing |
| Range Upgrades | TBD | TBD | | 205,057 | | 0 | 0 | 3,180 | continuing | continuing |
| Lockheed Martin | C/CPAF | May 96 | 66,700 | 74,050 | | 11,189 | 12,167 | 10,962 | continuing | continuing |

*Only includes projections/options exercised to date

Support and Management Organizations

N/A

Test and Evaluation Organizations

N/A

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305110F Satellite Control Network (Space)

PROJECT: 3276

| Government Furnished Property: N/A | Performing Activity EAC* | Project Office EAC | Total Prior to FY 1997 | FY 1997 | FY 1998 | FY 1999 | To Complete | Total Program |
|---|---|---|---|---|---|---|---|---|
| Subtotal Product Development | 285,258 | 644,943 | 72,296 | 65,804 | 66,498 | 56,622 | continuing | continuing |
| Subtotal Support and Management | | | | | | | | |
| Subtotal Test and Evaluation | | | | | | | | |
| Subtotal Reprogramming | | | | 2,000 | 6,998 | | | |
| Total Project | 285,258 | 644,943 | 72,296 | 67,804 | 73,496 | 56,622 | continuing | continuing |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305111F Weather Service

PROJECT: 2738

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2738 Weather Service | 4,801 | 8,411 | 10,649 | 13,634 | 11,670 | 11,824 | 12,045 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

(U) This program provides for the modification, sustainment, and acquisition of meteorological hardware and software needed to support the observing and forecasting needs of worldwide Air Force and Army operations, as well as Special Operation Forces (SOF) and other government agency support. Efforts include: (a) Cloud Depiction and Forecast System II (CDFS II), replaces logistically unsupportable mainframe computers at the Air Force Weather Agency (AFWA), Offutt AFB and upgrades satellite data processing, cloud depiction and forecasting, and classified weather support functions for operational commanders and national programs; (b) Global Theater Weather Analysis and Prediction System (GTWAPS), acquires theater weather models and associated hardware to improve the AFWA theater support capabilities; (c) Tactical Weather Radar (TWR), provides lightweight, portable Doppler weather radar to support deployed combat operations worldwide; (d) Space Weather Analysis and Forecast System (SWAFS), replaces aging 55th Space Weather Squadron (55SWXS, AFSPC) hardware and software to move to an open, efficient computing environment; (e) Meteorological Operations Capability (MOC), which builds upon weather systems successfully integrated into operational C4I systems and supports the "train as you fight" concept by assuring fixed and deployable systems are the same. (f) Satellite Data Handling System II (SDHS II) will retrieve satellite data and meteorological fields from a centralized data base to a graphical user interface capable of 3-D and 4-D visualization. Provides operators and commanders better situational awareness of conditions in their operating environment and battlespace. This effort is in Budget Activity 7, Operational System Development, because it supports software development and system tests associated with the upgrade and replacement of currently operational systems, systems already in production, and systems with approved production funds in the DoD budget.

**(U) Acquisition Strategy:**

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

(U) **FY 1997 ($ in Thousands):**

- (U) 2,977 CDFS II: Continued development of cloud depiction and forecast software, prepare for FY98 production/integration contract award.
- (U) 1,599 GTWAPS: Milestone decision (3QFY97) and awarded development contract (1FY98).
- (U) 225 SWAFS: Prepared Milestone I/II/III documentation
- (U) 4,801 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305111F Weather Service<br>PROJECT 2738 |

(U) **FY 1998 ($ in Thousands):**

- (U) 4,658 CDFS II: Continue to create, rewrite and host software modules.
- (U) 2,861 GTWAPS: Continue software development for IOC 1.
- (U) 654 TWR: Milestone I/III documentation.
- (U) 238 MOC: Prepare and conduct Milestone I/III for forecast system.
- (U) 8,411 Total

(U) **FY 1999 ($ in Thousands):**

- (U) 5,505 CDFS II: Continue development of cloud depiction and forecast software.
- (U) 1,967 GTWAPS: Continue software development for incremental IOCs.
- (U) 250 TWR: SPO support.
- (U) 2,587 MOC: Begin software development for forecast system. Prepare documentation for MS I/III for observing system.
- (U) 340 SDHS II: Assessment of operational alternative study.
- (U) 10,649 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0305111F Weather Service — PROJECT: 2738 |

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 BP) | 4,919 | 9,057 | 8,424 | Cont. |
| (U) Appropriated Value | 5,126 | 9,057 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -132 | -490 | | |
| b. SBIR | -85 | -156 | | |
| c. Omnibus or Other Above Threshold Reprogramming | 0 | | | |
| d. Below Threshold Reprogramming | -100 | | | |
| e. Rescissions | -8 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 2,225 | |
| (U) Current Budget Submit/FY1999 President's Budget | 4,801 | 8,411 | 10,649 | Cont. |

(U) Change Summary Explanation:

Funding: FY 99 change is due to transfer from other procurement to RDT&E. ($2,439).

Schedule: None.

Technical: None.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305111F Weather Service |
| | PROJECT<br>2738 |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement, AF (35111F WSC 833070) | 17,643 | 21,256 | 18,581 | 26,591 | 27,536 | 29,309 | 28,101 | Cont. | Cont. |

Only includes procurement funds for investment programs described in this R-2 Exhibit.

Related RDT&E:

(U) PE #603707F, Weather Systems Advanced Development
(U) PE #602601F, Phillips Lab Exploratory Development
(U) PE #305160F, Defense Meteorological Satellite Program
(U) PE #603434F, National Polar-orbiting Operational Environmental Satellite System
(U) PE #207438F, Theater Battle Management C4I
(U) PE #208006F Air Force Mission Planning System

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) CWS TFS Software Complete | X | | | | | | | | | | | |
| (U) GTWAPS Milestone I/II/III | | | X | | | | | | | | | |
| (U) TWR Milestone I/III | | | | | X | | | | | | | |
| (U) MOC Milestone I/III | | | | | | | | X | | | | |
| (U) SWAFS Milestone I/II/III | | | | | | | | | | | | X |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0305111F Weather Service — PROJECT: 2738 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) 1st Article Development | 0 | 525 | 100 |
| (U) System Software Integration | 214 | 285 | 66 |
| (U) System Engineering Support | 799 | 798 | 842 |
| (U) Contractor Engineering Support | 485 | 452 | 899 |
| (U) Software Development | 3,004 | 5,095 | 7,552 |
| (U) Travel | 78 | 101 | 140 |
| (U) Program Management Support | 231 | 1155 | 1050 |
| (U) Laboratory Support | 0 | 0 | 0 |
| (U) Total | 4,801 | 8,411 | 10,649 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Phillips Lab | MIPR | May 94 | 270 | 270 | 270 | 0 | 0 | 0 | 0 | 270 |
| CalTech | LOE | Jun 94 | 1,172 | 1,172 | 1,172 | 0 | 0 | 0 | 0 | 1,172 |
| CSC | LOE | Jan 94 | 2,127 | 2,127 | 2,127 | 0 | 0 | 0 | 0 | 2,127 |
| GTE | FFP/PR | Oct 90 | 13,064 | 13,064 | 13,064 | 0 | 0 | 0 | 0 | 13,064 |
| PRISM (Raytheon) | LOE | Jan 93 | 3,497 | 3,497 | 3,497 | 0 | 0 | 0 | 0 | 3,497 |
| PRISM (Hughes) | LOE | Jan 93 | 3,396 | 3,396 | 3,121 | 0 | 275 | 0 | 0 | 3,396 |
| Sterling | CPAF | Jun 95 | 17,196 | 17,196 | 4,600 | 3,186 | 4,180 | 5,230 | 0 | 17,196 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305111F Weather Service

PROJECT: 2738

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Air Weather Svc (CDFS II related work) | MIPR | 4FY95 | 2,900 | 2,900 | 2,900 | 0 | 0 | 0 | 0 | 2,900 |
| Hughes | | Sep 95 | 1,682 | 1,682 | 1,682 | 0 | 0 | 0 | 0 | 1,682 |
| DNA | MIPR | Jan 95 | 100 | 100 | 100 | 0 | 0 | 0 | 0 | 100 |
| CCPL/ESC | LOE | 1FY98 | TBD | TBD | 0 | 0 | 396 | 2,052 | Cont. | Cont |
| TRW | FFP | Dec 97 | 3,370 | 3,370 | 0 | 0 | 1,953 | 1,417 | 0 | 3,370 |
| Support and Management Organizations | | | | | | | | | | |
| Electronic Systems Center (ESC) | | | | | 632 | 520 | 1,050 | 871 | Cont | Cont |
| Space and Missile Center (SMC) | | | | | 0 | 192 | 105 | 180 | Cont | Cont |
| MITRE/ Aerospace TEMS | | | | | 1009 | 903 | 452 | 899 | Cont | Cont |
| Test and Evaluation Organizations | | | | | | | | | | |
| Not Applicable | | | | | | | | | | |
| Subtotal Product Development | | | | | | 3,186 | 6,804 | 8,699 | Cont. | Cont. |
| Subtotal Support and Management | | | | | | 1,615 | 1,607 | 1,950 | Cont. | Cont. |
| Subtotal Test and Evaluation | | | | | | 0 | 0 | 0 | Cont. | Cont. |
| Total Project | | | | | | 4,801 | 8,411 | 10,649 | Cont. | Cont. |

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

**Government Furnished Property:** Not Applicable

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305114F Air Traffic Cntrl/Approach/Landing Sys (ATCALS)

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 7,337 | 5,928 | 4,729 | 6,989 | 5,580 | 5,636 | 5,752 | Continuing | TBD |
| 2026 System Support | 374 | 70 | 273 | 246 | 259 | 244 | 253 | Continuing | TBD |
| 3587 Precision Landing Development | 6,963 | 5,858 | 4,456 | 6,743 | 5,321 | 5,392 | 5,499 | Continuing | TBD |
| Quantity of RDT&E Articles | 10/200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10/200 |

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

This effort was originally established for development of Military Microwave Landing System Avionics (MMLSA) and acquisition of the commercially developed Commercial Microwave Landing System Avionics (CMLSA). It was part of a twenty-year program to transition Air Force operations from the use of Precision Approach Radar (PAR) and Instrument Landing System (ILS) to the Microwave Landing System (MLS) for precision approach and landing. With termination of the MLS as the national precision landing standard, the effort is now being redirected to develop a replacement box for ILS avionics to sustain precision landing capability until the follow-on capability is chosen. The current Air Force ILS receivers do not meet the new specification required by the International Civil Aviation Organization (ICAO) for protection from interference problems forecast to occur after 1998. This program will accomplish an Analysis of Alternatives (AOA) for the Joint Precision Approach and Landing System (JPALS) program which will result in identification of the follow-on to the ILS and PAR systems. This program will also fund continuing studies to obtain an autonomous precision landing capability, and air traffic control studies under Global Access, Navigation, and Safety (GANS) efforts. Project 2026 funds ongoing liaison and interagency cooperative studies, between the USAF Air Traffic Control (ATC) and Landing Systems (ATCALS) program office and various organizations to include other Services, the Federal Aviation Administration (FAA) and ICAO. This program is in budget activity 7 - Operational System Development, because it upgrades avionics in currently fielded weapon systems.

(U) **Acquisition Strategy:** Engineering Manufacturing Development, Fixed Price Incentive Fee (FPIF), No Non-Developmental Items (NDI)

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305114F Air Traffic Cntrl/Approach/Landing Sys (ATCALS)

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 7,643 | 6,571 | 925 | TBD |
| (U) Appropriated Value | 3,870 | 13,471 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -129 | -536 | | |
| b. SBIR | -97 | -332 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | 3,706 | | | |
| e. Recissions | -13 | | | |
| f. Other | | -6,675 | | |
| (U) Adjustments to Budget Years Since FY 1997 PB | | | 3,804 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 7,337 | 5,928 | 4,729 | TBD |

(U) Change Summary Explanation:

Funding: FY97 reprogramming includes a $3,900 increase for additional Precision Landing System development in support of the C-17 Combat Mission Need Statement and a $293 decrease to pay FY1988 cancelled bills for this program element. $6.675M in FY98 is pending reprogramming to Other Procurement for air traffic control simulators. Funding increase of $3.8M in FY99 is for air traffic control projects under Global, Access, Navigation, and Safety efforts.

Schedule: N/A

Technical: N/A

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Aircraft Procurement AF Budget Activity 5, Weapon System Code 3587 | 147 | 148 | | | | | | cont | TBD |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305114F Air Traffic Cntrl/Approach/Landing Sys (ATCALS) |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Acquisition Milestones: | | | | | | | | | | | | |
| (U) Contract Milestones | | | | | | | | | | | | |
| (U) Initial Tower Restoral Vehicle (TRV) Delivery | | | | | X | | | | | | | |
| (U) Test and Evaluation Milestones | | | | | | | | | | | | |
| TRV First Article Complete | | | X | | | | | | | | | |
| TRV Operational Testing | | | | | X | | | | | | | |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305114F Air Traffic Cntrl/Approach/Landing Sys (ATCALS)

PROJECT: 2026

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2026 System Support | 374 | 70 | 273 | 246 | 259 | 244 | 253 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | TBD |

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

This continuing effort funds ongoing liaison and interagency cooperative studies, as well as interoperability analyses between the USAF Air Traffic Control and Landing Systems (ATCALS) program office and various organizations which include the other services, the Federal Aviation Administration (FAA), and the International Civil Aviation Organization (ICAO). Continues mission support for the ATCALS programs including several joint efforts with the FAA. RDT&E funds are used to resolve or minimize technical interface problems associated with interoperability between existing or planned DoD/FAA ATCALS equipment and capabilities.

(U) FY 1997 ($ in Thousands):

- (U) $ 67 Provided support for all ATCALS projects
- (U) $181 Continued interoperability and interface evaluations
- (U) $126 Provided support for the portable precision landing system studies for the Joint Special Operations Command (JSOC)
- (U) $374 Total

(U) FY 1998 ($ in Thousands):

- (U) $ 10 Support for all ATCALS projects
- (U) $ 50 Conduct interoperability and interface evaluations
- (U) $ 10 Support for the precision landing system studies for the Joint Special Operations Command (JSOC)
- (U) $ 70 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305114F Air Traffic Cntrl/Approach/Landing Sys (ATCALS) |
| | PROJECT<br>2026 |

(U) FY 1999 ($ in Thousands):
- (U) $ 95 Support for all Air Traffic Control and Landing Systems (ATCALS) projects
- (U) $120 Conduct interoperability and interface evaluations
- (U) $ 58 Support for the precision landing system studies for the Joint Special Operations Command (JSOC)
- (U) $273 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 374 | 267 | 279 | Continuing |
| (U) Appropriated Value | 423 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -49 | -244 | | |
| b. SBIR | | -178 | | |
| c . Omnibus or Other Above Threshold Reprogram | | | | |
| d . Below Threshold Reprogramming | | | | |
| e. Recissions | | | | |
| f. Other (BRS Adjustment) | | -6,675 | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -6 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 374 | 70 | 273 | Continuing |

(U) Change Summary Explanation:

Funding: Programmatic adjustments

Schedule: N/A

Technical: N/A

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305114F Air Traffic Cntrl/Approach/Landing Sys (ATCALS) |
| | PROJECT<br>2026 |

(U) C. **Other Program Funding Summary ($ in Thousands)**
None.

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Acquisition Milestones N/A | | | | | | | | | | | | |
| (U) Contract Milestone | | | | | | | | | | | | |
| (U) Initial Tower Restoral Vehicle (TRV) Delivery | | | | | X | | | | | | | |
| (U) Test and Evaluation Milestones | | | | | | | | | | | | |
| (U) Operational Testing Complete | | | X | | | | | | | | | |
| (U) First Article Testing Complete | | | | | X | | | | | | | |
| (U) Conduct Precision Landing Studies | | | | | | | | | X | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305114F Air Traffic Cntrl/Approach/Landing Sys (ATCALS) |
| | PROJECT<br>2026 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) System Engineering | 80 | 40 | 151 |
| (U) Contract Engineering | 129 | 20 | 100 |
| (U) Test and Evaluation Support | 120 | 0 | 0 |
| (U) Program Management Support | 20 | 5 | 12 |
| (U) Travel | 25 | 5 | 10 |
| (U) Total | 374 | 70 | 273 |

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

**Performing Organizations:** AFMC, ESC, Hanscom AFB, MA manages the overall ATCALS effort. MITRE Corporation, Bedford, MA, provides technical engineering support

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations: | | | | | | | | | | |
| None | | | | | 0 | | | | | |
| Support and Management Organizations | | | | | | | | | | |
| Various | Multiple | Multiple | N/A | | 948 | 374 | 70 | 273 | TBD | TBD |
| Test and Evaluation Organizations | | | | | | | | | | |
| N/A: | N/A | N/A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305114F Air Traffic Cntrl/Approach/Landing Sys (ATCALS) |
| | PROJECT<br>2026 |

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

**Government Furnished Property:**

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | N/A | | | | | | | | |
| Support and Management Property | N/A | | | | | | | | |
| Test and Evaluation Property | N/A | | | | | | | | |
| Subtotal Product Development | | | | 0 | 0 | 0 | 0 | 0 | |
| Subtotal Support and Management | | | | 948 | 374 | 70 | 273 | TBD | |
| Subtotal Test and Evaluation | | | | 0 | 0 | 0 | 0 | 0 | |
| Total Project | | | | 948 | 374 | 70 | 273 | TBD | |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305114F Air Traffic Cntrl/Approach/Landing Sys (ATCALS)

PROJECT: 3587

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3587 Precision Landing Development | 6,963 | 5,858 | 4,456 | 6,743 | 5,321 | 5,392 | 5,499 | Continuing | TBD |
| Quantity of RDT&E Articles | 10/200 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10/200 |

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

DoD and the Department of Transportation (DOT) have a goal to develop and acquire a common civil/military precision approach and landing system that is capable of operating with Category I, II, or III signal guidance accuracy. The International Civil Aviation Organization (ICAO) and NATO designated worldwide implementation for PLS for January 1998 with Microwave Landing System (MLS) as the standard. Due to the emergence of the Global Positioning System (GPS), as a more cost effective solution, the Air Force's precision landing development has been redirected to develop a replacement box for the Instrument Landing System (ILS) to support a precision landing capability until GPS becomes available. The replacement box capability will allow DoD to meet the ICAO requirements for FM frequency protection. This is especially critical in Europe where there is a high density of FM radio stations. The Air Force has worldwide deployment commitments and large numbers of aircraft must comply with the ICAO Standards and recommended practices. In FY97, the Air Force began a new effort to install the precision landing system receiver on its C-17 aircraft to solve short-term operational deficiencies. FY96/97 funding also accomplished an Analysis of Alternatives (AOA) for the Joint Precision Approach and Landing System (JPALS) program. The primary objective of the AOA is to conduct a comprehensive evaluation of precision landing alternatives in the context of relevant scenarios and user requirements, and to recommend a preferred solution(s) to replace ILS and precision approach radar systems.

(U) FY 1997 ($ in Thousands):

- (U) $2,513 Began development of a precision landing capability to include Differential GPS
- (U) $451 Performed platform integration and system engineering analyses
- (U) $3,999 Began work on Air Mobility Command (AMC) Precision Approach Capability (PAC) (includes cost of RDT&E articles)
- (U) $6,963 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305114F Air Traffic Cntrl/Approach/Landing Sys (ATCALS) |
| | PROJECT<br>3587 |

(U) FY 1998 ($ in Thousands):

- (U) $865 Continue development of a precision landing capability to include Differential GPS
- (U) $113 Perform platform integration and system engineering analyses
- (U) $208 Begin Precision Landing System (PLS) flight certification
- (U) $4,672 Joint Precision Approach and Landing System (JPALS)
- (U) $5,858 Total

(U) FY 1999 ($ in Thousands):

- (U) $105 Continue to perform platform integration and system engineering analyses
- (U) $451 Continue PLS flight certification
- (U) $3,900 Begin air traffic control work under Global Access, Navigation, and Safety (GANS) effort
- (U) $4,456 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 7,269 | 6,304 | 646 | TBD |
| (U) Appropriated Value | 3,447 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional Reduction | -80 | -292 | | |
| b. SBIR | -97 | -154 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. BTRs | 3705 | | | |
| e. Recissions | -13 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 3,810 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 6,963 | 5,858 | 4,456 | TBD |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305114F Air Traffic Cntrl/Approach/Landing Sys (ATCALS) |
| | PROJECT<br>3587 |

(U) Change Summary Explanation:

Funding: Funding: FY97 reprogramming includes a $3,900 increase to support additional Precision Landing System development in support of the C-17 Combat Mission Need Statement and a $293 decrease to pay FY1988 cancelled bills for this program element. Funding increase of $3.8M in FY99 is for air traffic control related projects under Global Access, Navigation, and Safety (GANS).

Schedule: N/A

Technical: N/A

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Aircraft Procurement AF Budget Activity 5, Weapon System Code 3587 | 147 | 148 | 0 | 0 | 0 | 0 | 0 | cont | TBD |

**(U) D. Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Acquisition Milestones: | | | | | | | | | | | | |
| (U) Contract Milestones | | | | | | | | | | | | |
| (U) Contract Award (GCA-2000) | | | | X | | | | | | | | |
| (U) Delivery of 1st System | | | | | | | | X | | | | |
| (U) C-17 Precision Landing System Receiver Contract Modification | X | | | | | | | | | | | |
| (U) Test and Evaluation Milestones M/A | | | | | | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305114F Air Traffic Cntrl/Approach/Landing Sys (ATCALS)

PROJECT: 3587

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Primary Hardware Development | 2,513 | 865 | 269 |
| (U) Test and Evaluation Support | | 95 | 85 |
| (U) Engineering/Technical Support | 202 | 190 | 170 |
| (U) Avionics Integration Efforts | 149 | | |
| (U) Program Management Support | 70 | 20 | 20 |
| (U) Analysis of Alternatives (JPALS) | | 4,672 | |
| (U) AMC PAC | 3,999 | | |
| (U) ATC Related GANS Programs | | | 3,900 |
| (U) Travel | 30 | 16 | 12 |
| (U) Total | 6,963 | 5,858 | 4,456 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| GEC Marconi-Hazeltine | FPIF | Jun 93 | 19,400 | 19,400 | 9,300 | 5,300 | 865 | 500 | Continue | TBD |
| Support and Management Organizations | | | | | | | | | | |
| Various | Multiple | Multiple | N/A | N/A | | 1,521 | 4,993 | 4,046 | Continue | TBD |
| Test and Evaluation Organizations | | | | | | | | | | |
| FAA Test Center | MIPR | May 97 | | | 0 | 142 | 0 | 0 | 0 | 142 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305114F Air Traffic Cntrl/Approach/Landing Sys (ATCALS) |
| | PROJECT<br>3587 |

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

**Government Furnished Property:**

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property: N/A | | | | | | | | | |
| Support and Management Property: N/A | | | | | | | | | |
| Test and Evaluation Property: N/A | | | | | | | | | |
| Subtotal Product Development | | | | 9,300 | 5,300 | 865 | 500 | Continue | |
| Subtotal Support and Management | | | | | 1,521 | 993 | 3,956 | Continue | |
| Subtotal Test and Evaluation | | | | | 142 | 0 | 0 | | |
| Total Project | | | | 9,300 | 6,963 | 5,858 | 4,456 | Continue | |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305119F Medium Launch Vehicles (Space)

PROJECT: 624A

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 624A Medium Launch Vehicle | 10,999 | 5,130 | 7,375 | 8,009 | 7,992 | 5,374 | 2,040 | 0 | 430,139 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

National Security requirements dictate a continuing, highly reliable means of placing critical Department of Defense (DoD) satellites into required orbits. Assured access to space, directed by the President in the National Security Launch Strategy, will be accomplished through the use of a robust mix of Expendable Launch Vehicles (ELVs). The Medium Launch Vehicle (MLV) program provides sustainment, procurement and launch of DoD ELVs, including Atlas II and Delta II at Cape Canaveral AS, FL and at Vandenberg AFB, CA. The MLV launches the Defense Satellite Communication System (DSCS) and the Global Positioning System (GPS) satellites. The RDT&E budget for MLV primarily consists of engineering support for system performance upgrades to both the vehicles and the launch facilities, new payload integration, sustaining engineering, and post-flight assessment to maintain the high reliability of the launch vehicles. In addition, testing associated with the 17 Jan 97 mishap of a Delta II booster is included. This program is in Budget Activity 7, Operational Systems Development, because the Medium Launch Vehicles program is in full production and fully operational.

B. **Acquisition Strategy**:

The MLV program is in final production and consists of two distinct medium launch vehicles: Atlas IIA and the Delta II. Funding for the production of the Atlas Air Force program has been completed, and the remaining Air Force requirements are primarily for the remaining DSCS mission's launch services on the Lockheed Martin Atlas production contract. The Delta II program primarily consists of launching replenishment satellites for the Global Positioning System (GPS). Final production procurement is planned for FY99,with advance procurement in FY98, on the existing Boeing production contract. The MLV program is scheduled to start transitioning to EELV beginning with FY02 launches.

(U) FY 1997: ($in thousands)

- (U) $ 4,673 Base support and environmental programs
- (U) $ 960 West Coast Atlas II activation
- (U) $ 0 DSCS integration
- (U) $ 2,796 Delta II range facilities upgrades
- (U) $ 2,570 Sustaining engineering and mission support for MLV launch facilities, infrastructure, and launch operations for launch complexes 3, 17, and 36
- (U) $10,999 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE |
|---|---|
| | February 1998 |
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0305119F Medium Launch Vehicles (Space) / PROJECT: 624A |

(U) FY 1998: ($ in thousands)

- (U) $ 0 West Coast Atlas II activation continues
- (U) $ 300 DSCS integration
- (U) $ 844 Delta II range required facilities upgrade
- (U) $ 632 Delta II systems integration
- (U) $ 3,354 Sustaining engineering and mission support for MLV launch facilities, infrastructure, and launch operations for launch complexes 3, 17, and 36
- (U) $ 5,130 Total

(U) FY 1999: ($ in thoussands)

- (U) $ 0 West Coast Atlas II activation continues
- (U) $ 300 DSCS integration
- (U) $ 500 Delta II range required facilities upgrade
- (U) $ 0 Delta II systems integration
- (U) $ 6,575 Sustaining engineering and mission support for MLV launch facilities, infrastructure, and launch operations for launch complexes 3, 17, and 36
- (U) $ 7,375 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 12,720 | 5,719 | 14,623 | 445,215 |
| (U) Appropriated Value | 13,368 | 5,719 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional Gen Reductions | -347 | -478 | | |
| b. SBIR | -301 | -111 | | |
| c. Omnibus or Other Above Threshold Reprogram | -1700 | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | -21 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -7,248 | |
| (U) Current Budget Submit/FY1999 President's Budget | 10,999 | 5,130 | 7,375 | 430,139 |

(U) Change Summary Explanation:

Funding: FY 1999 adjustments reflect reduction of funds for Atlas/DSCS integration as DSCS Service Life Extension Program satellites will remain within weight limits.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305119F Medium Launch Vehicles (Space) |
| | PROJECT<br>624A |

Schedule: Not Applicable
Technical: Not Applicable

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Missile Procurement, Air Force (PE35119F) (BA45, P-25/26) | 154,651 | 201,799 | 188,406 | 72,742 | 55,741 | 36,921 | 10,794 | 0 | 2,620,893 |

**Related RDT&E:** None

**(U) D. Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Delta/GPS Launches | | X | X | | X | | | XX | | X | X | XX |
| (U) Delta/STP Launches | | | | | | | | X | | | | |
| (U) Atlas/DSCS Launches | | | | | X | | | | | | | X |
| (U) Atlas West Coast Pad Activation | | | | X | | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305119F Medium Launch Vehicles (Space)

PROJECT: 624A

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Base Support and Environmental programs | 4,673 | 0 | 0 |
| (U) West Coast Atlas II Activation | 960 | 0 | 0 |
| (U) DSCS Integration | 0 | 300 | 300 |
| (U) Delta II Range Facilities Upgrades | 2,796 | 844 | 500 |
| (U) Delta II Systems Integration | 0 | 632 | 0 |
| (U) Sustaining Engineering and Mission Support | 2,570 | 3,354 | 6,575 |
| (U) Total | 10,999 | 5,130 | 7,375 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Lockheed Martin | SS/FFP | Jun 88 | N/A | N/A | 70,927 | 0 | 300 | 300 | 300 | 71,827 |
| Boeing | SS/FFP | Sep 87 | N/A | N/A | 205,270 | 0 | 0 | 0 | 0 | 205,270 |
| Boeing | C/FFP | Apr 93 | N/A | N/A | 19,873 | 3,962 | 4,217 | 1,700 | 4,200 | 33,952 |
| GSAC | Various | Various | N/A | N/A | 3,321 | 0 | 0 | 0 | 0 | 3,321 |
| Austere Improvements | Various | Various | | | 10,484 | 0 | 0 | 0 | 0 | 10,484 |
| Support and Management Organizations | | | | | | | | | | |
| Mission Support | FPI | FY94 | N/A | N/A | 15,494 | 5,317 | 613 | 5,375 | 18,915 | 45,714 |
| Various SMC | Various | FY94 | N/A | N/A | 49,252 | 642 | 0 | 0 | 0 | 49,894 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305119F Medium Launch Vehicles (Space)

PROJECT: 624A

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Other Ktr Sup | FFP | FY94 | N/A | N/A | 563 | 118 | 0 | 0 | 0 | 681 |
| Vandenberg Sup | Various | Various | N/A | N/A | 2,430 | 960 | 0 | 0 | 0 | 3,390 |
| Environment/ Safety | Various | Various | N/A | N/A | 5,606 | 0 | 0 | 0 | 0 | 5,606 |

Test and Evaluation Organizations

Not Applicable

**Government Furnished Property:** Not Applicable

| | | | | | | |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 309,875 | 3,962 | 4,517 | 2,000 | 4,500 | 324,854 |
| Subtotal Support and Management | 73,345 | 7,037 | 613 | 5,375 | 18,915 | 105,285 |
| Subtotal Test and Evaluation | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | 383,220 | 10,999 | 5,130 | 7,375 | 23,415 | 430,139 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305128F Security and Investigative Activities (S&IA)

PROJECT: 1931

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 1931 TECH SURVEIL COUNTER MEAS EQPT | 275 | 3,325* | 458 | 474 | 480 | 483 | 487 | 0 | TBD |
| Quantity of RDT&E Articles | 1 | 0 | 2 | 1 | 1 | 1 | 1 | | |

* Cost of test articles embedded in overall project cost; breakout not available. FY98 amount is pending reclassification of funds to PE 33140F.

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

This program funds 70% of the Air Force Office of Special Investigations' (AFOSI) manpower and operations and maintenance costs, as well as 100% of its procurement and research and development costs. AFOSI conducts specialized investigative activities and force protection support for Air Force (AF) commanders worldwide. This assists AF commanders in protecting their people and resources. AFOSI's mission includes investigating criminal matters affecting AF personnel, contract fraud and economic crimes involving AF weapons systems and spare parts, the investigation of environmental crime, counterdrugs, computer intrusion detection and forensic media analysis of computer crimes. This element supports Technical Surveillance Countermeasures (TSCM), Computer Crime Investigations (CCI), and technical support to criminal and counterintelligence investigations and operations conducted by AFOSI. AFOSI's TSCM mission provides security assessments to both AF and DoD facilities and programs. The purpose of CCI research is to improve AF and DoD Information Operations capability by enhancing AFOSI's ability to deter or prevent spies, hackers, or saboteurs from manipulating, damaging, or stealing sensitive war fighting data or systems. Failing that, to investigate, identify, and prosecute those who do. While most research to meet operational requirements is Operational System Development, there is also research in the category of Engineering and Manufacturing Development due to a need for modifications to present technology.

The equipment required to provide technical support to investigations is unique and complex. This equipment must be continually updated to provide state-of-the-art capabilities to detect and neutralize criminal activities targeted against the AF and DoD. In an era of advancing technology, reduced manning, and increasingly high level fraud, environmental crime and computer crime investigations, technical investigative equipment must be continuously updated to enable AFOSI special agents to have the most cost effective and best possible means of thwarting criminal acts. The evolution of a new wave of computer crimes has made AFOSI responsible for the collection, investigative analysis, national level law enforcement coordination, and dissemination of hacker activity and intrusion incidents for the Air Force. AFOSI's computer crime equipment must stay on the leading edge of technology to collect criminal information as well as pursue and apprehend criminals through a global medium. There were 2800 computer security violations and/or intrusion incidents reported to AFOSI in 1996. AFOSI must continually update its existing high tech computer surveillance equipment to support ongoing and future investigative operations to identify hackers and hacker groups, as well as potential hostile government activities targeting Air Force communication and control systems. This program is in Budget Activity 7, Operational System Development, because its products are primarily for use in investigative activity of an operational nature.

(U) **Acquisition Strategy:**

All major contracts within this Program Element were awarded via sole source contract due to the sensitivity of technologies involved.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305128F Security and Investigative Activities (S&IA) |
| | PROJECT<br>1931 |

(U) FY 1997 ($ in Thousands):

- (U) $164 TSCM Receiver/Software Suite. Demonstration of TSCM Receiver Suite
- (U) $100 TSCM Receiver/Software Suite. Validation of TSCM Receiver Suite
- (U) $ 11 Telephone/Computer Local Area Network (LAN) Analyzer. Demonstration and validation of countermeasure units for field applications
- (U) $275 Total

(U) FY 1998 ($ in Thousands):

- (U) $ 480 Telephone/Computer LAN Analyzer. Demonstration and validation of upgraded software
- (U) $ 500 Computer Crimes Investigative (CCI) Equipment. RDT&E of CCI software
- (U) $ 461 Linux Media Analysis Platform. RDT&E of Linux Media Analysis Platform
- (U) $1,884 Reclassification to PE 33140F (Pending)
- (U) $3,325 Total

(U) FY 1999 ($ in Thousands):

- (U) $250 Telephone/Computer LAN Analyzer. Demonstration and validation of upgraded software
- (U) $ 67 Computer Crimes Investigative (CCI) Equipment. RDT&E of CCI software
- (U) $141 Ground Penetrating Radar/Millimeter Wave Equipment. Demonstration and validation of millimeter wave technology
- (U) $458 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305128F Security and Investigative Activities (S&IA) |
| | PROJECT<br>1931 |

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 275 | 530 | 467 | TBD |
| (U) Appropriated Value | 289 | 3,530 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -6 | -115 | | |
| b. SBIR | -8 | -90 | | |
| c. Omnibus or Other Above Threshold Reprogramming | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -9 | |
| (U) Current Budget Submit/FY1999 President's Budget | 275 | 3,325 | 458 | TBD |

(U) Change Summary Explanation:

Funding: FY98 amount is pending reclassification of funds to PE 33140F.

Schedule: None.

Technical: None.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305128F Security and Investigative Activities (S&IA)

PROJECT: 1931

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Automatic Data Processing Equipment | 190 | 95 | 91 | 0 | 0 | 191 | 191 | TBD | TBD |
| Radio Equipment | 421 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 421 |
| Base Communication Infrastructure | 0 | 414 | 0 | 0 | 0 | 0 | 0 | 0 | 414 |
| Base Procured Equipment | 100 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 |
| Technical Surveillance Countermeasures Equipment | 1060 | 1952 | 2035 | 3020 | 3049 | 2876 | 2877 | TBD | TBD |
| BA63/Security & Investigative Activities/PE0305128F | | | | | | | | | |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) TSCM Receiver/Software Suite | X | X | X | | | | | | | | | |
| (U) Telephone/Computer LAN Analyzer | X | | | | | | | | | | | |
| (U) CCI Equipment | | | | | | X | | | | | | |
| (U) Linux Media Analysis Platform | | | | | | X | | X | | | | |
| (U) Millimeter Wave Equipment | | | | | | | | | | X | | X |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305128F Security and Investigative Activities (S&IA) |
| | PROJECT<br>1931 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Primary Hardware Development | 204 | 211 | 204 |
| (U) Software Development | 71 | 1,230 | 254 |
| (U) Reclassification to PE 33140F | 0 | 1,884 | 0 |
| (U) Total | 275 | 3,325 | 458 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Matrix Engineering | SS/FFP | Feb 97 | N/A | N/A | 130 | 264 | 0 | 0 | 0 | 394 |
| S.T. Research Corp. | SS/FFP | Mar 97 | N/A | N/A | 152 | 11 | 480 | 250 | TBD | 893 |
| TBD | SS/FFP | Mar 98 | N/A | N/A | 0 | 0 | 500 | 67 | TBD | 567 |
| TBD | SS/FFP | Mar 98 | N/A | N/A | 0 | 0 | 461 | 0 | 0 | 461 |
| TBD | SS/FFP | Mar 99 | N/A | N/A | 0 | 0 | 0 | 141 | 0 | 141 |

Support and Management Organizations:
None

Test and Evaluation Organizations:
None

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305128F Security and Investigative Activities (S&IA)

PROJECT: 1931

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Government Furnished Property: | | | | | | | | | | |
| None | | | | | | | | | | |
| Product Development Property: | | | | | | | | | | |
| None | | | | | | | | | | |
| Support and Management Property: | | | | | | | | | | |
| None | | | | | | | | | | |
| Test and Evaluation Property: | | | | | | | | | | |
| None | | | | | | | | | | |
| Subtotal Product Development | | | | | 282 | 275 | 1,441 | 458 | TBD | TBD |
| Subtotal Support and Management | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal Test and Evaluation | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Reclassification to PE 33140F (Pending) | | | | | | | 1,884 | | | |
| Total Project | | | | | 282 | 275 | 3,325 | 458 | TBD | TBD |

* Due to the small size and narrow scope of these efforts there are no funds expended for Support Cost and Management Services. Similarly, Test and Evaluation costs are embedded in Product Development.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305137F National Airspace System

PROJECT: 4090

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4090 National Airspace System (NAS) | 11,818 | 11,917 | 1,881 | 288 | 205 | 207 | 211 | 436 | 108,798 |
| Quantity of RDT&E Articles | 4/* | 2/** | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) **Note:** * Cost of RDT&E articles ($3.4 Million in FY97) includes three (3) voice switch configurations and one (1) automation subsystem to support developmental/operational testing.

** Cost of RDT&E articles ($3.0 Million in FY98) includes two (2) automation subsystems to support developmental/operational testing.

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

The DoD National Airspace System program will modernize the DoD Air Traffic Control (ATC) system in parallel with the Federal Aviation Administration (FAA) modernization. DoD will acquire, to the maximum extent practical, systems on contract with the FAA to reduce development costs and prevent duplication. The DoD NAS program provides systems and facilities compatible/interoperable with the FAA modernization, prevents DoD flight delays and cancellations, continues DoD's access into Special Use Airspace (SUA), provides transparent services to military and civil aircraft, replaces aging DoD ATC systems, and increases flight safety. The Military Airspace Management System (MAMS) will effectively schedule and manage SUA. DoD military ATC and fighting/flying readiness will be maintained. This program is in budget activity 7 - Operational System Development, because the DoD Air Traffic Control system is operational.

(U) **Acquisition Strategy:**

All major contracts were awarded after full and open competition. Adjustments to funding of specific activities reflect realignment of development/test activities with the revised (27 Feb 97) Acquisition Program Baseline (APB) and amended (30 Jun 97) Acquisition Decision Memorandum (ADM).

(U) **FY 1997 ($ in Thousands):**

- (U) 1,805 Continued Military Airspace Management System (MAMS) development
- (U) 1,318 Continued site surveys, facility/transition planning
- (U) 325 Continued NAS DoD subsystem analysis for each DoD site
- (U) 3,280 Continued radar acquisition and test
- (U) 3,290 Continued automation acquisition and test
- (U) 1,800 Continued voice switch acquisition and test
- (U) $11,818 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305137F National Airspace System |
| | PROJECT<br>4090 |

(U) **FY 1998 ($ in Thousands):**

| | | | |
|---|---|---|---|
| – | (U) | 4,400 | Complete Military Airspace Management System (MAMS) development |
| – | (U) | 137 | Complete facility/transition planning and continue site surveys |
| – | (U) | 455 | Continue NAS DoD subsystem analysis for each DoD site |
| – | (U) | 2,535 | Continue radar acquisition and test |
| – | (U) | 4,190 | Continue automation acquisition and test |
| – | (U) | 200 | Complete voice switch acquisition and test |
| – | (U) | $11,917 | Total |

(U) **FY 1999 ($ in Thousands):**

| | | | |
|---|---|---|---|
| – | (U) | 316 | Continue site surveys |
| – | (U) | 600 | Complete NAS DoD subsystem analysis for each DoD site |
| – | (U) | 965 | Complete radar and automation acquisition and test |
| – | (U) | $1,881 | Total |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 11,858 | 12,830 | 1,919 | 108,798 |
| (U) Appropriated Value | 12,614 | 12,830 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional General Reductions | -477 | -687 | | |
| b. SBIR | -279 | -226 | | |
| c. Omnibus & Other Above Threshold Reprogramming | | | | |
| d. Below Threshold Reprogramming | -20 | | | |
| e. Rescissions | -20 | | | |
| (U) Adjustments to Budget Year Since FY 1998 PB | | | -38 | |
| (U) Current Budget Submit/1999 President's Budget | 11,818 | 11,917 | 1,881 | 108,798 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0305137F National Airspace System / PROJECT: 4090 |

(U) Change Summary Explanation:

Funding: Changes reflected in the table above.

Schedule: Adjustments of specific activities reflect realignment of development/test activities with the revised (27 Feb 97) Acquisition Program Baseline (APB) and amended (30 Jun 97) Acquisition Decision Memorandum (ADM).

Technical: No Change.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement, BA 16 Weapon system code 833020, PE0305137F | 0 | 16,192 | 45,308 | 50,519 | 51,529 | 57,526 | 46,508 | Cont | TBD |
| (U) Other Procurement, BA16 Weapon system code 86190A, PE0305137F, (Initial Spares) | 0 | 1,009 | 5,639 | 6,973 | 8,067 | 9,190 | 6,472 | Cont | TBD |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE |
|---|---|
| | February 1998 |
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305137F National Airspace System | PROJECT<br>4090 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Acquisition Milestones | | | | | | | | | | | | |
| (U) Milestone II (MS II) (Jul 95) | | | | | | | | | | | | |
| (U) Revised Acquisition Program Baseline | | X | | | | | | | | | | |
| (U) Amended MS II Acquisition Decision Memo | | | X | | | | | | | | | |
| (U) Radar & Automation LRIP Decision | | | | | | | | | X | | | |
| (U) Voice Switch Procurement Decision | | | | | | | | X | | | | |
| (U) Radar & Automation Milestone III | | | | | | | | | | | X | |
| (U) Contract Milestones | | | | | | | | | | | | |
| (U) Radar | | | | | | | | | | | | |
| Contract Award (Aug 96) | | | | | | | | | | | | |
| Complete radar IOT&E | | | | | | | | | | X | | |
| (U) Automation | | | | | | | | | | | | |
| Contract Award ( Sep 96) | | | | | | | | | | | | |
| Complete automation IOT&E | | | | | | | | | | X | | |
| (U) Voice Switch | | | | | | | | | | | | |
| Contract Award (Jul 95) | | | | | | | | | | | | |
| Complete voice switch IOT&E | | | | | | | | X | | | | |
| (U) NAS IOC Apr 2000 | | | | | | | | | | | | |
| (U) NAS FOC Apr 2006 | | | | | | | | | | | | |
| (U) MAMS | | | | | | | | | | | | |
| Contract Award (Nov 95) | | | | | | | | | | | | |
| Began Initial Usability Assessment | | | | X | | | | | | | | |
| MAMS IOC | | | | | | | | X | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305137F National Airspace System |
| | PROJECT<br>4090 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| Software Development | 1,805 | 4,400 | 0 |
| Site Surveys | 290 | 100 | 100 |
| Facility/Transition Planning | 290 | 37 | 0 |
| Integration/Interface Planning | 50 | 50 | 0 |
| System Engineering | 682 | 340 | 551 |
| Primary Hardware Test and Evaluation | 8,370 | 6,725 | 965 |
| Program Management Support | 281 | 215 | 215 |
| Travel | 50 | 50 | 50 |
| Total | 11,818 | 11,917 | 1,881 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| a. Computer Based Systems | CPAF | Jun 94 | 3,500 | 3,500 | 3,500 | 0 | 0 | 0 | 0 | 3,500 |
| b. Hughes Aircraft | CPFF | Nov 95 | 12,705 | 12,705 | 6,500 | 1,805 | 4,400 | 0 | 0 | 12,705 |
| c. Raytheon (Radar) | IDIQ - FFP | Aug 96 | 18,356 | 18,356 | 16,449 | 967 | 940 | 0 | 0 | 18,356 |
| d. Raytheon (Automation) | IDIQ-FFP | Sep 96 | 5,862 | 5,862 | 0 | 2,292 | 3,005 | 565 | 0 | 5,862 |
| e. Denro | IDIQ-FFP | Jul 95 | 2,570 | 2,570 | 1,462 | 1,108 | 0 | 0 | 0 | 2,570 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305137F National Airspace System

PROJECT: 4090

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Support and Management Organizations | | | | | | | | | | |
| MITRE | CPAF | Oct 94 | 21,910 | 21,910 | 17,300 | 2,900 | 1,210 | 500 | 0 | 21,910 |
| Martin Marietta | FFP | Sep 94 | 8,700 | 8,700 | 7,514 | 822 | 364 | 0 | 0 | 8,700 |
| Miscellaneous | Multiple | Multiple | 32,624 | 32,624 | 28,575 | 1,224 | 1,398 | 516 | 1,347 | 33,060 |
| Test and Evaluation Organization | | | | | | | | | | |
| 46th Test Wing, Eglin AFB, FL | PO | Multiple | 2,135 | 2,135 | 535 | 700 | 600 | 300 | 0 | 2,135 |
| **Government Furnished Property:** None | | | | | | | | | | |
| Subtotal Product Development | | | 42,993 | 42,993 | 27,911 | 6,172 | 8,345 | 565 | 0 | 42,993 |
| Subtotal Support and Management | | | 63,670 | 63,670 | 53,389 | 4,946 | 2,972 | 1,016 | 1,347 | 63,670 |
| Subtotal Test and Evaluation | | | 2,135 | 2,135 | 535 | 700 | 600 | 300 | 0 | 2,135 |
| Total Project | | | 108,798 | 108,798 | 81,835 | 11,818 | 11,917 | 1,881 | 1,347 | 108,798 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305138F Upper Stage Space Vehicles (Space)

PROJECT: 4053

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4053 Upper Stage Space Vehicles | 1,505 | 3,150 | 558 | 1,920 | 1,863 | 12 | 0 | 0 | 25,868 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

(U) The Upper Stages Program provides consolidated acquisition of the Inertial Upper Stage (IUS) to support the launch of Defense Support Program (DSP) satellites. IUS is an upper stage on the Titan IV (can be modified for Shuttle) and delivers the DSP satellite to the required orbit. The RDT&E program continuously evaluates and improves upper stage reliability, cost effectiveness, and responsiveness. It supports redesign of aging equipment and spares which are no longer manufactured or available; investigation of flight anomalies; and small studies to assist in defining future upper stages. This program is categorized in Budget Activity 7, Operational Systems Development, because the Inertial Upper Stage Program is in the production phase and is fully operational.

(U) **Acquisition Strategy:** Program is in final production under the fourth production contract. The components for the four remaining IUS units are procured and are in storage. The remaining procurement effort is for upper stage buildup, replacement parts, and component shelf life extension. Within the RDT&E budget for IUS, Avionics Obsolescence Activity (AOA) will replace obsolete, insupportable guidance, navigation and control system. The third part of the strategy involves the integration and launch services, flight operations, and post-flight analysis. The final portion of the strategy is the independent validation and verification of the IUS software.

(U) FY 1997: ($ in thousands)

- (U) $ 303 Study and design corrective actions for anomalies and obsolete items
- (U) $ 0 Avionics Obsolescence Mitigation (approved by Congress for Omnibus source)
- (U) $1,202 Program Management Support Activities
- (U) $1,505 Total

(U) FY 1998: ($ in thousands)

- (U) $ 350 Study and design corrective actions for anomalies and obsolete items
- (U) $ 0 Avionics Obsolescence Mitigation
- (U) $ 0 Program Management Support Activities
- (U) $ 2,800 Reprogrammed to higher Air Force priority (CSEL and GBS)
- (U) $ 3,150 Total

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305138F Upper Stage Space Vehicles (Space)

PROJECT: 4053

(U) FY 1999: ($ in thousands)

- (U) $ 558 Study and design corrective actions for anomalies and obsolete items
- (U) $ 0 Avionics Obsolescence Mitigation
- (U) $ 0 Program Management Support Activities
- (U) $ 558 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 3,010 | 3,337 | 3,369 | 36,304 |
| (U) Appropriated Value | 3,154 | 3,337 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | -70 | -117 | | |
| b. SBIR | -74 | -70 | | |
| c. Omnibus or Other Above Threshold Reprogram | -1,000 | | | |
| d. Below Threshold Reprogramming (BTR) | -500 | | | |
| e. Rescissions | -5 | | | |
| (U) Adjustments to Budget Years Since FY98 PB | | 0 | -2,811 | |
| (U) Current Budget Submit/FY1999 President's Budget | 1,505 | *3,150 | 558 | 25,868 |

(U) Change Summary Explanation:

Funding: *FY 1998: $1.0M has been below threshold reprogrammed to Combat Survivor Evader Locator (CSEL) program and $1.8M is currently pending approval for above threshold reprogramming to Global Broadcasting System (GBS).
FY 1999 reflects reductions to program management support and anomaly resolution because of high system performance and reliability.
Schedule: Not Applicable
Technical: Not Applicable

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305138F Upper Stage Space Vehicles (Space)

PROJECT: 4053

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Missile Procurement - (PE35138) (BA45, P-23) | 17,088 | 47,042 | 48,012 | 46,827 | 44,393 | 28,008 | 0 | 0 | 231,370 |

**Related RDT&E:**

(U) PE 0305144F, Titan Vehicles

(U) PE 0102431F, Defense Support Program (DSP)

(U) Inertial Upper Stage (IUS) program supports the NASA Space Transportation System as an upper stage used with the Space Shuttle

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) DoD Launches | | X | | | | | | | X | | | |
| (U) Avionics Replacement* | | | | | | | | | | | | |
| (U) Integration, Launch Support, and Life Extension Modification* | | | | | | | | | | | | |

* Activities are continuous throughout the year.

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305138F Upper Stage Space Vehicles (Space)

PROJECT: 4053

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Avionics Obsolescence Mitigation | 0 | 0 | 0 |
| (U) Program Management Support | 1,202 | 0 | 0 |
| (U) Systems Engineering | 303 | 3,150 | 558 |
| (U) Total | 1,505 | 3,150 | 558 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Boeing | SS/FPI/AF | Jul 85 | 906,671* | 942,335* | 6,148 | 0 | 0 | 0 | 0 | 6,148 |
| | SS/FPI/AF | Mar 91 | 151,189* | 158,055* | 1,991 | 259 | 0 | 0 | 0 | 2,250 |
| | SS/CPAF/LOE | Sep 90 | N/A | N/A | 4,064 | 0 | 0 | 0 | 0 | 4,064 |
| | SS/CPAF | Jun 97 | N/A | N/A | N/A | 44 | 3150 | 558 | 3795 | 7,547 |
| United Tech Corp/Pratt & Whitney | SS/CPFF | Mar 95 | N/A | N/A | 855 | 0 | 0 | 0 | 0 | 855 |
| *Amounts include funds used for IUS under previous Program Elements | | | | | | | | | | |
| Support and Management Organizations | | | | | | | | | | |
| Space and Missile Systems Center, LAAFB | N/A | N/A | N/A | N/A | 3,802 | 1,202 | 0 | 0 | 0 | 5,004 |

Test and Evaluation Organizations Not Applicable

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305138F Upper Stage Space Vehicles (Space) — PROJECT 4053 |

**Government Furnished Property:** Not Applicable

| | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 13,058 | 303 | 3,150 | 558 | 3,795 | 20,864 |
| Subtotal Support and Management | 3,802 | 1,202 | 0 | 0 | 0 | 5,004 |
| Subtotal Test and Evaluation | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | 16,860 | 1,505 | 3,150 | 558 | 3,795 | 25,868 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305144F Titan Space Launch Vehicles (Space)

PROJECT: 4135

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4135 Titan II/IV | 77,702 | 70,483 | 87,443 | 44,185 | 40,495 | 18,454 | 11,665 | 0 | 3,116,410 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

(U) National security requirements dictate a continuing, highly reliable means of placing critical DoD satellites into required orbits. The Titan IV program provides the capability to launch the largest of these satellites into near-earth or geosynchronous orbits from either the east or west coast launch facilities. Titan IV is used to launch Air Force, National Reconnaissance Office, and NASA payloads. This program provides several different configurations of the Titan IV [No Upper Stage (NUS), Inertial Upper Stage (IUS), and Centaur]. In addition, the Titan IV program has developed a new vehicle configuration, the Titan IVB, with solid rocket motor upgrade (SRMU), new avionics and ground support equipment to meet reliability and increased performance requirements. This program provides continuing integration support to the payload community as well as continuing engineering support to maintain system characterization and reliability.

(U) Since FY94, this program element also included funding for sustaining engineering, payload integration, and Government costs for the Titan II space launch vehicle. This PE is in Budget Activity 7, Operational Systems Development, because both Titan II and Titan IV are operational launch vehicles. Major Titan IV effort remaining is SRMU recertification. Major activity is static test firing of SRMU in 1QFY00. Remaining activity is maintain sustaining engineering and anomoly resolution capability through the end of the program.

(U) **Acquisition Strategy:**

(U) The program has implemented a revised acquisition strategy for the entire 40-vehicle program. During FY1996, Titan IV transitioned from the old 41-vehicle development/production and payload integration contracts to new contracts designed to improve cost accountability, correct contract discrepancies, and establish an overall programmatic view for the effort to complete the program. The new contracts combine Titan II and Titan IV production, storage, pad maintenance and deactivation, launch operations, anomaly resolution, development and hardware requalification, payload integration, and program studies to provide the greatest potential for cost savings by maximizing use of resources and eliminating duplicative processes.

(U) FY 1997 ($ in Thousands):

- (U) $52,797 Titan Hardware Redesign and Requal (Solid Rocket Motor Upgrade (SRMU) and hardware obsolescence)
- (U) $6,205 Continued integration for the Defense Support Program (DSP) and Milstar
- (U) $18,700 Continued Titan Booster Support
- (U) $77,702 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0305144F Titan Space Launch Vehicles (Space) / PROJECT: 4135 |

(U) FY 1998 ($ in Thousands):
- (U) $55,886 Titan Hardware Redesign and Requal (Solid Rocket Motor Upgrade (SRMU) and hardware obsolescence)
- (U) $14,597 Continue integration for the DSP and Milstar
- (U) $70,483 Total

(U) FY 1999 ($ in Thousands):
- (U) $65,576 Titan Hardware Redesign and Requal (Solid Rocket Motor Upgrade (SRMU) and hardware obsolescence)
- (U) $21,867 Continue integration for Milstar
- (U) $87,443 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 97,487 | 82,384 | 137,602 | 3,320,678 |
| (U) Appropriated Value | 102,472 | 74,884 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | -2,403 | -2,482 | | |
| b. SBIR | -2,582 | -1,919 | | |
| c. Omnibus or Other Above Threshold Reprogram | -4,052 | | | |
| d. Below Threshold Reprogramming (BTR) | -15,579 | | | |
| e. Rescissions | -154 | | | |
| (U) Adjustments to Budget Years Since FY1998 PB | | | -50,159 | |
| (U) Current Budget Submit/ FY1999 President's Budget | 77,702 | 70,483 | 87,443 | 3,116,410 |

(U) Change Summary Explanation:

Funding: In FY97, $15,579K was reprogrammed to fund higher priorities, and an additional $750K is pending reprogramming to fund higher priorities. In FY98, $10.48M is pending reprogramming to fund higher priorities. FY99 funds transfer put DSP recurring integration into the Titan Missile Procurement line. The restructure of the Titan 41-vehicle program to 40 vehicles caused reductions in FY99. Higher Air Force priorities also caused FY99 funding to be transferred from Titan to other programs.

Schedule: Program has been curtailed to 40 vehicles under the restructure; last launch of Titan IV is scheduled for FY2004.

Technical: No changes

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305144F Titan Space Launch Vehicles (Space)

PROJECT: 4135

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Missile Procurement, Budget Activity 45, P-24, Space and Other Support | 317,881 | 450,934 | 578,540 | 469,698 | 405,947 | 299,612 | 238,179 | 308,500 | 7,209,591 |

**Related RDT&E:**

(U) Not Applicable

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Draft Single Acquisition Management Plan (SAMP) to OSD staff | | | | | | X | | | | | | |
| (U) 40-Vehicle Production and Launch Operations Contract Definitization | | | | | | X | | | | | | |
| (U) Titan IV-B (SRMU) Initial Operational Capability (IOC) | | X | | | | | | | | | | |
| (U) Titan Development (Hardware Requal) Contract Definitization | | | | | | X | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305144F Titan Space Launch Vehicles (Space)

PROJECT: 4135

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Titan IV | | | |
| (U) Contract Costs R&D ( 85-C-0019/96-C-0035) | 52,797 | 55,886 | 65,576 |
| (U) Contract Costs Unified Payload Integ (92-C-0028/ 98-C-0005) | 6,205 | 14,597 | 21,867 |
| (U) Other Government Costs | 18,700 | | |
| (U) Total | 77,702 | 70,483 | 87,443 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC * | Project Office EAC * | Total Prior to FY 1997** | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| LMC 85-C-0019 | SS/FPIF | 1QFY85 | 11,110,900 | 11,203,100 | 2,206,317 | 0 | 0 | 0 | 0 | 2,206,317 |
| LMC 85-C-0085 | SS/FPIF | 1QFY85 | 638,600 | 638,600 | 82,067 | 0 | 0 | 0 | 0 | 82,067 |
| LMC 92-C-0028 | SS/CPAF | 3QFY92 | 594,422 | 585,149 | 90,851 | 2,292 | 0 | 0 | 0 | 93,143 |
| LMC 96-C-0035 | SS/CPAF | 3QFY96 | 57,840 | 166,661 | 69,666 | 52,797 | 55,886 | 65,576 | 35,343 | 279,268 |
| LMC 98-C-0005 | SS/CPAF | 1QFY98 | 292,939 | 292,939 | 0 | 3,913 | 14,597 | 21,867 | 79,456 | 119,833 |
| Facilities | n/a | n/a | | | 93,300 | 0 | 0 | 0 | 0 | 93,300 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305144F Titan Space Launch Vehicles (Space)

PROJECT: 4135

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC * | Project Office EAC * | Total Prior to FY 1997** | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Support and Management Organizations | | | | | | | | | | |
| Tecolote, SRS, | | | N/A | N/A | 150,546 | 14,100 | 0 | 0 | 0 | 164,646 |
| TRW, Antioch, | | | | | | | | | | |
| Aerospace | | | N/A | N/A | 73,236 | 4,600 | 0 | 0 | 0 | 77,836 |
| Test and Evaluation Organizations | | | N/A | N/A | 0 | 0 | 0 | 0 | 0 | 0 |
| Government Furnished Property : None | | | | | | | | | | |
| Subtotal Product Development | | | | | 2,542,201 | 59,002 | 70,483 | 87,443 | 114,799 | 2,873,928 |
| Subtotal Support and Management | | | | | 223,782 | 18,700 | 0 | 0 | 0 | 242,482 |
| Subtotal Test and Evaluation | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | | 2,765,983 | 77,702 | 70,483 | 87,443 | 114,799 | 3,116,410 |

* NOTE: The Estimates at Complete are at the contract level and therefore include work funded by the National Reconnaissance Office, NASA and other customers. Thus, the EACs include more than just Air Force funding requirements.

* * These figures are only Air Force Titan IV RDT&E funds

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305158F Tactical Terminals

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 2,794 | 243 | 237 | 243 | 245 | 249 | 255 | 0 | TBD |
| 4394 Combat Intelligence System | 1,949 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,072 |
| 4395 Radio | 845 | 243 | 237 | 243 | 245 | 249 | 255 | Cont | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) **Note:** The funding request for Project 4394 Combat Intelligence System (CIS) for FY98 and later has been transferred into PE 0207414F. Together with other funds from PEs 0604321F and 0207431F, this was done to consolidate RDT&E funding in a single PE, for program clarity, and reporting efficiency.

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

This program was established as part of the Air Force Tactical Exploitation of National Capabilities (TENCAP) normalization effort. Recently, the Constant Source Operator Terminal (CSOT) functionality was transformed into the Combat Intelligence System (CIS). This terminal processes the near-real-time threat information utilized by combat units/aircrews for mission planning and execution. The radio project in this program enables the warfighter to access critical data provided by national and tactical intelligence sources. Currently over 130 ground systems are deployed. Air Force is jointly developing and procuring an airborne qualified radio called Multi-mission Advanced Tactical Terminal (MATT) with US Special Operations Command (SOCOM), Defense Support Program Office (DSPO), and the Navy. This Program Element is assigned in Budget Activity 7, Operational System Development because it involves post-Milestone III efforts and supports development of operational systems.

## (U) Acquisition Strategy:

Project 4394 - Full and open competition led to a Cost Plus Award Fee contract with Lockheed Martin Command and Control Systems.

Project 4395 - Technology transfer from the Naval Research Laboratory to the contractor. Evolutionary acquisition strategy was implemented with a core capability procured during the first production option. Firm Fixed Price.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305158F Tactical Terminals

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 2,799 | 258 | 242 | TBD |
| (U) Appropriated Value | 2,914 | 258 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -70 | -11 | | |
| b. Small Business Innovative Research | -45 | -4 | | |
| c. Below Threshold Reprogramming | | | | |
| d. Rescissions | -5 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -5 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 2,794 | 243 | 237 | TBD |

(U) Change Summary Explanation:

Funding: N/A
Schedule: N/A
Technical: N/A

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement, AF (0305158F) | 7,293 | 6178 | 4,243 | 3,591 | 3,667 | 4,483 | 4,499 | Cont | TBD |
| (U) O&M, PE 0207431, CAIS | 3,479 | 3,740 | 4,911 | 4,941 | 5,180 | 5,557 | 5,781 | Cont | TBD |

(U) D. **Schedule Profile** - See individual projects for Schedule Profiles.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | | DATE February 1998 |
|---|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305158F Tactical Terminals | | PROJECT<br>4394 |

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4394 Combat Intelligence System | 1,949 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5,072 |
| Quantity of RDT&E Articles | | | | | | | | | |

(U) **Note:** The funding request for Project 4394 Combat Intelligence System (CIS) for FY98 and later has been reprogrammed into PE 0207414F. Together with other funds from PEs 0604321F and 0207431F, this was done to consolidate RDT&E funding in a single PE, for program clarity, and reporting efficiency.

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

(U) Combat Intelligence System (CIS) is the Air Force's single, standard automated intelligence system optimizing both component and unit-level intelligence functions to provide warfighters with the most accurate and timely intelligence data available. CIS is the core capability for automating the receipt, correlation, and dissemination of intelligence information to a variety of intelligence and operational systems which support combat planning and execution. As the intelligence segment to Theater Battle Management Core Systems (TBMCS), it provides an automated capability at the component and unit levels to rapidly receive and process all-source intelligence data to support Contingency Theater Automated Planning System (CTAPS). CIS builds and maintains in-theater situational awareness during deployment to the theater and provides indications and warning support after arrival. CIS provides the capability to receive all-source intelligence near-real-time from national, theater, and tactical reconnaissance platforms. CIS is electronically interoperable and compatible with other intelligence systems, providing an integrated network capable of intelligence support to decision makers, battle planners, mission planners, and warfighters.

(U) FY 1997 ($ in Thousands):
- (U) $ 245 Completed Studies for CIS intelligence interoperability
- (U) $ 1,202 Completed CIS software development under TBM Core Systems
- (U) $ 502 Implemented results of studies into CIS software under TBM Core Systems
- **(U) $ 1,949 Total**

(U) FY 1998 ($ in Thousands)*:
- (U) $ 0 Total

(U) FY 1999 ($ in Thousands)*:
- (U) $ 0 Total

* FY 1998 and FY 1999: Funding is budgeted in PE 0207414F.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305158F Tactical Terminals

PROJECT: 4394

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) FY 1998 President's Budget | 1,954 | 0 | 0 | 1,954 |
| (U) Appropriated Value | 2,035 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -49 | | | |
| b. Small Business Innovative Research | -32 | | | |
| c. Below Threshold Reprogramming | | | | |
| d. Rescissions | -5 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | | |
| (U) FY 1999 President's Budget | 1,949 | 0 | 0 | 1,949 |

(U) Change Summary Explanation:

Funding: N/A
Schedule: N/A
Technical: N/A

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

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) CIS 1.2 Release | | | X | | | | | | | | | |
| (U) TBMCS Contract Award | | | | | | | | | | | | |
| (U) TBMCS 1.0 Release | | | | | | | | X | | | | |
| (U) Initial Operational Capability | | | | | | | X | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305158F Tactical Terminals<br>PROJECT 4394 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Software Development | 1,634 | 0 | 0 |
| (U) Systems Engineering Support | 130 | 0 | 0 |
| (U) Program Management Support | 185 | 0 | 0 |
| **(U) Total** | **1,949** | **0** | **0** |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Lockheed Martin Cmnd & Ctrl Syst F19628-95-C0143 and various others | SS/CPAF | Oct 95 | Complete | Complete | 2,301 | 1,634 | 0 | 0 | 0 | 3,935 |
| Support and Management Organizations | | | | | | | | | | |
| MITRE | | On going | N/A | N/A | 551 | 130 | 0 | 0 | 0 | 681 |
| TEMS Various Contractors | | On going | N/A | N/A | 271 | 185 | 0 | 0 | 0 | 456 |

Test and Evaluation Organizations - N/A

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305158F Tactical Terminals | PROJECT<br>4394 |

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

**Government Furnished Property:** N/A

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Support and Management Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Test and Evaluation Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Subtotal Product Development | | | | 2,301 | 1,634 | 0 | 0 | 0 | 3,935 |
| Subtotal Support and Management | | | | 822 | 315 | 0 | 0 | 0 | 1,137 |
| Subtotal Test and Evaluation | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total Project** | | | | **3,123** | **1,949** | **0** | **0** | **0** | **5,072** |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305158F Tactical Terminals<br>PROJECT 4395 |

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4395 Radio | 845 | 243 | 237 | 243 | 245 | 249 | 255 | Cont | TBD |
| Quantity of RDT&E Articles | | | | | | | | | |

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

(U) This program provides the capability to receive near-real-time threat information utilized by combat units/aircrews for threat warning, mission planning, and execution. It enables the warfighter to access critical data provided by national and tactical intelligence sources. Current fielded radios include the Tactical Receive Equipment (TRE) and Multi-mission Advanced tactical terminal (MATT). The MATTS are being integrated into air and ground platforms which require tactical broadcast functionality. The follow on capability will be provided by the Joint Tactical Terminal and/or Common Integrated Broadcast Service Modules (CIBS-M).

(U) FY 1997 ($ in Thousands):
- (U) $ 150 Planned and supported integration on DoD aircraft and weapon systems
- (U) $ 595 Supported MATT radio $P^3I$ development effort
- (U) $ 100 Supported migration of MATT into next generation tactical terminal
- **(U) $ 845 Total**

(U) FY 1998 ($ in Thousands):
- (U) $ 95 Continue to plan and support integration on DoD aircraft and weapon systems
- (U) $ 103 Continue to support migration of MATT into next generation tactical terminal
- (U) $ 45 Continue MATT radio $P^3I$ development effort
- **(U) $ 243 Total**

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305158F Tactical Terminals |
| | PROJECT<br>4395 |

(U) FY 1999 ($ in Thousands):

- (U) $ 147 Continue to plan and support integration on DoD aircraft and weapon systems
- (U) $ 90 Continue to support migration of MATT into next generation tactical terminal
- (U) $ **237** **Total**

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) FY 1998 President's Budget | 845 | 258 | 242 | TBD |
| (U) Appropriated Value | 879 | 258 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -21 | -11 | | |
| b. Small Business Innovative Research | -13 | -4 | | |
| c. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -5 | |
| (U) FY 1999 President's Budget | 845 | 243 | 237 | TBD |

(U) Change Summary Explanation:

Funding: N/A
Schedule: N/A
Technical: N/A

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

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305158F Tactical Terminals<br>PROJECT 4395 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Exercise FY97 Production Option | * | | | | | | | | | | | |
| (U) FY97 Production Run/Delivery Start | | | | X | | | | | | | | |
| (U) Delivery to Platform Start | | | * | | | | | | | | | |
| (U) Block II Production | | | | | | X | | | | | | |

* denotes completed events

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305158F Tactical Terminals

PROJECT: 4395

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Software Development | 515 | 55 | 41 |
| (U) Travel | 100 | 71 | 73 |
| (U) Government Engineering Support | 230 | 117 | 123 |
| (U) **Total** | **845** | **243** | **237** |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | FY 1997 | FY 1998 | FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Allied Signal, Inc. MDA911-93-C0008 and TBD | FFP | Apr 93 | TBD | TBD | 0 | 515 | 58 | 42 | Cont | TBD |
| Support and Management Organizations | | | | | | | | | | |
| Mission Support | | Ongoing | | | 0 | 330 | 185 | 195 | Cont | TBD |
| Test and Evaluation Organizations | | | | | 0 | 0 | 0 | 0 | | |

**Government Furnished Property: N/A**

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305158F Tactical Terminals

PROJECT: 4395

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Support and Management Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Test and Evaluation Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Subtotal Product Development | | | | 0 | 515 | 58 | 42 | Cont | TBD |
| Subtotal Support and Management | | | | 0 | 330 | 185 | 195 | Cont | TBD |
| Subtotal Test and Evaluation | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total Project** | | | | | **845** | **243** | **237** | **Cont** | **TBD** |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305160F Def Meteorological Satellite Prog (Space)

PROJECT: 0001

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 0001 DMSP | 17,618 | 12,425 | 20,432 | 21,027 | 18,931 | 14,246 | 11,128 | 19,700 | 295,149 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

The Defense Meteorological Satellite Program (DMSP) is a fully operational joint-service program supporting all military services. Operational commanders require timely, quality weather information to effectively employ weapon systems and protect DoD resources. DMSP is the DoD's most important and often the only source of global weather data. It provides visible and infrared cloud cover imagery (1/3 nm constant resolution) and other meteorological, oceanographic, and solar-geophysical information. This data is required over the entire earth to support global and theater military operations. At least two satellites are required in sun synchronous 450nm polar orbit at all times (sun synchronous means the satellites cross the equator at the same local sun time on each of their 14 orbits/day). Vice President Gore's National Performance Review directed convergence of DMSP with NOAA's weather satellite system. DMSP satellite operations will consolidate with NOAA satellite operations at NOAA's Suitland MD Satellite Operations Control Center (SOCC) in FY 98. This program is in Budget Activity 7,Operational Systems Development, because it supports the current operational DMSP constellation.

(U) **Acquisition Strategy**

Support and services contracts for the spacecraft, sensors, ground systems, and supporting software have been awarded to various contractors. Since no major milestone decisions remain, future considerations facing the program center on successful completion of current contracts, the need for future contractor support of the procured spacecraft, sensors, and ground systems.

(U) FY 1997 ($ in Thousands)

- (U) $12,575 Continue system integration and test, calibration and validation, and related support activities.
- (U) $325 Complete Small Tactical Terminal (field portable weather terminal) enhanced algorithm development and implementation.
- (U) $1,377 Begin Mark IVB tactical weather terminal software upgrade for the next block of satellites (5D-3)
- (U) $2,200 Continue support of civilian (DOC/NOAA)/military command and control consolidation efforts
- (U) $1,141 Continue Titan II integration effort (transition from Atlas E due to inventory depletion)
- (U) $17,618 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305160F Def Meteorological Satellite Prog (Space) |
| | PROJECT<br>0001 |

(U) FY 1998 ($ in Thousands)

- (U) $11,181 Continue system integration and test, calibration and validation, and related support activities.
- (U) $200 Continue Titan II integration effort (transition from Atlas E due to inventory depletion).
- (U) $1,044 Continue Mark IVB tactical weather terminal software upgrade for the next block of satellites (5D-3)
- (U) $12,425 Total

(U) FY 1999 ($ in Thousands)

- (U) $15,035 Continue system integration and test, calibration and validation, and related support activities.
- (U) $1,474 Continue Titan II integration effort (transition from Atlas E due to inventory depletion).
- (U) $2,358 Begin EELV interface design (transition to EELV)
- (U) $1,000 Begin Small Tactical Terminal (field portable weather terminal) SSMIS software upgrades.
- (U) $565 Continue Mark IVB tactical weather terminal software upgrade for the next block of satellites (5D-3)
- (U) $20,432 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998) | 14,769 | 14,076 | 19,143 | 297,862 |
| (U) Appropriated Value | 15,664 | 14,076 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | -533 | -1,364 | | |
| b. SBIR | -362 | -287 | | |
| c. Omnibus or Above Threshold Reprogramming* | | | | |
| d. Below Threshold Reprogramming | 2,875 | | | |
| e. Recission | -26 | | | |
| (U) Adjustments to Budget Years Since FY1998 PB | | | 1,289 | |
| (U) Current Budget Submit/FY1999 Presidents Budget | 17,618 | 12,425 | 20,432 | 300,349 |

(U) Change Summary Explanation:

Funding: FY 97 Omnibus reprogramming ($5M) funds SSMIS settlement Omnibus increase has been processed but is not yet reflected in the funding database.
FY 99 adjusted - (2,000) funds DMSP EELV interface design, -711 funded higher priority AF and DoD requirements.

Schedule: F-14 launch 3QFY97

Technical: No changes.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305160F Def Meteorological Satellite Prog (Space) |
| | PROJECT<br>0001 |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Missile Procurement/PE 0305160F (Budget Activity 5, Line Item P-27) | 31,556 | 33,295 | 36,066 | 40,366 | 60,325 | 40,850 | 49,580 | 105,400 | 1,985,090 |
| (U) Other Procurement/PE 0305160F (Line Item P-63) | 15,215 | 13,278 | 12,442 | 6,800 | 5,496 | 4,998 | 2,738 | 0 | 288,139 |

**Related RDT&E:**
(U) PE 0603434F, National Polar Operational Environmental Satellite System (NPOESS)
(U) PE 0305160N, DMSP (provides funds for Navy unique studies)

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Small Tactical Terminal Delivery Start | X | | | | | | | | | | | |
| (U) Small Tactical Terminal Deliveries Complete | | | | | | | | | | | | X |
| (U) Small Tactical Terminal FOT&E | X | | | | | | | | | | | |
| (U) 5D-3 Spacecraft Delivery (S16-20) | X | | X | | X | X | | X | | | | |
| (U) 5D-2 Launches (F-14/F-15) | | | X | | | | | | X | | | |
| (U) Suitland SOC IOC (DMSP Ops) | | | | | | | X | | | | | |
| (U) DMSP SOC (Offutt AFB) Closure | | | | | | | | X | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305160F Def Meteorological Satellite Prog (Space)

PROJECT: 0001

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Launch Vehicle Transition | 1,141 | 200 | 3,832 |
| (U) Spacecraft Integration and Test | 2,706 | 3,678 | 7,122 |
| (U) Calibration/Validation | 155 | 0 | 359 |
| (U) Algorithm Development | 1,405 | 916 | 838 |
| (U) SSMIS Settlement | 44 | 0 | 0 |
| (U) MARK IVB/STT Enhancements | 1,749 | 1,138 | 1,565 |
| (U) Systems Engineering Support | 4,339 | 2,826 | 2,777 |
| (U) Program Management Support | 3,879 | 3,667 | 3,939 |
| (U) Command and Control Consolidation | 2,200 | 0 | 0 |
| (U) Total | 17,618 | 12,425 | 20,432 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Lockheed -Martin | SS/CPAF | Apr 92 | 3,764 | 3,764 | 3,764 | 0 | 0 | 0 | 0 | 3,764 |
| Lockheed-Martin | SS/CPAF | May 97 | 9,870 | 9,870 | 0 | 122 | 593 | 3,391 | 5,764 | 9,870 |
| Northrop-Grummn | SS/CPAF | May 95 | 3,958 | 3,958 | 1,350 | 0 | 408 | 2,050 | 150 | 3,958 |
| Lockheed-Martin | C/CPAF | Oct 88 | 39,513 | 39,513 | 39,466 | 47 | 0 | 0 | 0 | 39,513 |
| Harris | C/CPAF | Jun 94 | 5,380 | 5,380 | 4,961 | 325 | 94 | 0 | 0 | 5,380 |
| SM-ALC | FCA | Jan 97 | 4,168 | 4,168 | 0 | 1,377 | 1,044 | 565 | 1,182 | 4,168 |
| SMC/CL (Titan) | PO | Oct 94 | 6,579 | 6,579 | 614 | 1,141 | 200 | 1,474 | 3,150 | 6,579 |
| Aerojet | SS/CPAF | May 92 | 2,530 | 2,530 | 2,023 | 507 | 0 | 0 | 0 | 2,530 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305160F Def Meteorological Satellite Prog (Space)

PROJECT: 0001

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Aerojet | C/CPAF | Mar 89 | 86,791 | 86,791 | 80,949 | 191 | 451 | 200 | 0 | 81,791 |
| TBD (SSMIS Sys Eng Spt) | TBD | Dec 97 | | | 0 | 0 | 685 | 1,411 | 3,366 | 5,462 |
| Hughes | SS/CPFF | May 96 | 250 | 250 | 15 | 23 | 70 | 70 | 72 | 250 |
| Phillips Lab | MIPR/PD | Oct 95 | | | 2,821 | 1,142 | 831 | 911 | Cont | Cont |
| TBD (STT S/W Upgrades) | TBD | TBD | | | 0 | 0 | 0 | 1,000 | 3,800 | 4,800 |
| NRL | MIPR/Various | Oct 95 | | | 1,776 | 1,279 | 865 | 1,363 | Cont | Cont |
| APL | MIPR/Various | Oct 95 | | | 928 | 550 | 491 | 690 | Cont | Cont |
| SMC (Det 3 SSSG) | FCA | Dec 95 | | | 306 | 2,200 | 0 | 0 | 0 | 2,506 |
| Sandia | MIPR/Various | Oct 96 | | | 200 | 240 | 200 | 361 | Cont | Cont |
| Other | Various | | | | 1,893 | 256 | 0 | 230 | Cont | Cont |
| Support and Management Organizations | | | | | | | | | | |
| FFRDC | MORD* | Oct 95 | | | 7,401 | 2,689 | 1,726 | 1,577 | Cont | Cont |
| PRC/bd Systems | C/CPAF | Aug 95 | | | 1,566 | 1,650 | 1,100 | 1,200 | Cont | Cont |
| Program Mgmt | | | | | 5,842 | 3,879 | 3,667 | 3,939 | Cont | Cont |
| Litigation Support | | | | | 1,809 | 0 | 0 | 0 | 0 | 1,809 |
| Other | Various | Jul 91 | | | 1,958 | 0 | 0 | 0 | 0 | 1,958 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305160F Def Meteorological Satellite Prog (Space) |
| | PROJECT<br>0001 |

*MORD - Miscellaneous Obligation/Reimbursement Document -a vehicle/method for committing and obligating funds. In this case the program office sends a letter to SMC/FM to commit & obligate the funds programmed for Aerospace support.

Test and Evaluation Organizations
Not Applicable.

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

**Government Furnished Property:** Not Applicable.

| | Prior to FY 97 | FY 97 | FY 98 | FY 99 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 141,066 | 9,400 | 5,932 | 13,716 | Cont | Cont |
| Subtotal Support and Management | 18,576 | 8,218 | 6,493 | 6,716 | Cont | Cont |
| Subtotal Test and Evaluation | 0 | 0 | 0 | 0 | 0 | 0 |
| Project Total | 159,642 | 17,618 | 12,425 | 20,432 | Cont | Cont |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305164F Navstar Global Pos Sys (User Eq) (Space)

PROJECT: 3028

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3028 Navstar GPS | 33,760 | 43,627 | 67,238 | 45,145 | 22,060 | 15,257 | 15,860 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

The Global Positioning System (GPS) is a space-based radio positioning, navigation, and time distribution system. GPS User Equipment (UE) consists of standardized receivers, antennae, antenna electronics, etc., grouped together in sets to derive navigation and time information transmitted from GPS satellites. These receiver sets are used by all Services and DoD. RDT&E funds UE development and testing, studies and engineering to assist UE aircraft integration, software upgrades, product improvement studies, commercial GPS UE test and evaluation, and mission support. Due to increaseing military GPS dependence and emerging Electronic Warfare (EW) threat, Navigation Warfare (Navwar) program established to address EW solutions for GPS. The three tenets of Navwar are to protect U.S. military and allies' use of GPS, prevent hostile exploitation of GPS, and preserve civil use of GPS outside the area of responsibility (AOR). This program element is in Budget Activity 7 - Operational System Development, because UE passed Milestone IIIB January 1992.

Acquisition Strategy: Centrally develop and procure GPS receiver sets for all DoD platforms. Hardware upgrades/modernization accomplished through information and requirements dissemination to industry and study efforts to evaluate alternatives. Individual hardware procurements will be cometitively awarded to single vendors. Navwar Advanced Concept Technology Demonstrations (ACTD) provide proof of concept and results feed into ongoing Analyses of Alternatives (AoA). Identified solutions allow start of Engineering Manufacturing Development (EMD) of Navwar UE in FY99.

(U) FY 1997 ($ in Thousands):

- (U) $ 870 Continued aircraft integration development testing
- (U) $ 888 Continued user equipment development and product improvement testing
- (U) $ 1,970 Continued Advanced Concept Technology Demonstration (ACTD) - Protection
- (U) $ 1,674 Continued Advanced Concept Technology Demonstration (ACTD) - Prevention
- (U) $ 1,300 Continued Support Contracts
- (U) $ 3,566 Continued in-house support
- (U) $ 4,763 Continued Selective Availability Anti-Spoofing Module (SAASM) development
- (U) $ 3,821 Began Navigation Warfare (NAVWAR) Evaluation Team (NET)
- (U) $ 3,999 Began classified requirement
- (U) $ 7,763 Began NAVWAR Industry Studies
- (U) $ 2,125 Continued NAVWAR Other Studies

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305164F Navstar Global Pos Sys (User Eq) (Space) |
| | PROJECT<br>3028 |

- (U) $ 1,021 Began GPS Modernization/Stewardship Efforts
- (U) $33,760 Total

(U) FY 1998 ($ in Thousands):

- (U) $ 800 Continue aircraft integration development testing
- (U) $ 1,000 Continue development and product improvement testing and evaluation
- (U) $ 4,800 Continue ACTD - Protection
- (U) $ 3,300 Continue ACTD - Prevention
- (U) $10,588 Continue SAASM development
- (U) $ 7,850 Continue NET
- (U) $ 3,467 Continue NAVWAR Industry Studies
- (U) $ 1,400 Continue support contracts
- (U) $ 3,122 Continue in-house support
- (U) $ 6,800 Continue classified requirement
- (U) $ 500 Begin security infrastructure
- (U) $43,627 Total

(U) FY 1999 ($ in Thousands):

- (U) $ 731 Continue aircraft integration development testing
- (U) $ 5,300 Continue development and product improvement testing and evaluation
- (U) $ 8,800 Continue ACTD - Protection
- (U) $ 2,300 Continue ACTD - Prevention
- (U) $ 5,300 Continue SAASM development
- (U) $ 1,600 Continue NET
- (U) $ 1,500 Continue support contracts
- (U) $ 3,107 Continue in-house support
- (U) $38,600 Begin NAVWAR Engineering Manufacturing Development (EMD)
- (U) $67,238 Total

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305164F Navstar Global Pos Sys (User Eq) (Space)

PROJECT: 3028

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 29,810 | 46,300 | 68,590 | Continuing |
| (U) Appropriated Value | 31,250 | 46,300 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | -734 | -1,533 | | |
| b. SBIR | -706 | -1,140 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | 3,999 | | | |
| e. Rescission | -49 | | | |
| (U) Adjustments to Budget Years Since FY1998 PB | | | -1,352 | |
| (U) Current Budget Submit/FY1999 President's Budget | 33,760 | 43,627 | 67,238 | Continuing |

(U) Change Summary Explanation:
Funding: FY97 Below Threshold Reprogramming (BTR) for a classified requirement ($3,999), rescission for Bosnia Supplemental (-$49).
FY99 Nonpay inflation adjustment (-$1,352).
Schedule: Schedule changes result from GPS Joint Program Office (User Equipment Segment) projects realignment.
Technical: No Changes

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Operations and Maintenance (PE 0305164F, BA 1 - Operating Forces, SAG 13D) | 1,208 | 1,484 | 1,964 | 2,431 | 2,621 | 2,661 | 2,769 | Cont | Cont |
| (U) Aircraft Procurement (PE 0305164F, BA 7, Aircraft Support Equipment, BP19, P-74) | 36,558 | 42,946 | 44,293 | 37,946 | 57,237 | 100,254 | 135,528 | Cont | Cont |
| (U) Other Procurement (PE 0305164F, BP 63 - Electronics & Telecommunications Equipment, WSC 6730, P-62) | 1,893 | 1,513 | 1,462 | 3,830 | 3,819 | 4,241 | 4,371 | Cont | Cont |
| (U) OSD RDT&E (ACTD Funding: PE 0603750D) | 4,500 | 3,900 | 300 | | | | | | |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305164F Navstar Global Pos Sys (User Eq) (Space) |
| | PROJECT<br>3028 |

**Related RDT&E:**
(U) PE 0305165F, NAVSTAR GPS (Space/Grd Segments)
(U) PE 0604480F, GPS Block IIF
(U) PE 0305176F, Combat Survivor/Evader Locator

**(U) D. Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) GPS Modernization (Acquisition Master Plan) | | | | x | | | | | | | | |
| (U) GPS Modernization (ORD/JROC) | | | | | | | | x | | | | |
| (U) GPS Modernization (Prgm Decision) | | | | | | | | x | | | | |
| (U) NAVWAR Next Generation UE (Independent Studies/AOA/PRDAs) complete | | | | | | | | x | | | | |
| (U) NAVWAR Next Generation UE EMD begins | | | | | | | | | x | | | |
| (U) NAVWAR ACTD Dev/Qual complete | | | | x | | | | | | | | |
| (U) NAVWAR ACTD Demos begin | | | | x | | | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305164F Navstar Global Pos Sys (User Eq) (Space) |
| | PROJECT<br>3028 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Technical Support for Aircraft Integrations | 870 | 800 | 731 |
| (U) Development & Product Improvement Testing | 888 | 1,000 | 5,300 |
| (U) ACTD - Protection | 1,970 | 4,800 | 8,800 |
| (U) ACTD - Prevention | 1,674 | 3,300 | 2,300 |
| (U) Support Contracts | 1,300 | 1,400 | 1,500 |
| (U) In-House Support | 3,566 | 3,122 | 3,107 |
| (U) SAASM | 4,763 | 10,588 | 5,300 |
| (U) NET | 3,821 | 7,850 | 1,600 |
| (U) NAVWAR Industry Studies | 7,763 | 3,467 | |
| (U) Other NAVWAR Studies | 2,125 | | |
| (U) Classified Requirement | 3,999 | 6,800 | |
| (U) GPS Modernization/Stewardship | 1,021 | | |
| (U) Security Infrastructure | | 500 | |
| (U) NAVWAR EMD | | | 38,600 |
| (U) Total | 33,760 | 43,627 | 67,238 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305164F Navstar Global Pos Sys (User Eq) (Space) |
| | PROJECT<br>3028 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Rockwell (MAGR) | FPIF/FFP/ CPAF | Various | 19,293 | 19,293 | 19,293 | 36 | 0 | 0 | 0 | 19,329 |
| DOE Sandia (SAASM) | MIPR | Feb 94 | 18,669 | 18,669 | 3,235 | 2,334 | 3,600 | 1,400 | 8,100 | 18,669 |
| NAWC (SAASM) | MIPR | Oct 95 | 760 | 760 | 599 | 161 | 0 | 0 | 0 | 760 |
| Various (SAASM) | Various | Various | Various | Various | 0 | 401 | 6,988 | 3,900 | 0 | 11,289 |
| Alliant Techsys Inc (SAASM) | CPFF | Oct 95 | 4,414 | 4,414 | 2,547 | 1,867 | 0 | 0 | 0 | 4,414 |
| Multiple (NAVWAR PRDAs) | CPAF | Aug 96 | 23,110 | 23,110 | 1,446 | 7,763 | 3,467 | 0 | 10,434 | 23,110 |
| Holloman AFB (Integration) | Project Order | N/A | 6,191 | 6,191 | 0 | 870 | 800 | 731 | 3,790 | 6,191 |
| General Dynamics (Various) | Time and Materials | Jan 96 | 1,810 | 1,810 | 1,810 | 0 | 0 | 0 | 0 | 1,810 |
| Various (ACTD Prevention) | Various | Various | 7,774 | 7,774 | 0 | 1,674 | 3,300 | 2,300 | 500 | 7,774 |
| Various (ACTD Protection) | Various | Various | 26,142 | 26,142 | 572 | 1,970 | 4,800 | 8,800 | 10,000 | 26,142 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305164F Navstar Global Pos Sys (User Eq) (Space)

PROJECT: 3028

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Various (NET) | Various | Various | 14,971 | 14,971 | 0 | 3,821 | 7,850 | 1,600 | 1,700 | 14,971 |
| Various (Classified Requirement) | Various | Various | 10,799 | 10,799 | 0 | 3,999 | 6,800 | 0 | 0 | 10,799 |
| Various (Security Infrastructure) | Various | Various | 1,000 | 1,000 | 0 | 0 | 500 | 0 | 500 | 1,000 |
| Various (EMD) | Various | Various | 69,000 | 69,000 | 0 | 0 | 0 | 38,600 | 30,400 | 69,000 |
| Support and Management Organizations | | | | | | | | | | |
| Overlook Sys (DUSD/Space) | C/CPFF | Dec 95 | Cont | Cont | 10,476 | 1,300 | 1,400 | 1,500 | Cont | Cont |
| Aerospace Corp (Technical Supt) | CPFF | Various | Cont | 860 | 800 | 60 | 0 | 0 | 0 | 860 |
| SMC/FMB (Shared Prg Cost) | Various | Various | Cont | Cont | 1,684 | 2,414 | 625 | 750 | Cont | Cont |
| PRC (Technical Supt) | Time and Materials | Dec 95 | 714 | 714 | 714 | 0 | 0 | 0 | 0 | 714 |
| Miscellaneous (In-house support) | Various | Various | Cont | Cont | 417 | 1,056 | 2,497 | 1,357 | Cont | Cont |
| Advanced UE Technology Investment (Technical Support) | Various | Various | Various | Various | 0 | 0 | 0 | 1,000 | Cont | Cont |
| (GPS Modernization) | Various | Various | Various | Various | 0 | 1,021 | 0 | 0 | 0 | 1,021 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305164F Navstar Global Pos Sys (User Eq) (Space)

PROJECT: 3028

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Various (Other Studies) | Various | Various | Various | Various | 0 | 2,125 | 0 | 0 | 0 | 2,125 |
| Test and Evaluation Organizations | | | | | | | | | | |
| 46th TG (SAASM/Test) | Project Order | Various | 31,987 | 31,987 | 31,987 | 0 | 0 | 0 | 0 | 31,987 |
| 46th TG (NAVWAR Test and Eval) | Project Order | Various | Cont | Cont | 0 | 888 | 1,000 | 5,300 | 7,380 | 14,568 |
| **Government Furnished Property:** (U) Not Applicable. | | | | | | | | | | |
| Subtotal Product Development | | | | | 29,502 | 24,896 | 38,105 | 57,331 | 54,990 | 215,258 |
| Subtotal Support and Management | | | | | 14,091 | 7976 | 4,522 | 4,607 | Cont | Cont |
| Subtotal Test and Evaluation | | | | | 31,987 | 888 | 1,000 | 5,300 | 7,380 | 46,555 |
| Total Project | | | | | 75,580 | 33,760 | 43,627 | 67,238 | Cont | Cont |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305165F NAVSTAR GPS (Space)

PROJECT: 3030

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3030 NAVSTAR GPS (Space & Control) | 40,875 | 25,146 | 21,155 | 11,013 | 8,925 | 9,059 | 9,375 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

This program element funds Research and Development for the NAVSTAR Global Positioning System (GPS) Space and Control segments of the overall GPS program. This includes: satellite development (except Block IIF), procurement, and deployment; training simulators; Mission Operation Support Center (MOSC); and ground control segment operation, including sustaining engineering, space and ground segments upgrades, and R&D efforts to support entire GPS system deployment. This program is in Budget Activity 7 - Operational Systems Development, because it is a post-Milestone III program.

Acquisition Strategy: GPS Operational Control System (OCS) upgrade competitively awarded to a single contractor in July 1995.

(U) FY 1997 ($ in Thousands)

- (U) $4,769 Continued system engineering including configuration control
- (U) $3,388 Continued training simulator development
- (U) $20,901 Continued OCS Consolidated Contract for Common Operator Support Environment (COSE), OCS Architectural Implementation, and Block IIR full functionality
- (U) $4,000 Investigated space/control segment solutions as part of GPS Navigation Warfare (NAVWAR) program
- (U) $6,314 Continued Sensor to Shooter accuracy improvement effort
- (U) $269 Began space long-range planning and analysis
- (U) $1,234 Continued GPS Joint Program Office support
- (U) $40,875 Total

(U) FY 1998 ($ in Thousands):

- (U) $2,246 Continue system engineering including configuration management
- (U) $2,566 Continue training simulator development
- (U) $13,997 Continue OCS Consolidated Contract for COSE, OCS Architectural Implementation, and Block IIR Full Functionality
- (U) $6,045 Complete Sensor to Shooter accuracy improvement effort
- (U) $137 Continue space long-range planning and analysis
- (U) $155 Complete R&D funding of GPS Joint Program Office support (continues in procurement appropriation)
- (U) $25,146 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305165F NAVSTAR GPS (Space) |
| | PROJECT<br>3030 |

(U) FY 1999 ($ in Thousands):

| | | |
|---|---|---|
| – (U) | $2,132 | Continue system engineering including configuration management |
| – (U) | $1,470 | Continue training simulator development |
| – (U) | $13,916 | Continue OCS Consolidated Contract for COSE, OCS Architectural Implementation, and Block IIR Full Functionality |
| – (U) | $137 | Complete space long-range planning and analysis |
| – (U) | $2,600 | Begin IIA IMOSC development |
| – (U) | $900 | Complete OSS interface to AEP |
| – (U) | $21,155 | Total |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 40,442 | 26,685 | 21,580 | Continuing |
| (U) Appropriated Value | 42,243 | 26,685 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | -899 | -882 | | |
| b. SBIR | -902 | -657 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | 500 | | | |
| e. Rescision | -67 | | | |
| (U) Adjustments to Budget Years Since FY1998 PB | | | -425 | |
| (U) Current Budget Submit/FY1999 President's Budget | 40,875 | 25,146 | 21,155 | Continuing |

(U) Change Summary Explanation:

Funding: FY97 Below Threshold Reprogramming (BTR) to PE 0303110F for higher priority AF effort(-$200) and from PE 0305144F to support Auto-Nav test capability on the legacy GPS control system ($700); BTR from PE 0303131F ($1,000) and PE 0305911F ($1,000) for GPS Modernization has been processed but is not yet reflected in funding database.

FY98 BTR from PE 0305110F ($1,700) and PE 0305911F ($299) for GPS Modernization has been processed but not yet reflected in funding database.

FY99 non-pay inflation adjustment (-$425).

Schedule: No change.

Technical: No change.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305165F NAVSTAR GPS (Space)

PROJECT: 3030

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Operations and Maintenance (PE 0305165F, BA 1 - Operating Forces, SAG 13D) | 19,972 | 20,714 | 25,540 | 22,650 | 26,364 | 26,606 | 27,452 | Cont | Cont |
| (U) Missile Procurement (PE 0305165F, BA 5 - Space and Other Support, P-20, 21) | 196,965 | 157,630 | 174,795 | 226,822 | 192,897 | 134,803 | 136,487 | Cont | Cont |
| (U) Other Procurement (PE 0305165F, BP 63 - Electronics and Telecommunications Equipment, WSC 6790, P-68) | 10,663 | 10,060 | 8,430 | 1,464 | 665 | 795 | 861 | Cont | Cont |

**Related RDT&E:**

(U) PE 0305164F, GPS User Equipment
(U) PE 0101221N, Fleet Ballistic Missile System
(U) PE 0301357F and 0305913F, Nuclear Detonation Detection System (NDS)
(U) PE 0305119F Space Boosters (Delta II)
(U) PE 0604480F, GPS Block IIF

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Delivery of Block IIR software to AFSPC | | | | | | | | x | | | | x |
| (U) GPS NAVWAR system mods investigation ends | | | | x | | | | | | | | |
| (U) Continue OCS Consolidated Contract | | | | | | | | | | | | |
| (U) Phase 1 delivery | | | | x | | | | | | | | |
| (U) Phase 2 delivery | | | | | | | | x | | | | |
| (U) GPS Modernization begins | | | | | x | | | | | | | |
| (U) IIA IMOSC development begins | | | | | | | | | x | | | |
| (U) OSS interface to AEP complete | | | | | | | | | | | | x |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305165F NAVSTAR GPS (Space)

PROJECT: 3030

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) System Engineering including Configuration Management | 4,769 | 2,246 | 2,132 |
| (U) Training Simulator Development | 3,388 | 2,566 | 1,470 |
| (U) Operational Control Segment (OCS) Development/Sustainment | 20,901 | 13,997 | 13,916 |
| (U) GPS NAVWAR system mods investigation | 4,000 | | |
| (U) Sensor to Shooter | 6,314 | 6,045 | |
| (U) Space long-range planning | 269 | 137 | 137 |
| (U) Program Office Support | 1,234 | 155 | |
| (U) IIA IMOSC development | | | 2,600 |
| (U) OSS interface to AEP | | | 900 |
| (U) Total | 40,875 | 25,146 | 21,155 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Lockheed-Martin | CPAF | Jun 90 | 118,856 | 118,856 | 118,737 | 119 | 0 | 0 | 0 | 118,856 |
| Lockheed-Martin | CPAF/FFP | Jul 95 | 100,000 | 100,000 | 14,595 | 28,923 | 21,494 | 15,386 | 19,602 | 100,000 |
| GPS NAVWAR | Various | Various | 4,000 | 4,000 | 0 | 4,000 | 0 | 0 | 0 | 4,000 |
| Applied Research Labs | MIPR | Mar 97 | 2,675 | 2,675 | 0 | 1,561 | 1,114 | 0 | 0 | 2,675 |
| L-R Plan - XR | Various | Various | 543 | 543 | 0 | 269 | 137 | 137 | 0 | 543 |
| IIA IMOSC | CPAF | Apr 99 | 3,500 | 3,500 | 0 | 0 | 0 | 2,600 | 900 | 3,500 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305165F NAVSTAR GPS (Space)

PROJECT: 3030

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Lockheed Martin | CPAF | Jun 99 | 900 | 900 | 0 | 0 | 0 | 900 | 0 | 900 |
| Support and Management Organizations | | | | | | | | | | |
| System Engineer | Various | Various | N/A | N/A | 12,909 | 4,742 | 2,246 | 2,132 | Cont | Cont |
| Program Support | Various | Various | N/A | N/A | 5,359 | 1,234 | 155 | 0 | 0 | 6,748 |
| Test and Evaluation Organizations | | | | | | | | | | |
| N/A | | | | | | | | | | |
| Subtotal Product Development | | | | | 133,332 | 34,872 | 22,745 | 19,023 | Cont | Cont |
| Subtotal Support and Management | | | | | 18,268 | 6,003 | 2,401 | 2,132 | Cont | Cont |
| Subtotal Test and Evaluation | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | | 151,600 | 40,875 | 25,146 | 21,155 | Cont | Cont |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305182F Eastern Space Launch Facility (Space)

PROJECT: 9222

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 9222 Range Standardization and Automation (RSA) Program | 33,900 | 32,018 | 24,578 | 49,572 | 44,465 | 38,622 | 39,974 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

Two national ranges, the Eastern Range (ER) at Patrick AFB, FL, and the Western Range (WR) at Vandenberg AFB, CA, provide tracking, telemetry, communications, command/control and other support capabilities necessary to safely conduct civil, commercial, and national security spacelift operations, ballistic missile test and evaluation (T&E), and a variety of aeronautical and guided weapons T&E. Range assets are based on 1950s/1960s designs and technology and are arrayed in a highly inefficient, manpower-intensive architecture. Range instrumentation reliability is deteriorating and over 40% of the components are obsolete with no sources of support. The ranges do not provide the responsiveness and flexibility critical to affordably support the nation's spacelift needs. Replacement of the aging systems is a necessity. Range Standardization and Automation (RSA) will completely overhaul and modernize both the ER and the WR, treating the two as a single integrated range system with an Eastern and Western segment. RSA will develop the integrated range system, using remote control and automation techniques to reduce the number of required operators, sites and facilities, and to produce improved responsiveness. The result will be a range system reconfigurable from one major operation to another in less than 4 hours versus 2-3 days, capable of being operated for 20% less cost than current ranges, and supportable through existing Air Force logistics infrastructure and standard practices. RSA is critical to the future of the spacelift ranges; performance and cost goals cannot be achieved without RSA. Categorized as Budget Activity 7, Operational Systems Development, because it upgrades existing operational capabilities with new systems. Funding for RSA design and integration for both Eastern and Western Ranges is consolidated in this Eastern Range program element to reflect the standard range being developed for both ranges. A parallel sustaining improvement and modernization activity for existing range systems is separately funded with procurement funds.

(U) **Acquisition Strategy:**

The RSA Phase I contract was competitively awarded in FY 1993 to provide interconnection between major ER stations at Antigua and Ascension Islands and the ER Operations Control Center via a satellite communications network; standardize and centralize telemetry processing for the ER and WR; and modernize and automate the Cape Canaveral Communications Network. The FY 1996 RSA Phase IIA contract was competitively awarded to provide a top down systems approach which standardizes the spacelift range architecture, incorporating assets from RSA I, RSA IIA, RSA IIB, selected I&M projects, and selected existing assets. It provides new assets to modernize range safety systems, data processing, communications, command/control, meteorological systems, and imaging. The RSA IIB phase will replace tracking, telemetry and command instrumentation based on the RSA Phase IIA architecture resulting in maximum automation and minimum manning.

(U) FY 1997 ($ in Thousands)

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE: February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0305182F Eastern Space Launch Facility (Space) / PROJECT: 9222 |

- (U) $8,776 Continued RSA Phase I: Integrated and began test of communications network.
- (U) $23,396 Continued RSA Phase IIA: Completed range architecture design; developed weather, planning and scheduling, and Control & Display basic infrastructure; and began integration and test of product items for Range Delivery Increment (RDI) 1.
- (U) $1,728 Provided program support for System Program Office.
- (U) $33,900 Total

(U) FY 1998 ($ in Thousands)

- (U) $9,542 Continues RSA Phase I: Completes design and begin integration of Consolidated Telemetry Processing System (CTPS). Funds SATCOM lease.
- (U) $21,190 Continues RSA Phase IIA: Continues RDI 1 product item development; begins converting communications network infrastructure to a seamless, multipath system, including network controllers and GPS-based timing, and completes product development test of RDI 1.
- (U) $1,286 Provides program support for System Program Office.
- (U) $32,018 Total

(U) FY 1999 ($ in Thousands)

- (U) $7,498 Continue RSA Phase I: Finishes integration of CTPS. Completes system test and evaluation. Fund SATCOM lease.
- (U) $15,780 Continue RSA Phase IIA: Continue Control & Display integration and test for operational turnover; continue development of communications network including network core. Begin development of voice, video, and data network modernization.
- (U) $1,300 Provide program support for System Program Office.
- (U) $24,578 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 33,956 | 34,186 | 33,472 | Continuing |
| (U) Appropriated Value | 35,704 | 34,186 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General | -820 | -1305 | | |
| b. SBIR | -928 | -863 | | |
| c. Omnibus and other Above Threshold | | | | |
| d. Rescissions | -56 | | | |
| e. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -8894 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 33,900 | 32,018 | 24,578 | Continuing |

(U) Change Summary Explanation:

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0305182F Eastern Space Launch Facility (Space) / PROJECT: 9222 |

Funding: FY 1999 DoD reduction funds higher priority needs.
Schedule: FY 1998 reductions delay flight analysis/range safety and communications upgrades by 6 months.
Technical: Delay increases risk of range safety failure resulting in launch delay or inadvertent destruction of launch vehicle and payload.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement, AF, BA 03, P-66, Eastern/Western Range I&M Space | 99,175 | 79,255 | 93,848 | 80,918 | 96,931 | 151,136 | 144,384 | Continuing | Continuing |
| (U) MILCON, AF, Project XUMU983004, Launch Operations Control Center | | 26,876 | | | | | | | 26,876 |

(U) **Related RDT&E**: Not Applicable.

* In addition to RSA, PE 0305182F includes funds required for ongoing Eastern Range sustaining improvement and modernization (I&M) program. Western Range RSA and I&M are included in PE 0305181F. Funding shown is for both PEs.
** FY 1998 MILCON funds are in PE 0305181F; FY 1998 funds are for the Western Range Operations Control Center (WROCC) to house WROCC RSA systems.

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) RSA Phase I Critical Design Review | | X | | | | | | | | | | |
| (U) RSA Phase IIA System Design Rev | | X | | | | | | | | | | |
| (U) RSA Phase IIA RDI-1 Product Development T&E (1st) | | | | X | | | | | | | | |
| (U) RSA Phase IIA Weather Instrumentation Facilities | | | | | | | X | | | | | |
| (U) RSA Phase IIA RDI-1 Product Development T&E (complete) | | | | | | | | X | | | | |
| (U) RSA Phase I Cape Fiber Optic Network Inst'l | | | | | | | X | | | | | |
| (U) RSA Phase I SATCOM Installation | | | | | | | X | | | | | |
| (U) WR Ops Cntrl Cntr Beneficial Occupancy Date | | | | | | | | | | | X | |
| (U) RSA Phase IIA RDI-1 System Integration Test Complete | | | | | | | | | | X | | |
| (U) RSA Phase I Operational T&E | | | | | | | | | | | X | |
| (U) RSA Phase I System Turnover | | | | | | | | | | | X | |
| (U) RSA Phase IIA RDI-1 Combined DT&E and IOT&E | | | | | | | | | | | X | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305182F Eastern Space Launch Facility (Space)

PROJECT: 9222

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) RSA Phase I Contract | 8,776 | 9,542 | 7,498 |
| (U) RSA Phase IIA Contract | 23,396 | 21,190 | 15,780 |
| (U) Program Support | 1,728 | 1,286 | 1,300 |
| (U) Total | 33,900 | 32,018 | 24,578 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligat'n Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | To Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Harris Corp/ Loral (RSA Phase I) | C/CPAF | Jun 93 | 93,859 | 93,859 | 69,571 | 8,776 | 9,542 | 7,498 | 0 | 93,859 |
| Lockheed Martin (RSA Phase IIA) | C/CPAF | Nov 95 | 166,521 | 166,521 | 9,800 | 23,396 | 21,190 | 15,780 | 96,355 | 166,521 |
| Harris Corp. (ROCC Eng'r Services) | SS/CPAF | Apr 94 | 23,852 | 23,852 | 23,852 | 0 | 0 | 0 | 0 | 23,852 |
| Various (Other RSA) | Various | Various | N/A | N/A | 2,913 | 0 | 0 | 0 | 0 | 2,913 |
| Support and Mangement Organizations | | | | | | | | | | |
| Mission Support | Various | Various | N/A | N/A | 10,021 | 1,728 | 1,286 | 1,300 | Cont. | Cont. |
| Test and Evaluation Organizations | | | | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305182F Eastern Space Launch Facility (Space)

PROJECT: 9222

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligat'n Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | To Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| TBD | TBD | 1998 | N/A | N/A | 0 | 0 | 0 | 0 | TBD | TBD |

**Government Furnished Property:** RSA Phase IIA contract awarded Nov 95; process underway to identify GFE

| | | | | | | |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 106,136 | 32,172 | 30,732 | 23,278 | 96,355 | 287,145 |
| Subtotal Support and Management | 10,021 | 1,728 | 1,286 | 1,300 | Cont. | Cont. |
| Subtotal Test and Evaluation | N/A | N/A | N/A | N/A | N/A | N/A |
| Total Project | 116,157 | 33,900 | 32,018 | 24,578 | Cont. | Cont. |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305205F Endurance UAVs

PROJECT: 4755

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | FY 2004 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| 4755 Predator UAV | 0* | 14,147 | 4,307 | 4,076 | 3,800 | 3,883 | 3,960 | 0 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

* In FY 1997, $7,777M was included inDARP PE0305205D for Predator.

(U) A. Mission Description and Budget Item Justification

The Predator unmanned aerial vehicle (UAV) was an Advanced Concept Technology Demonstration (ACTD) project funded in PE 0305154D for the development of an endurance UAV capable of sustained (long dwell) surveillance of critical targets, under most weather conditions, at a range of 500 nm from the launch area. The Predator is equipped with Electro-Optical/Infra-Red (EO/IR) and Synthetic Aperture Radar (SAR) sensors. The system also incorporates line-of-sight(LOS), narrow-band UHF SATCOM and wide-band Ku-band SATCOM datalinks capable of providing near-real-time (NRT) transmission of high resolution imagery throughout the operational envelope. The system supports the theater commander and interfaces with the Command, Control, Communication, Computer and Intelligence (C4I) architecture. The Predator is integral to the search and destruction of Critical Mobile Targets (CMT). The success of the Predator in a number of exercises and operational deployments in Bosnia has prompted the Joint Requirements Oversight Council (JROC) to request an additional quantity of systems and sensors. The JROC has identified a number of P3I upgrades (de-icing, UHF/VHF voice relay, and IFF Mode IV) to be included with production systems. IR sensor improvements and growth payloads are being considered. UAV Common Automated Recovery System (UCARS) has been added by Congress. This program is in budget activity 7, Operational Systems Development, because it involves follow-on Air Force R&D to make it a viable system.

(U) FY 1997 ($ in Thousands):
- (U) 0 Total - Funds included in DARP PE 0305205D

(U) FY 1998 ($ in Thousands):
- (U) $1070 Complete VOX/IFF/De-ice
- (U) $2000 Conduct operational tests/operational assessment
- (U) $2660 Other P3I (accuracy, acoustics, NBC assessment...)
- (U) $1000 Improve operational capabilities of Ku SATCOM
- (U) $1200 Improve system R&M to meet ORD requirements
- (U) $5800 Integrate UAV Common Automatic Recovery System (UCARS)
- (U) $ 417 Field support
- (U) $14147 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305205F Endurance UAVs | PROJECT<br>4755 |

(U) FY 1999 ($ in Thousands):

- (U) $1050 Conduct operational tests/operational assessment
- (U) $ 500 Develop interfaces to Theater Deployable Communications (TDC)
- (U) $ 940 Other P3I (accuracy, acoustics, NBC assessment...)
- (U) $ 900 Improve operational capabilities of Ku SATCOM
- (U) $ 500 Improve system R&M to meet ORD requirements
- (U) $ 417 Field support
- (U) $4307 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 0 | 0 | 0 | 0 |
| (U) Appropriated Value | | 14,990 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | | -489 | | |
| b. SBIR | | -354 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Year Since 98PB | | | | |
| (U) Current Budget Submit/FY 1999 President's Budget | 0 | 14,147 | 4,307 | TBD |

(U) Change Summary Explanation:

Funding: FY98 funds requested under PE 0305205D but appropriated under PE 0305205F

Schedule: Funding changes have necessitated a restructure of Block I upgrades (FY98), deferring contract to FY00/01

Technical: None

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305205F Endurance UAVs

PROJECT: 4755

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Aircraft Procurement, AF (PE 35205F) | 104832 | 138340 | 117961 | 43017 | 26777 | 52345* | 78070* | continues | continues |
| (U) Other Procurement, AF (PE 27245F) | 2858 | | | | | | | | |
| (U) MILCON, AF (PE 27245F) | 4690 | | 15013 | | | | | | |
| (U) O&M, AF (PE 27245F)** | 7440 | 18188 | 25988 | 30489 | 29382 | 31867 | 30959 | continues | continues |
| (U) Other Procurement, Navy | 5600 | | | | | | | | |

* Includes HAE UAV procurement funds

** Includes UAV Battle Lab funds starting in FY99

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Production Rate Verification Start | | | | * | | | | | | | | |
| (U) TEMP approval | | | | | | X | | | | | | |
| (U) OT&E | | | | | | | | | | X | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305205F Endurance UAVs<br>PROJECT 4755 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Hardware/Software | 2162 | 4350 | 1620 |
| (U) Demonstrations and test | 2685 | 4690 | 1140 |
| (U) System integration and logistics support | 1526 | 4110 | 990 |
| (U) Other technical/engineering | 1109 | 997 | 557 |
| (U) DARP integration and support | 295 | | |
| (U) Total | 7777 | 14147 | 4307 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| General Atomics | SS/CPFF | Apr 98 | N/A | N/A | | 2615 | 12702 | 3050 | continuing | continuing |
| L3 Com | SS/CPFF | Apr 98 | N/A | N/A | | 969 | 0 | 0 | 0 | 969 |
| Misc | | Dec 97 | N/A | N/A | | 218 | 0 | 0 | 0 | 218 |
| Support and Management Organizations | | | | | | | | | | |
| NAWC | | | | | | | | 417 | continuing | continuing |
| AD/NAVAIR | | | | | | 374 | 320 | | | |
| Misc | | | | | | 792 | | | | |
| US ArmyMissile Command | | | | | | 1600 | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305205F Endurance UAVs<br>PROJECT 4755 |

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Test and Evaluation Organizations | | | | | | | | | | |
| AFOTEC | | | | | | 480 | 795 | 840 | continuing | continuing |
| NAWC,WD | | | | | | 293 | | | | |
| Misc | | | | | | 436 | 330 | | | |

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

**Government Furnished Property:**

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Support and Management Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Test and Evaluation Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Subtotal Product Development | | | | | 3802 | 12702 | 3050 | continuing | continuing |
| Subtotal Support and Management | | | | | 2766 | 320 | 417 | continuing | continuing |
| Subtotal Test and Evaluation | | | | | 1209 | 1125 | 840 | continuing | continuing |
| Total Project | | | | | 7777 | 14147 | 4307 | continuing | continuing |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305207F Manned Reconnaissance

PROJECT: 4754

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4754 COBRA BALL Field Laser Demo (FLD) | 0 | 11,360 | 0 | 0 | 0 | 0 | 0 | 0 | 11,360 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |

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

(U) This project supports design studies, engineering analysis, non-recurring engineering, and other efforts associated with modifications to the RC-135 or its mission systems. The results of these efforts provide the requisite engineering necessary to implement modifications or provide a preliminary assessment of the technical feasibility , operability, or general military utility of an application. This particular project develops and evaluates a Laser Ranging and Imaging system for the COBRA BALL platform.

(U) This Congressionally directed project continues the effort funded by Congress in FY97 through the design and fabrication of an Advanced Airborne Sensor (AAS) based upon previous technology developed under the Field Laser Demonstration program (PE 0305154F BPAC 4607, Congressional plus up), and produces aircraft integration design data.

(U) COBRA BALL AAS is in Budget Activity 7, Operational System Development. It involves integration of off-the-shelf technology into fielded (operational) systems.

(U) **Acquisition Strategy**:

(U) The RC-135 sustainment and modification activities are managed by the Air Force throught the BIG SAFARI program. Only the Air Force Acquisition Executive, SAF/AQ, may assign programs to BIG SAFARI. These projects are managed by a single Air Force Material Command (AFMC) organization, ASC/RAB. ASC/RAB provides technical oversight and management of all aircraft, ground and support system modifications, integration and flight test engineering responsibility, product assurance and acceptance testing, and logistics and training activities.

(U) FY 1997 ($ in Thousands):

– (U) $0 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305207F Manned Reconnaissance |
| | PROJECT<br>4754 |

(U) FY 1998 ($ in Thousands):

- (U) $2,970 Prototype Design
- (U) $320 Simulation and Analysis
- (U) $230 Aircraft Integration
- (U) $250 Range-In-A-Box (testing tool)
- (U) $5,460 Sensor Build and Ground Test
- (U) $540 System Integration Test
- (U) $110 Range-In-A-Box Test
- (U) $1,480 System Integration/Program Administration
- (U) $11,360 Total

(U) FY 1999 ($ in Thousands):

- (U) $0 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget* (FY 1998PB) | 0 | 0 | 0 | 0 |
| (U) Appropriated Value | 0* | 12,000 | | 12,000 |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | 0 | -393 | | |
| b. SBIR | 0 | -247 | | |
| c. Omnibus or Other Above Threshold Reprogram | 0 | 0 | | |
| d. Below Threshold Reprogramming | 0 | 0 | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | 0 | 0 | 0 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 0 | 11,360 | 0 | 11,360 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305207F Manned Reconnaissance |
| | PROJECT<br>4754 |

(U) Change Summary Explanation:

Funding: FY97 $5M Congressional add started program in PE 0305154F BPAC 4607

Schedule: Not Applicable

Technical: Not Applicable

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Not Applicable | | | | | | | | | |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Preliminary Design Review | | | | | | | | | X | | | |
| (U) Critical Design Review | | | | | | | | | | X | | |
| (U) Prototype Delivery (Q1 FY00)* | | | | | | | | | | | | |

*Congress provided lump sum as an add on in FY1998 to complete a prototype.Congressionally directed tasks require 18 months to complete. All funds will be obligated in FY98.

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305207F Manned Reconnaissance

PROJECT: 4754

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) System Design and Analysis | 0 | 3,290 | 0 |
| (U) Fabrication and Test | 0 | 6,360 | 0 |
| (U) Integration and Support | 0 | 1,710 | 0 |
| (U) Total | 0 | 11,360 | 0 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations (FY97 activity was in PE 0305154F BPAC 4607) | | | | | | | | | | |
| ASC/RAB | Multiple | Aug 97 | 4,750 | 4,750 | 0 | 4,750 | 11,360 | 0 | 0 | 16,110 |

Support and Management Organizations
N/A

Test and Evaluation Organizations
N/A

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305207F Manned Reconnaissance

PROJECT: 4754

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

**Government Furnished Property:** None

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Support and Management Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Test and Evaluation Property | | | | | | | | | |
| N/A | | | | | | | | | |
| Subtotal Product Development | | | | 0 | 11,360 | 0 | 0 | 0 | 16,110 |
| Subtotal Support and Management | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal Test and Evaluation | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | 0 | 11,360 | 0 | 0 | 0 | 16,110 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 26,717 | 6,726 | 7,878 | 4,607 | 4,252 | 3,776 | 3,792 | Continuing | Continuing |
| 3880 CMU | 12,884 | 548 | 118 | 0 | 0 | 0 | 0 | 0 | 1,291,980 |
| 3881 Integrated TW/AA | 9,079 | 4,761 | 6,736 | 4,607 | 4,252 | 3,776 | 3,792 | Continuing | Continuing |
| 4409 Legacy Interfaces | 4,754 | 1,417 | 1,024 | 0 | 0 | 0 | 0 | 0 | 47,602 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

This program element funds the replacement systems for the Cheyenne Mountain Complex (CMC) which provides the Command, Control, Communications and Computers (C4) in support of the Integrated Tactical Warning/Attack Assessment (Integrated TW/AA) system. This program incrementally upgrades and replaces the current operational systems without loss of attack warning capability during the phased transition. The CMC supports the Commander-in-Chief (CINC) North American Aerospace Defense Command (NORAD)/CINC US Space Command in providing the National Command Authorities, USSTRATCOM and other forward users with early warning (missile, air, and space) and assessment of attack on North America or its allies.

This program element has three related projects: The first project, Cheyenne Mountain Upgrade (CMU), is six acquisitions that are supported by both the second and third project. The second project, Integrated TW/AA System Engineering, provides interface analysis and disconnect resolution between CMU and over twenty other Integrated TW/AA systems and future program upgrades and supports the development of the Cheyenne Mountain Training System (CMTS). The third project, Legacy Interfaces, provides software development upgrades to post-IOC CMU subsystems and direct mission software support to meet operational needs.

This program element is in Budget Activity 7, Operational System Development, because the projects in this program element support development acquisition programs or upgrades.

(U) **Acquisition Strategy:**

The CMU program was restructured in FY94 to implement an acquisition strategy that tests and delivers four phases of user capability. Phase 1 implemented the complete missile warning capability in Sep 95. Phase 2 operational acceptance occurred in August 1996. Phase 3 operational acceptance occurred in July 1997. Phase 4 will be operationally accepted in August 1998. The CMU Integrated Mission IOT&E will be completed by Mar 1999.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 29,466 | 7,362 | 5,036 | Continuing |
| (U) Appropriated Value | 31,692 | 7,362 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | -1,446 | -480 | | |
| b. SBIR | -780 | -156 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | -2,700 | | | |
| e. Recisions | -49 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 2,842 | |
| (U) Current Budget Submit (FY1999 President's Budget) | 26,717 | 6,726 | 7,878 | Continuing |

(U) Change Summary Explanation:

Funding: FY 97 Below Threshold Reprogramming (BTR) to higher priority Air Force program. FY99 adjustment to fund CSAF - directed AF Long Range Plan (AF LRP) jump start initiative for Space Command and Control (C2) prototyping. This effort will generate different options to migrate current Space C2 applications to the Defense Information Infrastructure Common Operating Environment (COE).

Schedule: No change.

Technical: No change.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement (Electronics and tele-communications equipment/BA04/PE0305906F)* | 4,481 | 8,758 | 12,722 | 4,621 | 12,820 | 11,842 | 10,826 | Cont | Cont |
| (U) Operations & Maintenance (PE0305906F) | 98,207 | 92,629 | 91,910 | 89,216 | 95,318 | 99,186 | 100,821 | Cont | Cont |

* Includes spares for CMU and Space Mobile Consolidated Command Center (MCCC) modifications.

**Related RDT&E:**

(U) 604441F, Space-Based Infrared System
(U) 305910F, Spacetrack
(U) 305911F, Defense Support Program

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305906F NCMC-TW/AA Systems |

(U) **D. Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Air Warning Mission Operational Acceptance | | | X | | | | | | | | | |
| (U) CMU Phase 3 Operational Acceptance | | | | X | | | | | | | | |
| (U) Space Control Mission Operational Acceptance | | | | | | | X | | | | | |
| (U) CMU Phase 4 Operational Acceptance | | | | | | | X | | | | | |
| (U) CMU Integrated Mission IOT&E | | | | | | | | | | X | | |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems

PROJECT: 3880

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3880 CMU | 12,884 | 548 | 118 | 0 | 0 | 0 | 0 | 0 | 1,291,980 |

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

The CMU program must meet Joint Chiefs of Staff (JCS) requirements to provide the National Command Authorities with timely, reliable, and unambiguous Integrated TW/AA data for force survival or retaliatory decisions in the face of air, space, or ballistic missile threats. The program will provide: 1) survivable communications access for missile attack warning; 2) integrated warning of ballistic missile, atmospheric, and space threats; 3) standard user displays and warning processing systems at selected command centers; 4) an austere alternate facility capable of early/trans-attack warning and peacetime backup to the Missile Warning Center at Cheyenne Mountain. The CMU program implements an acquisition strategy that tests and delivers four phases of user capability. Phase 1 implemented the missile warning capability in Sept 1995. Phases 2 and 3 were completed in August 1996 and July 1997, respectively. Phase 4 will be operationally accepted in August 1998. The CMU Integrated Mission IOT&E will be completed by Mar 1999.

(U) **Acquisition Strategy:**

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

(U) FY 1997 ($ in thousands)

- (U) $5,224 Completed Phase 3 (July 97) with operational acceptance of Granite Sentry and Missile Warning remote capability
- (U) $6,764 Continued Phase 4, Space Defense Operations Center (SPADOC) 4C version 2 interface development with the Communications System Segment Replacement (CSSR)
- (U) $896 Completed Missile Warning IOT&E residuals and delivered Survivable Secure Communications Network ( SSCN) Phase 2 (Feb 97)
- (U) $12,884 Total

(U) FY 1998 ($ in thousands)

- (U) $548 Complete CMU Phase 4 and Space Control Mission Operational Acceptance
- (U) $548 Total

(U) FY 1999 ($ in thousands)

- (U) $118 Complete CMU Integrated Mission IOT&E
- (U) $118 Total

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems

PROJECT: 3880

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 16,010 | 603 | 120 | 1,297,524 |
| (U) Appropriated Value | 21,375 | 603 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | -1231 | -55 | | |
| b. SBIR | -780 | | | |
| c. Below Threshold Reprogramming | -2,700 | | | |
| d. Omnibus or Other Above Threshold Reprogram | | | | |
| e. Rescissions | -49 | | | |
| f. Other (Project Realignment) | -3,731 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -2 | |
| (U) Current Budget Submission (FY1999 President's Budget) | 12,884 | 548 | 118 | 1,291,980 |

(U) Change Summary Explanation ($ in Thousands):

Funding: FY97 realignment (-3,731) to project 3881 (+3,633) and project 4409 (+98).

Schedule: No change.

Technical: No change

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems

PROJECT: 3880

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Other Procurement (Electronics and tele-communications equipment/BA04/PE0305906F)* | 4,481 | 8,758 | 12,722 | 4,621 | 12,820 | 11,842 | 10,826 | Cont | Cont |
| (U) Operations & Maintenance (PE0305906F) | 98,207 | 92,629 | 91,910 | 89,216 | 95,318 | 99,186 | 100,821 | Cont | Cont |

* Includes spares for CMU and Space Mobile Consolidated Command Center (MCCC).

(U) D. Schedule Profile

| | FY1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Air Warning Mission Operational Acceptance | | | X | | | | | | | | | |
| (U) CMU Phase 3 Operational Acceptance | | | | X | | | | | | | | |
| (U) Space Control Mission Operational Acceptance | | | | | | | X | | | | | |
| (U) CMU Phase 4 Operational Acceptance | | | | | | | X | | | | | |
| (U) CMU Integrated Mission IOT&E | | | | | | | | | | X | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305906F NCMC-TW/AA Systems<br>PROJECT 3880 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Major Contract Incremental Funding | 636 | | |
| (U) Award/Performance Fee | 29 | | |
| (U) Target To Ceiling/Overrun | 346 | | |
| (U) ECPs/Correction of Deficiencies/Incomp | 219 | | |
| (U) Interoperability/Test Support | 452 | | |
| (U) Tech Manuals | 4 | | |
| (U) SPO Support | | | |
| (U) MITRE | 5,063 | | |
| (U) TEMS/SDAS/WSI/SAIC/NSR | 4,179 | | |
| (U) Program Support | 1,956 | 548 | 118 |
| (U) Other Support | 0 | | |
| (U) Total | 12,884 | 548 | 118 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305906F NCMC-TW/AA Systems<br>PROJECT 3880 |

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

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Lockheed-Martin CO Springs CO | C/CPIF/AF | Oct 91 | 72,300 | 72,300 | 271,669 | 145 | 0 | 0 | 0 | 271,814 |
| E-Systems St Petersburg FL | C/FPI/AF | Aug 86 | 107,000 | 106,500 | 103,240 | 0 | 0 | 0 | 0 | 103,240 |
| TRW, Inc Carson CA | C/FPI/AF | Jun 87 | 172,600 | 172,600 | 213,761 | 0 | 0 | 0 | 0 | 213,761 |
| GTE Needham Hgts MA | C/CPIF/AF | Jan 92 | 16,500 | 16,500 | 238,063 | 352 | 0 | 0 | 0 | 238,415 |
| Lockheed-Martin CO Springs CO | SS/CPIF/AF | Mar 93 | 41,300 | 41,300 | 119,713 | 305 | 0 | 0 | 0 | 120,018 |
| DISA (Govt) Reston VA | PO | Oct 93 | 9,092 | 9,092 | 9,092 | 60 | 0 | 0 | 0 | 9,152 |
| KAMAN Sciences CO Springs CO | AF616/C | Aug 95 | 3,176 | 3,176 | 3,176 | 0 | 0 | 0 | 0 | 3,176 |
| Misc | Various | Various | 820 | 820 | 0 | 820 | 0 | 0 | 0 | 820 |
| Support and Management Organizations | | | | | | | | | | |
| MITRE | SS/PR | Oct 95 | N/A | N/A | 163,497 | 5,063 | 0 | 0 | 0 | 168,560 |
| TEMS | C/PR | Oct 95 | N/A | N/A | 68,636 | 4,179 | 0 | 0 | 0 | 72,815 |
| Program Support | Various | Nov 95 | N/A | N/A | 87,583 | 1,960 | 548 | 118 | 0 | 90,209 |
| Test and Evaluation Organizations | | | | | | | | | | |
| N/A | | | | | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE: February 1998 |
|---|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems | PROJECT: 3880 |

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

**Government Furnished Property:** Not Applicable.

| | | | | | | |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 958,714 | 1,682 | 0 | 0 | 0 | 960,396 |
| Subtotal Support and Management | 319,716 | 11,202 | 548 | 118 | 0 | 331,584 |
| Subtotal Test and Evaluation | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | 1,278,430 | 12,884 | 548 | 118 | 0 | 1,291,980 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems

PROJECT: 3881

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3881 Integrated TW/AA | 9,079 | 4,761 | 6,736 | 4,607 | 4,252 | 3,776 | 3,792 | Continuing | Continuing |

(U) A. Mission Description and Budget Item Justification

This project was set up in 1989 when Air Force recognized the phased transition of CMU program into the Integrated TW/AA network could only be achieved through rigorous system-of-systems design and engineering analysis of all interfaces and relationships among the twenty-six systems of the network. This project provides for the efficient integration of CMU through interface analysis, schedule management and disconnect resolution between CMU and over twenty other Integrated TW/AA systems and future program upgrades as required to support the Integrated TW/AA network's continually evolving system-of-systems (e.g., Space-Based Infrared System) and changes driven by new missions/threats.

(U) Acquisition Strategy:

All major contracts within this Program Element were awarded after full and open competition

(U) FY 1997

(U) $6,772 Systems Engineering Integration (SEIT): Provided operation integration of CMU Phase 3 installation, check-out, test and assessment; maintained program schedule; identified, tracked and resolved CMU disconnects

(U) $2,307 Technical Performance Engineering (TPE): Maintained CMU technical baseline; evaluated performance and tracked to prescribed requirements; provided system engineering for Phase 3, and accomplished systems engineering studies for proposed ITW/AA system improvements.

(U) $9,079 Total

(U) FY 1998

- (U) $2,115 SEIT: Provide operation integration of CMU Phase 4 installation, check-out, test and assessment; maintain program schedule; identify, track and resolve disconnects within the ITW/AA system.
- (U) $2,646 Future Plans: Manages planned incremental capability modifications to NCMC-TW/AA systems.
- (U) $4,761 Total

(U) FY 1999

- (U) $1,703 SEIT: Integrated Mission IOT&E for CMU Phase 3
- (U) $2,168 Future Plans: Manages planned incremental capability modifications to NCMC-TW/AA systems.
- (U) $2,865 AF long range planning "jump start" funding for command and control prototyping
- (U) $6,736 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305906F NCMC-TW/AA Systems<br>PROJECT 3881 |

SEIT, TPE, and Future Plans are stand alone contracts

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

| | FY 1997 | FY 1998 | FY 1999 | Total |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 8,800 | 5,132 | 3,871 | Continuing |
| (U) Appropriated Value | 5,562 | 5,132 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | | -371 | | |
| b. Omnibus or Other Above Threshold Reprogram | | | | |
| c. Below Threshold Reprogramming | | | | |
| d. Rescissions | -116 | | | |
| e. Other (Project realignment) | 3,633 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 2,865 | |
| (U) Current Budget Submission FY1999 President's Budget | 9,079 | 4,761 | 6,736 | Continuing |

(U) Change Summary Explanation ($ in Thousands):
Funding: Project realignment reflects a transfer of 3,633 from project 3880 to 3881 in FY97. FY99 increase of 2,865 for CSAF - directed AF LRP "jump start" of Space C2 prototyping.
Schedule: No change.
Technical: No change.

(U) **C. Other Program Funding Summary ($ in Thousands)**
(U) Not Applicable.

(U) **D. Schedule Profile**
(U) Not Applicable. This is a sustaining engineering effort that supports project 3880 with no distinct milestones.

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems

PROJECT: 3881

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Command and control long range planning | | | 2,865 |
| (U) Major Contract Incremental Funding | 0 | | |
| (U) Award/Performance Fee | 0 | | |
| (U) CMTS Systems Integration | 0 | | |
| (U) Interface Control System Development | | | |
| (U) SPO Support | | | |
| (U) MITRE | 4,992 | 4,200 | 3,406 |
| (U) TEMS/WSI | 3,985 | 561 | 465 |
| (U) Program Support | 102 | 0 | 0 |
| (U) Total | 9,079 | 4,761 | 6,736 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| DISA | MIPR | Apr 96 | 1,328 | 1,328 | 1,328 | 0 | 0 | 0 | Cont | Cont |
| LORAL Aerospace Co Springs, CO | C/CPIF/AF | Jun 95 | 6,390 | 6,390 | 6,390 | 0 | 0 | 0 | Cont | Cont |
| TBD | TBD | TBD | TBD | TBD | 0 | 0 | 0 | 2,865 | Cont | Cont |
| Support and Management Organizations | | | | | | | | | | |
| MITRE | CPFF | Oct 95 | N/A | N/A | 43,985 | 4,992 | 4,200 | 3,406 | Cont | Cont |
| TEMS | CPAF | Oct 95 | N/A | N/A | 27,419 | 3,985 | 561 | 465 | Cont | Cont |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems

PROJECT: 3881

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Program Support | N/A | Nov 95 | N/A | N/A | 6,962 | 102 | 0 | 0 | Cont | Cont |
| Prime Contractors | (Various) | | | | 812 | 0 | 0 | 0 | TBD | TBD |

Test and Evaluation Organizations
N/A

**Government Furnished Property:**
Not Applicable.

| | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 7,718 | | | 2,865 | Cont | Cont |
| Subtotal Support and Management | 79,178 | 9,079 | 4,761 | 3,871 | Cont | Cont |
| Subtotal Test and Evaluation | | | | | | |
| Total Project | 86,896 | 9,079 | 4,761 | 6,736 | Cont | Cont |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems

PROJECT: 4409

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4409 Legacy Interfaces | 4,754 | 1,417 | 1,024 | 0 | 0 | 0 | 0 | 0 | 47,602 |

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

The FY95 Appropriations Conference Committee transferred $41.5M from the O&M Critical Space Contract Operations Line to the RDT&E R-1 line in this program element. Congress realigned these funds from O&M to RDT&E to identify the costs associated with CMU software development upgrades to the CMU program. To clearly account for this funding, this project, Legacy Interfaces, was established. This project provides funding for software development upgrades to the CMU program and for direct mission software support to meet operational needs.

(U) **Acquisition Strategy:**

All major contracts within this Program Element were awarded after full and open competition

(U) FY 1997

| | |
|---|---|
| (U) $500 | Provided SPADOC software support/upgrades |
| (U) $1,344 | Provided warning system software upgrades for space, communications, and missile warning systems at Cheyenne Mountain |
| (U) $2,910 | Provided Cheyenne Mountain complex test support to include scenario development and development network software engineering |
| (U) $ 4,754 | Total |

(U) FY 1998

| | |
|---|---|
| – (U) $1,417 | Provide Cheyenne Mountain software engineering support/upgrades |
| – (U) $1,417 | Total |

(U) FY 1999

| | |
|---|---|
| – (U) $1,024 | Provide Cheyenne Mountain software engineering support/upgrades |
| – (U) $1,024 | Total |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems

PROJECT: 4409

| (U) B. Program Change Summary ($ in Thousands) | FY 1997 | FY 1998 | FY 1999 | Total |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 4,656 | 1,627 | 1,045 | 47,516 |
| (U) Appropriated Value | 4,755 | 1,627 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | | -54 | | |
| b. SBIR | | -156 | | |
| c. Below Threshold Reprogramming | | | | |
| d. Rescissions | -99 | | | |
| e. Other (Project Realignment) | 98 | | | |
| (U) Adjustment to budget years since FY1998 PB | | | -21 | |
| (U) Current Budget Submission (FY1999 President's Budget | 4,754 | 1,417 | 1,024 | 47,602 |

(U) Change Summary Explanation ($ in Thousands):
Funding: FY97 project realignment (+98) from project 3880.
Schedule: No change.
Technical: No change.

(U) C. Other Program Funding Summary ($ in Thousands)
(U) Not Applicable.

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) SPADOC software support/upgrades | X | | | | X | | | | X | | | |
| (U) Warning systems software support/upgrades | X | | | | | | | | | | | |
| (U) CMC Test Support | X | | | | X | | | | X | | | |
| (U) CMAS software upgrades | X | | | | | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305906F NCMC-TW/AA Systems

PROJECT: 4409

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Major Contract Incremental Funding | 4,279 | | |
| (U) Award/Performance Fee | 475 | | |
| (U) Total Legacy Interfaces Project | 4,754 | 1,417 | 1,025 |

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Lockheed-Martin CO Springs CO | CP/AF | Oct 94 | 12,024 | 12,024 | 8,852 | 500 | 0 | 0 | 0 | 9.352 |
| E-Systems St Petersburg FL | FPIF/AF | Oct 94 | 1,880 | 1,880 | 1,880 | 0 | 0 | 0 | 0 | 1,880 |
| Kaman Sciences CO Springs CO | CP/AF | Oct 94 | 18,166 | 18,166 | 15,304 | 2,910 | 0 | 0 | 0 | 18,214 |
| Kaman Sciences CO Springs CO | CP/AF | Oct 94 | 12,520 | 12,520 | 11,127 | 1,344 | 0 | 0 | 0 | 12,471 |
| Navy/NISE | MIPR | Sep 95 | 3,244 | 3,244 | 3,244 | 0 | 0 | 0 | 0 | 3,244 |
| Support and Management Organizations: TBD | | | | | | | 1,417 | 1,024 | | 2,441 |
| Test and Evaluation Organizations: N/A | | | | | | | | | | |
| Government Furnished Property: N/A | | | | | | | | | | |
| Subtotal Product Development | | | | | 40,407 | 4,754 | 0 | 0 | 00 | 45,161 |
| Subtotal Support and Management | | | | | 0 | 0 | 1,417 | 1,024 | 0 | 2,441 |
| Subtotal Test and Evaluation | | | | | 0 | 0 | 0 | 0 | 0 | |
| Total Project | | | | | 40,407 | 4,754 | 1,417 | 1,024 | 0 | 47,602 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305910F Spacetrack (Space)

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 32,794 | 38,432 | 39,532 | 28,121 | 0 | 0 | 0 | 0 | 260,738 |
| 4239 Air Force Maui Optical Station | 6,297 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27,413 |
| 4241 Advanced Electro Optical System (AEOS) | 19,277 | 28,533 | 17,528 | 0 | 0 | 0 | 0 | 0 | 166,081 |
| 4279 Have Stare Radar | 7,220 | 9,899 | 22,004 | 28,121 | 0 | 0 | 0 | 0 | 67,244 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

* Note: AMOS funding combined into AEOS BPAC beginning in FY98.

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

The SPACETRACK program element represents a worldwide Space Surveillance Network (SSN) of dedicated, collateral, and contributing electro-optical, passive radio frequency (RF) and radar sensors. The SSN is tasked to provide space object identification and cataloging, satellite attack warning, timely notification to U.S. forces of satellite fly-over, space treaty monitoring, and scientific and technical intelligence gathering. The continued increase in satellite and orbital debris populations, as well as the increasing diversity in launch trajectories, non-standard orbits, and geosynchronous altitudes, necessitates continued modernization of the SSN to meet existing and future requirements and ensure their cost-effective supportability. The Image Information Processing Center and Supercomputing facility for the Air Force Maui Optical Station (AMOS), were transferred to PE 0602601F in FY92. The resources and responsibility for completing the HAVE STARE Radar System development were transferred to SPACETRACK from an intelligence program per Congressional direction in FY93. All of these projects are Budget Activity 7, Operational Systems Development, because they involve development of or modifications to operational sensor network sites.

(U) **Acquisition Strategy:**

Except for the Congressionally-directed Maui Space Surveillance System facilities expansion project, Advanced Electro Optical System (AEOS), and the HAVE STARE radar acquisition, the other projects in this Program Element are competitive sustaining engineering infrastructure support operations and maintenance efforts.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305910F Spacetrack (Space)

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 31,851 | 28,573 | 14,147 |
| (U) Appropriated Value | 33,867 | 43,073 | |
| (U) Adjustments to Appropriated Value | | | |
| a. Cong Gen Reductions | -1,190 | -3,679 | |
| b. SBIR | -826 | -962 | |
| c. Omnibus or Other Above Threshold Reprogram | -1,000 | | |
| d. Below Threshold Reprogramming | 1,996 | | |
| e. Rescission | -53 | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 25,385 |
| (U) Current Budget Submit/FY1999 President's Budget | 32,794 | 38,432 | 39,532 |

(U) Change Summary Explanation:

Funding: FY 99 adjustments - - Air Force funding increase continues the HAVE STARE project (7,857). OSD added funding for the AEOS project (17,528).

Schedule: None.

Technical: None.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement (Electronic and Telecommmunications Equipment (BA 63, P-68) | 10,692 | 7,181 | 1,829 | 311 | 3,862 | 3,844 | 3,826 | Cont | Cont |

**Related RDT&E:** (U) Program Element #0305906F, NORAD Cheyenne Mountain Complex Tactical Warning/Attack Assessment System of Systems.

(U) **D. Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) AEOS telescope/facility | | | | | | | | | | | | |
| (U) Factory acceptance/occupancy facility | | | | X | | | | | | | | |
| (U) Telescope Factory Acceptance | | | | X | | | | | | | | |
| (U) Radiometer Acceptance | | | | | | | X | | | | | |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305910F Spacetrack (Space)

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Long Wave Imager Acceptance | | | | | | | | X | | | | |
| (U) Observatory Control Sys Acceptance | | | | | | | | | | | X | |
| (U) Adaptive Optics System Acceptance | | | | | | | | | | | | X |
| (U) HAVE STARE Radar | | | | | | | | | | | | |
| (U) Contract Modification (due to delayed site selection decision) | X | | | | | | | | | | | |
| (U) Deinstall Test Site | | | | | | | | | X | | | |
| (U) Reinstall at Operational Site | | | | | | | | | | | X | |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305910F Spacetrack (Space)

PROJECT: 4239

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4239 Air Force Maui Optical Station | 6,297 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27,413 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

* Note: AMOS funding continues in AEOS BPAC beginning in FY98.

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

AMOS serves as a testbed for electro-optics and imaging technology supporting government and academic communities. It also provides operational data to Air Force Space Command: infrared signature data and compensated, imaging data used for space object identification and mission/payload assessment. Other government labs, national science foundations and other scientific agencies' use of this facility are funded separately. This project is in Budget Activity 7, Operational Systems Development, because it involves a level-of-effort for sustained engineering support for development of, or modifications to, an operational SPACETRACK network site.

(U) FY 1997

– (U) $6,297 Continued support to Maui Space Surveillance System (MSSS) R&D upgrades, development of MSSS observatory control system, and operational transition of AEOS. Single end item, funding transfers to AEOS BPAC in FY98.

(U) FY 1998

– (U) $0 Not Applicable

(U) FY 1999

– (U) $0 Not Applicable

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305910F Spacetrack (Space) | PROJECT<br>4239 |

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 6,297 | 0 | 0 | 27,413 |
| (U) Appropriated Value | 6,500 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | -203 | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | | |
| (U) Current Budget Submit (FY1999 President's Budget) | 6,297 | 0 | 0 | 27,413 |

(U) Change Summary Explanation:

Funding: Starting in FY1998, Project 4239 (AMOS) was combined with Project 4241 (AEOS).
Schedule: None.
Technical: None.

(U) C. Other Program Funding Summary ($ in Thousands)
Not Applicable.

(U) D. Schedule Profile
Not Applicable.

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305910F Spacetrack (Space)

PROJECT: 4239

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Level of effort support | 6,297 | 0 | 0 |
| (U) Total | 6,297 | 0 | 0 |

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

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| RTS, Kihei, HI | C/CPAF/AF | Dec 95 | N/A | N/A | 4,610 | 4,672 | 0 | 0 | 0 | 9,282 |
| RPS, Kihei, HI | C/CPAF/AF | Oct 90 | N/A | N/A | 12,610 | 0 | 0 | 0 | 0 | 12,610 |
| Support and Management Organizations | | | | | | | | | | |
| W. J. Schafer Albuquerque, NM | C/CPFF | Feb 92 | N/A | N/A | 136 | 94 | 0 | 0 | 0 | 230 |
| S Systems Corp Albuquerque, NM | C/CPFF | Jul 93 | N/A | N/A | 132 | 0 | 0 | 0 | 0 | 132 |
| Program Support | Various | | | | 3,628 | 1,531 | 0 | 0 | 0 | 5,159 |
| Test and Evaluation Organizations Not Applicable | | | | | | | | | | |
| **Government Furnished Property:** Not Applicable. | | | | | | | | | | |
| Subtotal Product Development | | | | | 17,220 | 4,672 | 0 | 0 | 0 | 21,892 |
| Subtotal Support and Management | | | | | 3,896 | 1,625 | 0 | 0 | 0 | 5,521 |
| Subtotal Test and Evaluation | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | | | | | 21,116 | 6,297 | 0 | 0 | 0 | 27,413 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305910F Spacetrack (Space)

PROJECT: 4241

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4241 Advanced Electro Optical System (AEOS) | 19,277 | 28,533 | 17,528 | 0 | 0 | 0 | 0 | 0 | 166,081 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*Note: FY98 funding includes AMOS efforts (AMOS funds transferred to AEOS BPAC for FY98).

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

The Advanced Electro-Optical System (AEOS) is a 3.67 meter telescope addition to the Air Force Maui Optical Station (AMOS). The AEOS program was initiated in FY91 per Congressional direction. Congress continued to appropriate funding for this project in FY93, FY94, FY95, FY96, and FY 97. The Air Force budgeted for the continuation of AEOS in FY 97 and FY 98. This project is in Budget Activity 7, Operational Systems Development, because it involves sustained engineering support for development of, or modifications to, an operational SPACETRACK network site.

(U) **Acquisition Strategy:**

Except for the Congressionally-directed Maui Space Surveillance System facilities expansion project, Advanced Electro Optical System (AEOS), and the HAVE STARE radar acquisition, the other projects in this Program Element are competitive sustaining engineering infrastructure support operations and maintenance efforts.

(U) FY 1997:

- (U) $11,297 Continue telescope development incremental funding.
- (U) $6,280 Continue atmospheric characterization studies, spectrograph research, development of adaptive optics system, and sensors development.
- (U) $1,700 Continue Spectrograph research
- (U) $19,277 Total

(U) FY 1998

- (U) $17,048 Continue development of adaptive optics, sensors, and integration of the telescope system, ,
- (U) $1,385 Purchase pre-operational spares
- (U) $4,800 continue development of AEOS and MSSS observatory control system, and.
- (U) $5,300 R&D upgrades to MSSS
- (U) $28,533 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305910F Spacetrack (Space) |
| | PROJECT<br>4241 |

(U) FY 1999

- (U) $12,665 Continue integration of Adaptive Optics System and operational transition of AEOS
- (U) $1,565 Complete the MSSS Observatory Control System
- (U) $3,298 R&D upgrades to the MSSS
- (U) $17,528 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 20,281 | 23,800 | 0 | TBD |
| (U) Appropriated Value | 21,927 | 31,300 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | -820 | -2,053 | | |
| b. SBIR | -826 | -714 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming * | -4 | | | |
| e. Rescissions | | | | |
| f. Other | -1,000 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 17,528 | |
| (U) Current Budget Submit (FY1999 President's Budget) | 19,277 | 28,533 | 17,528 | TBD |

(U) Change Summary Explanation:

Funding: Congress added 7,500 in FY98 for development of and modifications to the operational sensor network site. OSD budgeted for project continuation in FY99.
Schedule: Facility delays due to weather impacts/dome installation. Delays in sensor delivery due to subcontractor delivery and technical problems.
Technical: None.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 |
|---|---|---|---|---|---|---|---|
| Other Procurement, (Electronics and Telecommunications Equipment (BA 63, P-68) | 10,692 | 7,181 | 1,829 | 311 | 3,862 | 3,844 | 3,826 |

**Related RDT&E:** (U) Program Element #0305906F, NORAD Cheyenne Mountain Complex Tactical Warning/Attack Assessment System of Systems.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305910F Spacetrack (Space) |
| | PROJECT<br>4241 |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) AEOS telescope/facility | | | | | | | | | | | | |
| (U) Factory acceptance/occupancy facility | | | | X | | | | | | | | |
| (U) Telescope Factory Acceptance | | | | X | | | | | | | | |
| (U) Radiometer Acceptance | | | | | | | X | | | | | |
| (U) Long Wave Imager Acceptance | | | | | | | | X | | | | |
| (U) Observatory Control Sys Acceptance | | | | | | | | | | | X | |
| (U) Adaptive Optics System Acceptance | | | | | | | | | | | | X |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305910F Spacetrack (Space) — PROJECT 4241 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Directed level of effort for AEOS Maui facilities expansion | 20,277 | 23,800 | 0 |
| (U) Total | 20,277 | 23,800 | 0 |

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

**Performing Organizations:**

| Contract or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organization | | | | | | | | | | |
| Kiewit Pacific Co<br>Kapolei, HI | C/FFP/AF | Aug 94 | 21,000 | 21,302 | 20,249 | 1,053 | 0 | 0 | 0 | 21,302 |
| Contraves USA<br>Pittsburgh, PA | C/FFP/AF | Dec 91 | 23,000 | 23,618 | 21,741 | 1,192 | 685 | 0 | 0 | 23,618 |
| HDOS<br>Danbury, CT | C/CPAF/AF | Aug 94 | 31,000 | 37,368 | 11,592 | 7,596 | 10,015 | 8,165 | 0 | 37,368 |
| COMSAT RSI, Inc<br>Clarksburg, MD | C/FFP/AF | Aug 95 | 7,000 | 7,250 | 6,498 | 752 | 0 | 0 | 0 | 7,250 |
| Mission Research Corp<br>Santa Barbara, CA | C/CPIF/AF | Jul 95 | 4,000 | 5,085 | 3,314 | 696 | 850 | 225 | 0 | 5,085 |
| Hughes Aircraft Co<br>El Segundo, CA | C/CPIF/AF | Sep 95 | 5,000 | 6,804 | 3,278 | 667 | 2,664 | 195 | 0 | 6,804 |
| RTS<br>Kihei, Maui, HI | C/CPAF/AF | Sep 95 | N/A | 24,569 | 2,906 | 3,050 | 10,945 | 6,668 | 0 | 23,569 |
| RPS<br>Kihei, Maui, HI | C/CPAF/AF | Oct 90 | N/A | 12,933 | 12,933 | 0 | 0 | 0 | 0 | 12,933 |
| UH<br>Maui, HI | C/CR/AF | Oct 96 | 3,400 | 1,700 | 0 | 1,700* | 0 | 0 | 0 | 1,700 |
| *Congressional directed Spectrograph Research | | | | | | | | | | |
| Support and Management Organizations | | | | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305910F Spacetrack (Space)

PROJECT: 4241

| Contract or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Logicon RDA<br>Albuquerque, NM | C/CPAF/AF | Oct 95 | N/A | N/A | 1,177 | 700 | 580 | 250 | TBD | 2,707 |
| Logicon RDA<br>Albuquerque, NM | C/CPAF/AF | Oct 93 | N/A | N/A | 3,360 | 0 | 0 | 0 | TBD | 3,360 |
| MIT/LL<br>Cambridge, MA | SS | Oct 93 | N/A | N/A | 2,066 | 200 | 300 | 300 | TBD | 2,866 |
| S. Systems Corp<br>Albuquerque, NM | C/CPFF/AF | Jul 93 | N/A | N/A | 2,976 | 0 | 0 | 0 | TBD | 2,976 |
| ARMY COE<br>Haleakala, Maui, HI | SS | Jan 95 | N/A | N/A | 1,225 | 392 | 0 | 0 | TBD | 1,617 |
| WJS<br>Albuquerque, NM | SS | Oct 97 | N/A | N/A | N/A | 0 | 259 | 150 | TBD | 409 |
| Program Office | Various | N/A | N/A | N/A | 7,428 | 1,279 | 2,235 | 1,575 | TBD | 12,517 |
| Test and Evaluation Organizations<br>N/A | | | | | | | | | | |
| Government Furnished Property:<br>N/A | | | | | | | | | | |
| Subtotal Product Development | | | | | 82,511 | 16,706 | 25,418 | 15,2530 | TBD | 125,635 |
| Subtotal Support and Management | | | | | 18,232 | 2,571 | 3,115 | 2,275 | TBD | 26,193 |
| Subtotal Test and Evaluation | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | | | | | 100,743 | 19,277 | 28,533 | 17,528 | TBD | 166,081 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305910F Spacetrack (Space)

PROJECT: 4279

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4279 Have Stare Radar | 7,220 | 9,899 | 22,004 | 28,121 | 0 | 0 | 0 | 0 | 67,244 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

The HAVE STARE radar was transferred from the intelligence budget in FY93 at the direction of Congress. The Air Force has identified a requirement for the HAVE STARE system and has programmed funding in this program element to complete development and to deploy the system. The HAVE STARE radar is a high resolution X-band tracking and imaging radar with a 27 meter mechanical dish antenna. The HAVE STARE system will be deployed as a dedicated space surveillance sensor to support the mission of space object catalog maintenance of deep space objects and mission payload assessment. The HAVE STARE system will retain its original design features and their inherent potential to support other missions. While at the Vandenberg AFB test site, HAVE STARE will support NMD X-band radar technology studies, hardware prototyping and demonstrations. This system is currently in the EMD phase leading to an IOC in FY00.

(U) **Acquisition Strategy:**

Except for the Congressionally-directed Maui Space Surveillance System facilities expansion project, Advanced Electro Optical System (AEOS), and the HAVE STARE radar acquisition, the other projects in this Program Element are competitive sustaining engineering infrastructure support operations and maintenance efforts.

(U) FY 1997

- (U) $4,746 Continued in-CONUS developmental and integration testing and evaluation at Vandenberg AFB, CA.
- (U) $1,474 Continued site preparation at classified operational deployment location.
- (U) $1,000 Congressionally approved Omnibus source.
- (U) $7,220 Total

(U) FY 1998

- (U) $2,400 Continue radar development incremental funding.
- (U) $1,614 Continue preparations for deployment
- (U) $5,885 Conduct X-band radar technology prototyping, studies, and demonstrations
- (U) $9,899 Total

(U) FY 1999

- (U) $2,200 Continue radar development incremental funding.
- (U) $5,000 Continue facility preparations

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305910F Spacetrack (Space) |
| | PROJECT<br>4279 |

- (U) $12,804 Deploy and re-install program equipment
- (U) $2,000 Logistics and training
- (U) $22,004 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 5,273 | 4,773 | 14,147 | * |
| (U) Appropriated Value | 5,440 | 11,773 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | | -1,626 | | |
| b. SBIR | -167 | -248 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming ** | 2,000 | | | |
| e. Rescissions | -53 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 7,857 | |
| (U) Current Budget Submit (FY1999 President's Budget) | 7,220** | 9,899 | 22,004 | * |

* Complete prior year data not available; program transferred from the intelligence budget in FY93 at the direction of Congress.
** Total includes $1.000M approved by Congress as an Omnibus source.

(U) Change Summary Explanation:

Funding: 2,000 was reprogrammed into this PE in FY97 to fund the Space Surveillance modification effort. Congress added 7,000 in FY98 for NMD testing (X-Band radar technology studies, prototyping and demonstration). FY99 increase funds additional site preparation costs.
Schedule: Project delayed due to delay in overseas site selection and previously withheld funding.
Technical: Development delayed due to withheld funding based on delayed siting decision.

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

(U) None.

**Related RDT&E:** (U) Program Element #0305906F, NORAD Cheyenne Mountain Complex Tactical Warning/Attack Assessment System of Systems.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305910F Spacetrack (Space) — PROJECT 4279 |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| HAVE STARE Radar | | | | | | | | | | | | |
| (U) Contract Modification (due to delayed site selection decision) | X | | | | | | | | | | | |
| (U) Deinstall Test Site | | | | | | | | | X | | | |
| (U) Reinstall at Operational Site | | | | | | | | | | | X | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305910F Spacetrack (Space)

PROJECT: 4279

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) System Development | 4,911 | 1,100 | 2,200 |
| (U) Site Preparation | 40 | 641 | 4,000 |
| (U) Deployment | | | 10,357 |
| (U) Logistics and Training | | 200 | 1,700 |
| (U) X-Band Radar Test Support | | 3,025 | 3,747 |
| (U) SPO Support | 1,269 | 4,933 | |
| (U) Congressionally Approved Omnibus Source | 1,000 | | |
| (U) Total | 7,220 | 9,899 | 22,004 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| * Prior year data not available; program transferred from the intelligence budget in FY 93 at the direction of Congress | | | | | | | | | | |
| Product Development Organizations | | | | | | | | | | |
| Raytheon Elec Sys Sudbury, MA | C/CPIF/AF | Mar 91 | 21,000 | 21,311 | * | 4,911 | 5,774 | 13,657 | TBD | Continuing |
| Misc | Various | Various | | | * | 40 | 800 | 4,600 | TBD | Continuing |
| Support and Management Organizations | | | | | | | | | | |
| MITRE | SS/PR | Oct 95 | N/A | N/A | * | 420 | 1,200 | 700 | TBD | Continuing |
| TEMS | C/PR | Various | N/A | N/A | * | 178 | 300 | 300 | TBD | Continuing |
| SETA | C/PR | Oct 97 | N/A | N/A | * | 324 | 925 | 400 | TBD | Continuing |
| Misc | Various | Various | N/A | N/A | * | 347 | 900 | 2,347 | TBD | Continuing |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305910F Spacetrack (Space) | PROJECT<br>4279 |

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

Test and Evaluation Organizations
None

Approved Omnibus Source

1,000

**Government Furnished Property:** Not Applicable.

| | | | | | | |
|---|---|---|---|---|---|---|
| Subtotal Product Development | * | 4,951 | 6,574 | 18,257 | TBD | Continuing |
| Subtotal Support and Management | * | 1,269 | 3,325 | 3,747 | TBD | Continuing |
| Subtotal Test and Evaluation | * | 0 | 0 | 0 | 0 | 0 |
| Approved Omnibus Source | | 1,000 | | | | |
| Total Project | * | 7,220 | 9,899 | 22,004 | TBD | Continuing |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305911F Defense Support Program (Space)

| COST (*In Thousands*) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 24,668 | 20,689 | 12,037 | 7,595 | 7,587 | 4,462 | 4,760 | 0 | 1,941,972 |
| 3615 Shield/Alert | 9,526 | 8,125 | 8,432 | 3,509 | 4,060 | 0 | 0 | 0 | 59,499 |
| 3624 Defense Support Program | 15,142 | 12,564 | 3,605 | 4,086 | 3,527 | 4,462 | 4,760 | 0 | 1,882,473 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |

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

The Defense Support Program (DSP) is a system of satellites in geostationary orbits, fixed and mobile ground processing stations, one multi-purpose facility, and a ground communications network. DSP's primary mission is to provide tactical warning and limited attack assessment of a ballistic missile attack. Shield/ALERT (Attack and Launch Early Reporting to Theater) is a ground station mission processing upgrade which exploits inherent satellite capability to provide theater missile warning and cueing. DSP is an operational system and is funded in Budget Activity 7, Operational Systems Support.

(U) **Acquisition Strategy:**

The ALERT squadron was activated 1 Oct 94 and achieved Initial Operating Capability 10 Mar 95. Further Shield RDT&E efforts are required to meet Air Force Space Command (AFSPC) Full Operational Capability requirements and to use as the pathfinder for the first increment of the ground consolidation.

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget FY 1998 PB | 25,009 | 23,193 | 39,946 | 2,054,500 |
| (U) Appropriated Value | 26,397 | 23,193 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional General Reduction/Adds | -830 | -1,959 | | |
| b. SBIR/Other | -558 | -545 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming (BTR) | -300 | | | |
| e. Rescissions | -41 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -27,909 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 24,668 | 20,689 | 12,037 | 1,941,972 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305911F Defense Support Program (Space)

(U) Change Summary Explanation:

Funding: $300K FY97 RDT&E BTR to other AF priorities and $41K FY97 RDT&E Bosnia recission.
$66K FY98 RDT&E pending reprogramming to fund higher priority AF requirements.
FY99 adjustment funded higher priority Air Force, Department of Defense program requirements and Nonpay inflation adjustment.

Schedule: FY98/FY99 launch schedule adjusted to match current AFSPC launch manifest.

Technical: None.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Missile Procurement (PE 305911F, BA-05, P-28) | 60,357 | 104,841 | 89,904 | 113,515 | 111,537 | 103,680 | 106,491 | 272,000 | 7,213,100 |
| (U) Other Procurement (PE 305911F, BA-65, P-N/A) | 3,386 | 181 | 202 | 14 | 6 | 0 | 0 | 0 | 1,201,700 |
| **Related RDT&E:** | | | | | | | | | |
| (U) PE 603441F - SBIRS Dem/Val | 252,492 | 202,433 | 160,262 | 154,133 | 115,398 | 0 | 0 | 0 | 1,432,558 |
| (U) PE 604442F - SBIRS Low EMD | 0 | 0 | 33,328 | 79,064 | 148,749 | 420,206 | 823,950 | 5,938,759 | 7,444,056 |
| (U) PE 604441F - SBIR High EMD | 193,018 | 316,467 | 538,438 | 564,239 | 395,905 | 269,798 | 143,059 | 102,566 | 2,801,661 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) DSP Satellite Deliveries | | | | | | | | | | X | | |
| (U) Begin ALERT Military Org. Maint. | X | | | | | | | | | | | |
| (U) Final ALERT Hardware Installation | | X | | | | | | | | | | |
| (U) SBIRS MCS Operational (Increment I) | | | | | | | | | | | | X |
| (U) DSP Satellite Launches | | X | | | | | | | X | | | X |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305911F Defense Support Program (Space)

PROJECT: 3615

| COST (*In Thousands*) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3615 Shield/Alert | 9,526 | 8,125 | 8,432 | 3,509 | 4,060 | 0 | 0 | 0 | 59,499 |

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

The Shield project identified changes to existing DSP processing to enhance theater missile defense warning capabilities. These enhancements will facilitate more timely and accurate detection, identification, location and tracking of theater missile threats. This data supports attack operations/counterforce operations by providing accurate, timely launch point prediction. This information will also support active and passive defense forces by providing target cueing data and precise impact point prediction. The Air Force will transition these enhancements to ALERT, an operational system that provides continuous real-time warning to the warfighter.

**(U) Acquisition Strategy:**

The ALERT squadron was activated on 1 Oct 94 with an ALERT Initial Operating Capability reached on 10 Mar 95. Further Shield RDT&E efforts will be required to meet the Air Force Space Command Full Operational Capability requirements and for use as the pathfinder for SBIRS ground consolidation.

(U) FY 1997 ($ in Thousands):

- (U) $4,629 Continued engineering task development to prototype and implement ALERT capabilities leading up to Increment I.
- (U) $2,672 Continued SBIRS ground consolidation developmental test and evaluation.
- (U) $2,225 Technical analysis and independent verification and validation of contractor by FFRDC.
- (U) $9,526 Total

(U) FY 1998 ($ in Thousands):

- (U) $4,557 Continue engineering task development to prototype and implement ALERT capabilities leading up to Increment I.
- (U) $2,239 Continue SBIRS ground consolidation developmental test and evaluation.
- (U) $2,194 Technical analysis and independent verification and validation of contractor by FFRDC.
- (U) -$931 Funds will transfer from BPAC 3624 to BPAC 3615 within PE 35911F to correct erroneous Shield/ALERT reduction.
- (U) $66 Pending reprogramming to fund higher priority AF requirements.
- (U) $8,125 Total

(U) FY 1999 ($ in Thousands):

- (U) $5,175 Continue engineering task development to prototype and implement ALERT capabilities leading up to Increment I.
- (U) $3,440 Continue SBIRS ground consolidation developmental test and evaluation.
- (U) $1,931 Technical analysis and independent verification and validation of contractor by FFRDC.
- (U) -$2,114 Funds will transfer from BPAC 3624 to BPAC 3615 within PE 35911F to correct erroneous Shield/ALERT reduction.
- (U) $8,432 Total

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305911F Defense Support Program (Space)

PROJECT: 3615

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget/FY 1998 PB | 9,089 | 9,108 | 8,602 | 56,697 |
| (U) Appropriated Value | 9,089 | 9,108 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional General Reductions | | -864 | | |
| b. SBIR | | -119 | | |
| c. Omnibus or Other Above Threshold Reprogramming | | | | |
| d. Below Threshold Reprogramming | 437 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -170 | |
| (U) Current Budget Submit/ FY 1999 President's Budget | 9,526 | 8,125 | 8,432 | 59,499 |

(U) Change Summary Explanation:

Funding: $437K FY97 BTR from BPAC 3624 within this program element for Version 12 User's Manuals and Theater Situational Analyst (TSA) Training.
$66K FY98 RDT&E pending reprogramming to fund higher priority AF requirements.
FY99 reduction is for Non-Pay Inflation

Schedule: None.

Technical: None.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Missile Procurement (PE 305911F, BA-05, P-28) | 60,357 | 104,841 | 89,904 | 113,515 | 111,537 | 103,680 | 106,491 | 272,000 | 7,213,100 |
| (U) Other Procurement (PE 305911F, BA-65, P-N/A) | 3,386 | 181 | 202 | 14 | 6 | 0 | 0 | 0 | 1,201,700 |
| **Related RDT&E:** | | | | | | | | | |
| (U) PE 603441F - SBIRS Dem/Val | 252,492 | 202,433 | 160,262 | 154,133 | 115,398 | 0 | 0 | 0 | 1,432,558 |
| (U) PE 604442F - SBIRS Low EMD | 0 | 0 | 33,328 | 79,064 | 148,749 | 420,206 | 823,950 | 5,938,759 | 7,444,056 |
| (U) PE 604441F - SBIR High EMD | 193,018 | 316,467 | 538,438 | 564,239 | 395,905 | 269,798 | 143,059 | 102,566 | 2,801,661 |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Begin ALERT Military Org. Maint. | X | | | | | | | | | | | |
| (U) Final ALERT Hardware Installation | | X | | | | | | | | | | |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305911F Defense Support Program (Space) |
| | PROJECT<br>3615 |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) SBIRS MCS Operational (Increment I) | | | | | | | | | | | | X |
| (U) ALERT Version 12 Operational | | | | | | | X | | | | | |
| (U) ALERT Version 14 Operational | | | | | | | | | X | | | |
| (U) Begin ALERT Military Contractor Support Organization Transition | | | | | | X | | | | | | |
| (U) Theater Situational Analyst (TSA) System User's Manual & Training | | | | | | | | X | | | | |
| (U) TSA Transition | | | | | | | | | X | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305911F Defense Support Program (Space)

PROJECT: 3615

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Contractor Engineering Support | 835 | 850 | 900 |
| (U) Software Development | 1,458 | 1,535 | 1,825 |
| (U) Program Management Support | 1,711 | 1,740 | 1,950 |
| (U) Training Development | 625 | 212 | 500 |
| (U) Developmental Test and Evaluation | 2,672 | 2,239 | 3,440 |
| (U) Technical Data | 0 | 220 | 0 |
| (U) FFRDC | 2,225 | 2,194 | 1,931 |
| (U) Adjustments: (Pending Reprogramming) | | -865 | -2,114 |
| (U) Total | 9,526 | 8,125 | 8,432 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Aerojet | CPAF | Aug 92 | 7,898 | 7,898 | 7,898 | 0 | 0 | 0 | 0 | 7,898 |
| SPARTA | CPAF | Aug 94 | 487 | 487 | 487 | 0 | 0 | 0 | 0 | 487 |
| Lincoln Lab | PO | Mar 95 | 288 | 288 | 288 | 0 | 0 | 0 | 0 | 288 |
| Aerojet (FO) | CPAF | Oct 95 | 34,268 | 33,860 | 6,948 | 6,447 | 5,779 | 7,715 | 6,769 | 33,658 |
| Nichols Research Corporation | | | 2,508 | 2,508 | 239 | 469 | 900 | 900 | 0 | 2,508 |
| Support and Management Organizations | | | | | | | | | | |
| Program Office Support | | | N/A | N/A | 63 | 0 | 0 | 0 | 0 | 63 |
| FFRDC | | | N/A | N/A | 3,128 | 2,225 | 2,194 | 1,931 | 800 | 10,278 |
| Dept Air Force | | | N/A | N/A | 6,369 | 385 | 235 | 0 | | 6,989 |
| Test and Evaluation Organizations | | | | | | | | | | |
| Not Applicable | | | | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305911F Defense Support Program (Space)

PROJECT: 3615

**Government Furnished Property:**

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Test Equipment | | | Aug 94 | 427 | 0 | 0 | 0 | 0 | 427 |
| Subtotal Product Development | | | | 15.860 | 6,916 | 6,561 | 8,615 | 6,769 | 44,721 |
| Subtotal Support and Management | | | | 9,560 | 2,610 | 2,429 | 1,931 | 800 | 17,330 |
| Subtotal Government Furnished Equipment | | | | 427 | 0 | 0 | 0 | 0 | 427 |
| Adjustments: (Pending Reprogrammings) | | | | | | -865 | -2,114 | 0 | -2,979 |
| Total Project | | | | 25,847 | 9,526 | 8,125 | 8,432 | 7,569 | 59,499 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305911F Defense Support Program (Space)

PROJECT: 3624

| COST (*In Thousands*) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3624 Defense Support Program | 15,142 | 12,564 | 3,605 | 4,086 | 3,527 | 4,462 | 4,760 | 0 | 1,882,473 |

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

The Defense Support Program (DSP) system provides a space-based surveillance system to detect and report missile and space launches and nuclear detonations in near real time during pre-, trans-, and post-attack periods. The DSP system consists of a constellation of satellites in geostationary orbits, fixed and mobile ground processing stations, one multi-purpose facility, and a ground communications network. DSP's primary mission is to provide tactical warning and limited attack assessment of a ballistic missile attack. DSP also detects and reports nuclear detonation events and provides information for theater warning and exploitation. This program element funds development to modernize ground stations to ensure continued operability, integration of satellites to launch vehicles, satellites and ground station hardware, procurement, and DSP ground stations operation.

**(U) Acquisition Strategy:**

DSP is currently sustaining the production of satellites19 through 23. This sustainment includes post production storage, testing, launch preparation, and on orbit testing. Current contract efforts are required to stretch the support of launch centers to 12 months from the originally contracted 6 month launch centers. Satellite 23 will be the last DSP satellite procured. The Space Based Infrared Systems satellites will replace DSP satellites starting in FY02.

(U) FY 1997 ($ in Thousands)

- (U) $292 Performed DSP Spacecraft developmental engineering efforts
- (U) $2,321 Performed DSP Sensor developmental engineering efforts
- (U) $4,790 Other Government costs (Integrated Surveillance Systems concept, Space Long Range Planning, Y2K)
- (U) $740 Technical analysis and independent verification and validation of contractor by FFRDC
- (U) $693 Continued acquisition and engineering support.
- (U) $1,000 Continued acquisition logistics engineering development and sustaining capabilities
- (U) $3,607 Program office support (TDYs, supplies, computer support, etc)
- (U) $1,699 Pending reprogramming to fund higher priority AF requirements.
- (U) $15,142 Total

(U) FY 1998 ($ in Thousands)

- (U) $3,300 Software change to accommodate Year 2000 roll-over.
- (U) $1,939 Integrated Surveillance Systems Concept
- (U) $931 Funds will transfer from BPAC 3624 to BPAC 3615 within PE 35911F to correct erroneous Shield/ALERT reduction.
- (U) $3,395 Other Government Costs (Long Range Planning, ANSER)
- (U) $2,999 Funds will be reprogrammed to other Air Force programs.
- (U) $12,564 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305911F Defense Support Program (Space) |
| | PROJECT<br>3624 |

(U) FY 1999 ($ in Thousands):

- (U) $200 Integrated Surveillance Systems Concepts
- (U) $700 Year 2000 rollover
- (U) $2,114 Funds will transfer from BPAC 3624 to BPAC 3615 within PE 35911F to correct erroneous Shield/ALERT reduction.
- (U) $591 Other Government Cost
- (U) $3,605 Total

| (U) B. Program Change Summary ($ in Thousands) | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget/FY 1998 PB | 15,920 | 14,085 | 31,344 | 1,997,803 |
| (U) Appropriated Value | 15,920 | 14,085 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional General Reductions | | -1,095 | | |
| b. SBIR/Other | | -426 | | |
| c. Omnibus or Other Above Threshold Reprogramming | | | | |
| d. Below Threshold Reprogramming | -778 | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -27,739 | |
| (U) Current Budget Submit/ FY 1999 President's Budget | 15,142 | 12,564 | 3,605 | 1,882,473 |

(U) Change Summary Explanation:

Funding: $300K FY97 RDT&E BTR to other AF priorities, $437K FY97 RDT&E BTR to BPAC 3615 within this program element, and $41K FY97 RDT&E to Bosnia rescission. FY99 adjustments funded higher priority Air Force, Department of Defense program requirements and Nonpay inflation.

Schedule: FY98/FY99 launch schedule adjusted to match current AFSPC launch manifest.

Technical: None.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| U) Missile Procurement (PE 305911F, BA-05, P-28) | 60,357 | 104,841 | 89,904 | 113,515 | 111,537 | 103,680 | 106,491 | 272,000 | 7,213,100 |
| (U) Other Procurement (PE 305911F, BA-65, P-N/A) | 3,386 | 181 | 202 | 14 | 6 | | | 0 | 1,201,700 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305911F Defense Support Program (Space)

PROJECT: 3624

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| **Related RDT&E:** | | | | | | | | | |
| (U) PE 603441F - SBIRS Dem/Val | 252,492 | 202,433 | 160,262 | 154,133 | 115,398 | 0 | 0 | 0 | 1,432,558 |
| (U) PE 604442F - SBIRS Low EMD | 0 | 0 | 33,328 | 79,064 | 148,749 | 420,206 | 823,950 | 5,938,759 | 7,444,056 |
| (U) PE 604441F - SBIR High EMD | 193,018 | 316,467 | 538,438 | 564,239 | 395,905 | 269,798 | 143,059 | 102,566 | 2,801,661 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) DSP 23 Satellite delivery | | | | | | | | | | X | | |
| (U) Satellite launches | | X | | | | | | | X | | | X |
| (U) Software Releases | | | | | | X | X | | | | | |
| (U) Year 2000 DSP renovation | | | | | | X | X | X | X | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE: February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0305911F Defense Support Program (Space) / PROJECT: 3624 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Program Office Support | 3,607 | | |
| (U) DSP Spacecraft Developmental Engineering efforts | 292 | | |
| (U) DSP Sensor Developmental Engineering efforts | 2,321 | | |
| (U) Other Government Costs(See *note) | 4,790 | 8,634 | 1,491 |
| (U) FFRDC | 740 | | |
| (U) Continued acquisition and engineering support | 693 | | |
| (U) Acq Logistics Engineering Development & Sustainment | 1,000 | | |
| (U) Adjustments | 1,699 | 3,930 | 2,114 |
| (U) Total | 15,142 | 12,564 | 3,605 |

*Note: OGC includes - Integrated Surveillance Systems concept, Space Long Range Planning, Y2K roll-over.

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305911F Defense Support Program (Space)

PROJECT: 3624

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Aerojet* | CPAF | Oct 93 | 25,719 | 25,719 | 25,719 | 0 | 0 | 0 | 0 | 25,719 |
| Aerojet | CPAF | Sep 93 | 9,025 | 9,025 | 9,025 | 0 | 0 | 0 | 0 | 9,025 |
| Aerojet | CPFF | | 25,743 | 25,743 | 25,743 | 0 | 0 | | 0 | 25,743 |
| Aerojet | CPAF | Oct 95 | 2,578 | 2,578 | 2,578 | | | | | 2,578 |
| Loral | FPI/AF/CPF | | 28,137 | 37,732 | 37,732 | 0 | 0 | 0 | 0 | 37,732 |
| DOE | P.O. | | 10,724 | 10,724 | 10,724 | 0 | 0 | 0 | 0 | 10,724 |
| Loral | CPAF | | 22,975 | 22,975 | 22,975 | 0 | 0 | 0 | 0 | 22,975 |
| * EAC is also funded by other appropriations. | | | | | | | | | | |
| Support and Management Organizations | | | | | | | | | | |
| Various | MIPRs | | | | 6,301 | 0 | 0 | 0 | 0 | 6,301 |
| Aerojet | CPFF | | 1,305 | 1,305 | 1,305 | 0 | 0 | 0 | 0 | 1,305 |
| Aerojet/ Consolidated | FFP | May 96 | 2.518 | 2,518 | 197 | 2,321 | 0 | 0 | 0 | 2,518 |
| FFRDC | MORD | | N/A | N/A | 41,369 | 740 | 0 | 0 | 0 | 42,109 |
| Other Gov't Cost * | | | N/A | N/A | 20,596 | 4,790 | 8,634 | 1,491 | 16,835 | 52,346 |
| TRW | CPFF | | 9,872 | 9,872 | 9,872 | 0 | 0 | 0 | 0 | 9,872 |
| TRW Consolidated | CPAF | May 96 | 292 | 292 | 0 | 292 | 0 | 0 | 0 | 292 |
| PRC | FPIF | Apr 94 | 7,579 | 7,579 | 5,886 | 1,693 | 0 | 0 | 0 | 7,579 |
| SPARTA | CPAF | Aug 94 | 150 | 150 | 150 | 0 | 0 | 0 | 0 | 150 |
| | MORDs | | 15,043 | 15,043 | 15,043 | 0 | 0 | 0 | 0 | 15,043 |
| Program Office Support | Various | | N/A | N/A | 64,494 | 3,607 | 0 | 0 | 0 | 68,101 |

*Note: OGC includes: HQ AFMC Space Systems Support Group for Year 2000 software development, Integrated Surveillance Systems Concept.

Test and Evaluation Organizations

Not Applicable.

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | | | | DATE: February 1998 | |
|---|---|---|---|---|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0305911F Defense Support Program (Space) | | | | | PROJECT: 3624 |

**Government Furnished Property:**
Not Applicable

| | | | | | | |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 134,496 | 0 | 0 | 0 | 0 | 134,496 |
| Subtotal Support and Management | 165,213 | 13,443 | 8,634 | 1,491 | 16,835 | 205,616 |
| Subtotal Test and Evaluation | 0 | 0 | 0 | 0 | 0 | 0 |
| Adjustments: (Pending Reprogramming) | | 1,699 | 3,930 | 2,114 | | 1,542,361 |
| Adjustments: (Previous DSP Contracts) | 1,534,618 | | | | | |
| Project Total | 1,834,327 | 15,142 | 12,564 | 3,605 | 16,835 | 1,882,473 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305913F Nudet Detection System

PROJECT: 2808

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | FY 2004 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| 2808 Nuc Detonation Det Sys (Sensors) | 12,818 | 13,360 | 13,314 | 14,352 | 13,342 | 12,596 | 14,704 | Continuing | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

The Nuclear Detonation (NUDET) Detection System (NDS) consists of space, control, and user equipment segments. The space segment consists of NUDET detection sensors on the GPS/NDS satellites. The control segment consists of ground control software and is known as the Integrated Correlation and Display System (ICADS). The user equipment segment consists of the Ground NDS Terminals (GNT). The NDS provides a worldwide, highly survivable capability to detect, locate, and report any nuclear detonations in the earth's atmosphere or in near space in near-real time. The NDS supports NUDET detection requirements for AFSPC (Integrated Tactical Warning and Attack Assessment [ITWAA]), USSTRATCOM (Nuclear Force Management), and AFTAC (Treaty Monitoring). This program is in budget activity 7 - Operational System Development, because it is a post-Milestone III program.

(U) **Acquisition Strategy:**
The NDS Acquisition Strategy is to develop and procure components to sustain the U. S. NDS capability for the GPS Block IIR and IIF satellites. Funding is MIPRed from DoD and Department of Energy (DoE) to Sandia and Los Alamos National Laboratories on an existing contract vehicle.

(U) FY 1997 ($ in Thousands):
- (U) $ 10,171 Continue ICADS and GNT development
- (U) $ 900 Continue NDS EMP sensor compatibility and on-orbit qualification
- (U) $ 1,241 Continue ICADS, GNT and Advanced RADEC Detection Units (ARDU) system engineering and program management
- (U) $ 506 Continue mission support requirements
- (U) $ 12,818 Total

(U) FY 1998 ($ in Thousands):
- (U) $ 6,703 Continue ICADS and GNT development
- (U) $ 1,160 Continue NDS sensor on-orbit qualification
- (U) $ 3,808 Continue ICADS, GNT, ARDU, NDS sensors, and GPS/NDS commanding requirements system engineering and program management
- (U) $ 1,689 Continue mission support requirements
- (U) $ 13,360 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305913F Nudet Detection System |
| | PROJECT<br>2808 |

(U) FY 1999 ($ in Thousands):
- (U) $10,271 Continue ICADS and GNT development
- (U) $ 1,181 Continue NDS sensor on-orbit qualification
- (U) $ 192 Continue ICADS, GNT, ARDU, NDS sensors, and GPS/NDS commanding requirements system engineering and program management
- (U) $ 1,670 Continue mission support requirements
- (U) $13,314 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 13,018 | 14,145 | 14,982 | Continuing |
| (U) Appropriated Value | 13,623 | 14,145 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | -304 | -469 | | |
| b. SBIR | -301 | -316 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | -200 | | | |
| e. Rescission | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -1,668 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 12,818 | 13,360 | 13,314 | Continuing |

(U) Change Summary Explanation:

Funding: FY97 Below Threshold Reprogramming (BTR) to PE 030311F, Defense Satellite Communications System (DSCS) (-$200).
FY99 adjustments funded higher priority DoD and AF priorities (-$1,400) and non-pay inflation (-$268).
Schedule: ICADS IIF delayed 10 months & GNT Phase 2 Delivery delayed from 4QTR 97 to 2QTR 98.
Technical: No change.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Operations & Maintenance, (PE 0305913F, BA 1, Operating Forces | 5,161 | 5,350 | 5,867 | 5,978 | 6,263 | 8,945 | 7,687 | Cont | Cont |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305913F Nudet Detection System<br>PROJECT 2808 |

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Missile Procurement, (PE 0305913F, BA 45 - Space and Other Support, P-22) | 4,081 | 950 | 2,949 | 1,575 | 1,491 | 1,522 | 1,556 | Cont | Cont |
| (U) Other Procurement, (PE 0305913F, BA 63 - Electronics and Telecom Equipment, P-64) | 2,085 | 7,792 | 1,278 | 1,741 | 1,540 | 3,370 | 0 | Cont | Cont |

**Related RDT&E:**
(U) PE 305165F, NAVSTAR GPS (Space/Ground Segment)
(U) PE 604480F, GPS Block IIF
(U) PE 305911F, Defense Support Program

(U) **D. Schedule Profile**

| | FY 1997 | | | | FY1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) **ICADS Milestones & Program Events** | | | | | | | | | | | | |
| (U) IIF Use Case Model Overview | | | | | x | | | | | | | |
| (U) IIF System Specification Review | | | | | x | | | | | | | |
| (U) IIF Elaboration Phase Review | | | | | | | | | | | | x |
| (U) IIR Acceptance Test (AT) | | | | | | | x | | | | | |
| (U) **GNT Milestones & Program Events** | | | | | | | | | | | | |
| (U) Phase II GNT Delivery | | | | | | x | | | | | | |
| (U) Phase I Operational | | | | x | | | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305913F Nudet Detection System<br>PROJECT 2808 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Systems Engineering | 1,208 | 1,277 | 1,065 |
| (U) Software Development | 7,077 | 6,793 | 6,452 |
| (U) Software Upgrade | 2,000 | 2,375 | 3,268 |
| (U) Miscellaneous | 1,387 | 1,534 | 1,331 |
| (U) Technical Data | 92 | 153 | 133 |
| (U) Development Test & Evaluation | 791 | 921 | 799 |
| (U) Program Management Support | 263 | 307 | 266 |
| (U) Total | 12,818 | 13,360 | 13,314 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| **ICADS:** | | | | | | | | | | |
| Sandia Labs | MIPR* | Jan 96 | Cont | Cont | 17,094 | 9,055 | 5,588 | 10,271 | Cont | Cont |
| SAIC | Time/Matls | Dec 95 | Cont | Cont | 1,453 | 831 | 489 | 767 | Cont | Cont |
| **GNT:** | | | | | | | | | | |
| Sandia Labs | MIPR* | Jan 96 | Cont | Cont | 9,128 | 1,116 | 1,115 | 0 | Cont | Cont |
| Intermetrics | CPFF | Dec 93 | 1,262 | 1,262 | 1,262 | 0 | 0 | 0 | 0 | 1,262 |
| SAIC | Time/Matls | Dec 95 | Cont | Cont | 399 | 348 | 330 | 300 | Cont | Cont |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305913F Nudet Detection System

PROJECT: 2808

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| **GPS Operational Support Contract (GOSC)/NUDET Augmentation Payload (NAP)/Combined X-ray & Dosimeter (CXD) sensors:** | | | | | | | | | | |
| Sandia Labs | MIPR | Oct 97 | 4,287 | 4,287 | 0 | 287 | 3,808 | 192 | 0 | 4,287 |
| SAIC | Time/Matls | Dec 97 | 432 | 432 | 0 | 0 | 266 | 166 | 0 | 432 |
| **W-Sensor Support:** | | | | | | | | | | |
| SRI | CPFF | Aug 94 | 415 | 415 | 415 | 0 | 0 | 0 | 0 | 415 |
| Los Alamos | MIPR | Jan 96 | Cont | Cont | 2,291 | 693 | 473 | 479 | Cont | Cont |
| Sandia Labs | MIPR | Oct 94 | 2,635 | 2,635 | 399 | 0 | 817 | 702 | 717 | 2,635 |
| **Mission** | Multiple | N/A | Cont | Cont | 2,886 | 488 | 474 | 437 | Cont | Cont |
| Support and Management Organizations | | | | | | | | | | |
| Prog Contractual Spt. | Multiple | N/A | 1,534 | 1,534 | 1,534 | 0 | 0 | 0 | 0 | 1,534 |
| Test and Evaluation Organizations | | | | | | | | | | |
| OO-ALC/LMCF | | | 9 | 9 | 9 | 0 | 0 | 0 | 0 | 9 |
| Subtotal Product Development | | | | | 35,327 | 12,818 | 13,360 | 13,314 | Cont | Cont |
| Subtotal Support and Management | | | | | 1,534 | 0 | 0 | 0 | 0 | 1,534 |
| Subtotal Test and Evaluation | | | | | 9 | 0 | 0 | 0 | 0 | 9 |
| Total Project | | | | | 36,870 | 12,818 | 13,360 | 13,314 | Cont | Cont |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305917F DoD Space Architect (Space)

PROJECT: 4746

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4746 Space Architect | 10,939* | 13,480 | 13,714 | 14,511 | 14,428 | 14,345 | 14,732 | 0 | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*FY97 and earlier funding contained in PE603855F. Funding transferred from PE603855 to this PE in FY1998 - 2003 to consolidate R&D and O&M appropriations into one Program Element.

(U) A. **Mission Description and Budget Item Justification** - The Under Secretary of Defense for Acquisition and Technology (USD(A&T)) established the DoD Office of the Space Architect (OSA) to consolidate DoD space system architecture development responsibilities into a single organization. The OSA was one of DoD's responses to Congressional concerns regarding DoD space management. This organization works to integrate space system architectures, eliminate unnecessary vertical stovepiping of space programs, achieve efficiencies in acquisition and future operations through space program integration, and thereby improve space support to military operations. The OSA obtains direct support from various space planning and development organizations across the federal government and industry for DoD space architecture planning and development. This program is in Budget Activity 7 because the architecture studies affect the design and acquisition of systems currently under development.

(U) **Acquisition Strategy:** RDT&E funds will be used to obtain infrastructure support and direct support from various space planning and development organizations across the DoD and industry, including FFRDCs and contracted System Engineering and Technical Assistance (SETA) in direct support of DoD space architecture planning and development. Funds will be applied to existing contract vehicles.

- As primary support, the DoD Space Architect proposes using two existing Space & Missile Center (SMC) contracts for technical support:
  - -- Engineering, Analysis, Design and Development (EADD) Contract; Science Applications International Corporation (SAIC)
  - -- Engineering, Analysis and Design (EAD) Contract; Nichols Research Corporation
- These contracts currently provide support to the Air Force Space and Missile Systems Center long-range planning, conceptual development, and engineering analysis and assessment efforts.

(U) FY 1997 ($ in Thousands):

- (U) $ 109 Launch Study
- (U) $ 133 MILSATCOM Study
- (U) $ 3,022 Satellite Operations Studies
- (U) $ 2,444 Space Control Study
- (U) $ 5,231 Other Architecture Studies and Documentation
- (U) $10,939 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305917F DoD Space Architect (Space) |
| | PROJECT<br>4746 |

(U) FY 1998 ($ in Thousands):

- (U) $ 3,500 Environmental Sensing Study
- (U) $ 1,500 Launch Study
- (U) $ 100 MILSATCOM Study
- (U) $ 625 Satellite Operations Studies
- (U) $ 360 Space Control Study
- (U) $ 345 SBIRS Study
- (U) $ 278 Pos/Nav Study
- (U) $ 6,772 Other Architecture Studies and Documentation
- (U) $13,480 Total

(U) FY 1999 ($ in Thousands):

- (U) $ 800 Environmental Sensing Study
- (U) $ 600 Launch Study
- (U) $ 500 MILSATCOM Study
- (U) $ 3,500 Dissemination Study
- (U) $ 3,000 Launch Vehicles Study
- (U) $ 5,314 Other Architecture Studies and Documentation
- (U) $13,714 Total

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

| | FY 1997* | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 10,957 | 14,590 | 14,590 |
| (U) Appropriated Value | 11,601 | 14,590 | |
| (U) Adjustments to Appropriated Value | | | |
| a. Cong Gen Reductions | - 345 | -743 | |
| b. SBIR | - 299 | -367 | |
| c. Omnibus or Other Above Threshold Reprogram | | | |
| d. Below Threshold Reprogramming | | | |
| e. Rescissions | -18 | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -876 |
| (U) Current Budget Submit/FY1999 President's Budget | 10,939 | 13,480 | 13,714 |

*Contained in PE603855F

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305917F DoD Space Architect (Space) |
| | PROJECT<br>4746 |

(U) Change Summary Explanation:
Funding: None.
Schedule: None
Technical: None

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

(U) N/A

(U) D. **Schedule Profile**

(U) N/A - Level of effort studies

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305917F DoD Space Architect (Space)

PROJECT: 4746

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| Environmental Sensing | 769 | 3,500 | 800 |
| Launch Study | 109 | 1,500 | 600 |
| MILSATCOM | 133 | 100 | 500 |
| NSCP | 146 | 150 | 150 |
| Position-Navigation | 273 | 278 | 700 |
| Satellite Operations | 3,022 | 625 | 100 |
| Space Control | 2,444 | 360 | 100 |
| Dissemination | 0 | 0 | 3,500 |
| DUSD(S) Studies | 2,000 | 351 | 0 |
| Other Studies (Congressional. DoD Studies) | 0 | 3,133 | 756 |
| Launch Vehicles | 0 | 0 | 3,000 |
| In-House Support | 2,043 | 3,483 | 3,508 |
| Total | 10,939 | 13,480 | 13,714 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| None | | | | | 0 | 0 | 0 | 0 | Cont | |
| Support and Management Organizations | | | | | | | | | | |
| Aerospace | C/CPAF | 1993 | N/A | N/A | | 2,046 | 1,038 | 1,297 | Cont | Cont |
| ANSER | C/CPFF | 1993 | N/A | N/A | | 389 | 884 | 584 | Cont | Cont |
| MITRE | C/CPAF | 1993 | N/A | N/A | | 632 | 770 | 575 | Cont | Cont |
| SAC | C/CPAF | 1993 | N/A | N/A | | 550 | 0 | 0 | Cont | Cont |
| SEI | C/CPAF | 1995 | N/A | N/A | | 40 | 310 | 225 | Cont | Cont |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305917F DoD Space Architect (Space)

PROJECT: 4746

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| TASC | C/CPAF | 1994 | N/A | N/A | 0 | 700 | 325 | 325 | Cont | Cont |
| EAD | C/CPAF | 1997 | N/A | N/A | | 3,117 | 5,014 | 5,122 | Cont | Cont |
| EADD | C/CPAF | 1997 | N/A | N/A | | 3,465 | 5,139 | 5,586 | Cont | Cont |
| Test and Evaluation Organizations | | | | | | | | | | |
| None | | | | | 0 | 0 | 0 | 0 | 0 | |
| **Government Furnished Property:** None | | | | | | | | | | |
| Subtotal Product Development | | | | | | 0 | 0 | 0 | 0 | 0 |
| Subtotal Support and Management | | | | | | 10,939 | 13,480 | 13,714 | Cont | Cont |
| Subtotal Test and Evaluation | | | | | | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | | | 10,939 | 13,480 | 13,714 | Cont | Cont |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305953F Evolved Expendable Launch Veh (Space)

PROJECT: 4594

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4594 EELV Prod & Opns | 0 | 0 | 3,316 | 3,397 | 3,477 | 2,320 | 766 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) A. **Mission Description and Budget Item Justification:**
The Evolved Expendable Launch Vehicle (EELV) program is a space launch system development program. The mission of the EELV program is to partner with industry to develop a national launch capability that satisfies the Government's National Mission Model (NMM) requirements and reduces the cost of space launch by at least 25%. The EELV system includes the launch vehicles, infrastructure, support systems, and interfaces. EELV will provide up to two families of launch vehicles that will launch the Government portion of the NMM currently serviced by Titan II, Delta II, Atlas II, and Titan IV. Evolved from current expendable launch systems or components thereof, EELV will support military, intelligence, and civil mission requirements. This program element is in Budget Activity 7, Operational System Development, because it supports operational deployment of a system in production.

(U) **Acquisition Strategy:**
The EELV concept of a family of launch vehicles emphasizes commonality of hardware and infrastructure and economies of scale to enhance production, operations, and support efficiencies. Cost improvements will be achieved through commonality; leveraging the commercial market place; reduction of supporting infrastructure (launch pads, manufacturing facilities, workforce); and optimization of production and launch operations, processes, and rates. EELV is an ongoing competitive program that initially used a rolling downselect acquisition strategy. In August 1995 four initial contracts were awarded for the Low Cost Concept Validation (LCCV) phase. In December 1996 the Air Force downselected to two contractors – Lockheed Martin and Boeing (originally McDonnell Douglas) – for the Pre-Engineering and Manufacturing Development (Pre-EMD) phase. In the summer of 1998, contracts will be awarded for the Engineering and Manufacturing Development (EMD) and Initial Launch Services (ILS) phase. The EMD/ILS approach maintains competition throughout the life of the program, leverages the growing commercial launch market, caps the Government's EMD costs, and allows partnership with industry, while still reducing the program's overall cost to launch the NMM by at least 25% over existing systems. The EELV system will launch the government portion of the NMM through 2020.

(U) **FY 1997 ($ in Thousands)**
(U) $0 EELV was funded in PE 0603853F in FY 1997.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0305953F Evolved Expendable Launch Veh (Space) |
| | PROJECT<br>4594 |

(U) **FY 1998 ($ in Thousands)**

- (U) $0 EELV is funded in PE 0603853F and PE 0604853F in FY 1998.

(U) **FY 1999 ($ in Thousands)**

- (U) $2,280 Start mission planning and non-recurring integration for Space Test Program (TSX-8).
- (U) $1,036 Start mission planning and non-recurring integration for Defense Support Program (DSP) Satellite.
- (U) $3,316 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 0 | 0 | 3,383 | Continuing |
| (U) Appropriated Value | 0 | 0 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional General Reductions | | | | |
| b. Small Business Innovative Research | | | | |
| c. Omnibus or other above threshold reprogramming | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY98 PB | | | - 67 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 0 | 0 | 3,316 | Continuing |

(U) **Change Summary Explanation:**

- Funding: The FY99 change is an inflation adjustment.
- Schedule: Not Applicable.
- Technical: Not Applicable.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305953F Evolved Expendable Launch Veh (Space)

PROJECT: 4594

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Comp | Total |
|---|---|---|---|---|---|---|---|---|---|
| (U) Missile Procurement, AF (PE 0305953F) (BA45, P-TBD) | | | | 204,576 | 360,818 | 359,442 | 599,717 | Cont. | Cont. |
| (U) Missile Procurement, AF (Quantity) | | | | 4 | 6 | 7 | 11 | Cont. | Cont. |
| (U) NRO (Non-AF budget) | 18,600 | 4,200 | | | | | | | 95,100* |
| (U) DARPA (Non-AF budget) (PE 0603226E) | | | | | | | | | 9,845** |
| **Related RDT&E:** | | | | | | | | | |
| (U) EELV Demonstration and Validation (PE 0603853F) | 44,263 | 60,437 | 0 | 0 | 0 | 0 | 0 | 0 | 173,153 |
| (U) EELV EMD (PE 0604853F) | | 26,572 | 280,297 | 338,319 | 305,557 | 244,450 | 14,822 | 0 | 1,210,017 |

* Total includes funding in FY96.
** Total includes funding in FY94.

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Defense Acquisition Board - Milestone II | | | | | | | X | | | | | |
| (U) Development/Initial Launch Services contract awards | | | | | | | X | | | | | |
| (U) Start mission planning and first time integration for the STP TSX mission | | | | | | | | | X | | | |
| (U) Start mission planning and first time integration for DSP | | | | | | | | | | | X | |
| (U) Start launch vehicle production in 1st quarter FY00 | | | | | | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0305953F Evolved Expendable Launch Veh (Space)

PROJECT: 4594

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Contract | 0 | 0 | 3,316 |
| (U) Mission Support | 0 | 0 | 0 |
| (U) Total | 0 | 0 | 3,316 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Prime Contracts | C/FFP | Jun 98 | | | 0 | 0 | 0 | 3,316 | Cont. | Cont. |
| Support and Management Organizations | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Test and Evaluation Organizations | | | | | | | | | | |
| Not Applicable | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| **Government Furnished Property:** Not Applicable | | | | | | | | | | |
| Subtotal Product Development | | | | | 0 | 0 | 0 | 3,316 | Cont. | Cont. |
| Subtotal Support and Management | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal Test and Evaluation | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | | 0 | 0 | 0 | 3,316 | Cont. | Cont. |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0308601F Modeling and Simulation Support

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 1,995 | 0 | 1,093 | 1,088 | 1,210 | 1,253 | 1,358 | TBD | Continuing |
| 1011 Joint Modeling & Simulation Integration Program (JMSIP) | 1,995* | 0 | 358 | 378 | 397 | 404 | 415 | TBD | Continuing |
| 4566 Executive Agent for Air/Space Natural Environment | 0 | 0 | 735 | 710 | 813 | 849 | 943 | TBD | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*FY97 dollars are executed through PE0270601F, USAF Modeling and Simulation, but reported here for consistency.

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

This PE includes funding to support and organized growth and management of modeling and simulation (M&S) as the Air Force transitions from numerous legacy models and simulations to emerging DoD standard models and architecture. Numerous models currently exist and are being modified or developed for a broad range of areas including acquisition, analysis, test and evaluation, and training. JMSIP funds the upgrades to R&D funded legacy models selected through a board process. The selection process allows the board to influence the direction of legacy model development and interaction for the entire modeling and simulation community. Emphasis is placed on joint applicability and acceptance. Executive Agent for Air/Space Natural Environment supports M&S information, coordination, and expertise on natural environment representation and their interactions with other environmental representations. In turn, this supports joint wargaming architectures, databases, model development support for Joint Warfare Simulation (JWARS), Joint Simulation System (JSIMS), Joint Modeling and Simulation System (JMASS), and other joint M&S program offices. Primary users will be unified commanders and service components for use in joint exercises involving air, ground, sea, and space campaigns. PE also contains O&M funding for AF portion of Aggregate Level Simulation Protocol (ALSP); Data Standards; Advanced Connectivity; M&S Resource Repository (MSRR); model Verification, Validation, and Accreditation (VV&A); and High Level Architecture (HLA). FY97 funding contained in PE 27601, USAF Waraming and Simulation.

(U) **Acquisition Strategy**

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0308601F Modeling and Simulation Support |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) FY 1998 President's Budget | 2,038 | 0 | 943 | Continuing |
| (U) Appropriated Value | 2,038 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -43 | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1998PB | | | +150 | |
| (U) Current Budget Submit/FY 1999 President's BUdget | 1,995 | 0 | 1093 | Continuing |

(U) Change Summary Explanation:

Funding: FY99 adjustment supports increased M&S infrastructure efforts.

Schedule: Not Applicable

Technical: Not Applicable

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) O&M (AF 3400) | | | 4,123 | 8,368 | 8,024 | 9,822 | 12,278 | Contine | Contine |

(U) **D. Schedule Profile** See individual R-2s

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0308601F Modeling and Simulation Support

PROJECT: 1011

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 1011 Joint Modeling & Simulation Integration Program (JMSIP) | 1,995* | 0 | 358 | 378 | 397 | 404 | 415 | TBD | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

Numerous models currently exist and are being modified or developed for a broad range of areas including acquisition, analysis, test and evaluation, and training. JMSIP supports the upgrade of R&D funded legacy models selected through a board process. The selection process allows the board to influence the direction of legacy model development and interation for the modeling and simulation community. Emphasis is placed on joint applicability and acceptance.

(U) **Acquisition Strategy**

(U) FY 1997 ($ in Thousands):
- (U) $ 707 Fund mission air functional representation in current campaign level legacy models.
- (U) $ 600 Develop space functional representation for current campaign level legacy models.
- (U) $ 450 Migrate selected legacy models to joint standards definition
- (U) $ 238 Develop interoperability in selected campaing, mission, and engagement legacy models.
- (U) $ 1,995 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 Not Applicable

(U) FY 1999 ($ in Thousands):
- (U) $ 358 Migate selected legacy models to joint standards definitions.
- (U) $ 358 Total

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0308601F Modeling and Simulation Support

PROJECT: 1011

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) FY 1998 President's Budget | 2,038 | 0 | 358 | Continuing |
| (U) Appropriated Value | 2,038 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -43 | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | | |
| (U) Current Budget Submit/FY 1999 President's Budget | 1,995 | 0 | 358 | Continuing |

(U) Change Summary Explanation:

Funding: FY99 adjustment supports legacy model transitions.

Schedule: Not Applicable

Technical: Not Applicable

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) PE 27601F, O&M (AF 3400) | 4,455 | 6,104 | 4,110 | 8,451 | 7,958 | 9,912 | 12,297 | Continue | Continue |

(U) **D. Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Fund start of multiple projects | X | | | | X | | | | X | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0308601F Modeling and Simulation Support<br>PROJECT 1011 |

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

| Executive Agent for Air/Space Natural Environment | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Cost Categories | | | |
| (U) a. Sotware Development | 1,770 | | |
| (U) b. Contractor Support | 150 | | 280 |
| (U) c. Program Management Support | 50 | | 50 |
| (U) d. Travel | 25 | | 28 |
| (U) Total | 1,995 | 0 | 358 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Various | Various | Various | | | 0 | 1,995 | 0 | 358 | continuing | continuing |
| Support and Management Organizations | | | | | | | | | | |
| None | | | | | | | | | | |
| Test and Evaluation Organizations | | | | | | | | | | |
| None | | | | | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0308601F Modeling and Simulation Support<br>PROJECT 1011 |

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

**Government Furnished Property:** N/A

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| None | | | | | | | | | |
| Support and Management Property | | | | | | | | | |
| None | | | | | | | | | |
| Test and Evaluation Property | | | | | | | | | |
| None | | | | | | | | | |
| Subtotal Product Development | | | | 0 | 1,995 | 0 | 358 | continuing | continuing |
| Subtotal Support and Management | | | | | | | | | |
| Subtotal Test and Evaluation | | | | | | | | | |
| Total Project | | | | 0 | 1,995 | 0 | 358 | continuing | continuing |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0308601F Modeling and Simulation Support

PROJECT: 4566

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4566 Executive Agent for Air/Space Natural Environment | 0 | 0 | 735 | 710 | 813 | 849 | 943 | TBD | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

Air Force Combat Climatology Center (AFCCC), Scott AFB, IL has been designated as the DoD Modeling and Simulation (M&S) Executive Agent (EA) for Air and Space Natural Environment. This program provides funds for M&S EA joint wargaming architecture, database, model development support for Joint Warfare Simulation (JWARS), Joint Simulation System (JSIMS), Joint Modeling and Simulation System (JMASS), and other joint M&S program offices. Primary users will be unified commanders and service components for use in joint exercises involving air, ground, sea, and space campaigns.

(U) **Acquisition Strategy**

(U) FY 1997 ($ in Thousands):
- (U) $0 Not Applicable

(U) FY 1998 ($ in Thousands):
- (U) $0 Not Applicable

(U) FY 1999 ($ in Thousands):
- (U) $ 435 Modeling & simulation data for CINC/AF models
- (U) $ 300 Production center model implementation
- (U) $ 735 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0308601F Modeling and Simulation Support |
| | PROJECT<br>4566 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) FY 1998 President's Budget | | | | Continuing |
| (U) Appropriated Value | | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | +735 | |
| (U) Current Budget Submit/FY 1999 President's Budget | | | 735 | Continuing |

(U) Change Summary Explanation:

Funding: FY99 adjustment supports other M&S infrastructure activities.

Schedule: Not Applicable

Technical: Not Applicable

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) PE 38601F, O&M (AF 3400) | | 1,288 | 1,377 | 1,481 | 1,502 | 1,557 | 1,640 | Continue | Continue |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Architecture | | | | | | X | | X | | X | | X |
| (U) Database Capabilities | | | | | X | | X | X | | X | X | X |
| (U) Mocels | | | | | X | | X | X | | X | X | X |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0308601F Modeling and Simulation Support<br>PROJECT 4566 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Cost Categories | | | |
| (U) a. Software Development | | | 348 |
| (U) b. Lab Overhead/Management | | | 100 |
| (U) c. Prototyping | | | 262 |
| (U) d. Travel | | | 25 |
| (U) Total | 0 | 0 | 735 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Various | Various | Various | | | 0 | 0 | 0 | 735 | continuing | continuing |
| Support and Management Organizations | | | | | | | | | | |
| None | | | | | | | | | | |
| Test and Evaluation Organizations | | | | | | | | | | |
| None | | | | | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0308601F Modeling and Simulation Support<br>PROJECT 4566 |

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

**Government Furnished Property:** N/A

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| None | | | | | | | | | |
| Support and Management Property | | | | | | | | | |
| None | | | | | | | | | |
| Test and Evaluation Property | | | | | | | | | |
| None | | | | | | | | | |
| Subtotal Product Development | | | | 0 | 0 | 0 | 735 | continuing | continuing |
| Subtotal Support and Management | | | | | | | | | |
| Subtotal Test and Evaluation | | | | | | | | | |
| Total Project | | | | 0 | 0 | 0 | 735 | continuing | continuing |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 1,122 | 9,160 | 47,940 | 0 | 0 | 0 | 0 | 0 | 58,222 |
| 4377 Airborne Broadcast Intelligence (ABI) C-5 | 651 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 651 |
| 4495 Avionics Modernization Program | 471 | 9,160 | 47,940 | 0 | 0 | 0 | 0 | 0 | 57,571 |
| Quantity of RDT&E Articles | 1*/$350 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1*/$350 |

* Note: One unit applies to project 4377

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

4377: Airborne Broadcast Intelligence (ABI): Airlift and Air Refueling Mission Area Plans identify a deficiency in ability to protect aircraft from hostilities during combat operations. The ABI system addresses this deficiency and increases aircrew survivability by providing aircrews with portable, on-aircraft mission equipment to receive and display critical real-time intelligence information. Strategic mobility aircrews often fly extended missions or transit enroute stations without full intelligence information capability. Information provided prior to mission departure is often outdated or incomplete upon arrival in theater. ABI provides increased threat situational awareness and enables aircrews to make mission modifications to avoid enemy threats under rapidly changing combat conditions. To limit system implementation costs, it is envisioned that ABI will "snap-on" to any Air Mobility Command (AMC) mobility fleet aircraft when this capability is needed. These systems are intended to be interchangeable between KC-135, KC-10, C-141, C-5, and C-17 operational wings, as required. This project was an FY97 new start to modify and integrate previously developed intelligence communication and display equipment to meet AMC requirements. This project was comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7, Operational Systems Development.

4495: Avionics Modernization Program (AMP): (Formerly called the C-5 All-Weather Flight Control System (AWFCS) Reliability Improvement Program) The C-5 Avionics Modernization Program redesigns the avionics system architecture to support the AWFCS Reliability Improvement Program and Global Air Traffic Management (GATM). The AWFCS replaces low reliability Line Replaceable Units (LRUs) in the automatic flight control system and replaces aging mechanical instruments in the engine and flight systems. Current trends indicate some control systems will be unsupportable within five years. A GATM capability, which encompasses communications, navigation, and surveillance requirements, will be concurrently incorporated into the aircraft to progress towards "free flight" capability. Integration of Enhanced Ground Proximity Warning System (EGPWS) Nav Safety enhancements is also part of the C-5 AMP (with separate funding). This project was comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7, Operational Systems Development

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401119F C-5 Airlift Squadrons |

(U) **Acquisition Strategy:**

Airborne Broadcast Intelligence (ABI): ABI acquisition strategy intends to make maximum use of existing software and non-developmental hardware.

Avionics Modernization Program: Program acquisition strategy establishes a single integrating contractor to: modify and qualify individual Commercial Off-the-Shelf (COTS) line replaceable units (LRU) and software to meet C-5 performance and Global Air Traffic Management (GATM) requirements, update existing C-5 engineering and technical data, develop interface control specifications based on performance requirements, prototype the new system, and support ground and flight testing.

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 1,124 | 9,751 | 14,204 | 25,079 |
| (U) Appropriated Value | 1,153 | 9,751 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -24 | -362 | | |
| b. SBIR | -5 | -229 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | -2 | | | |
| (U) Adjustments to Budget Years Since FY1998 PB | | | 33,736 | |
| (U) Current Budget Submit/1999 President's Budget | 1,122 | 9,160 | 47,940 | 58,222 |

(U) Change Summary Explanation:

Funding: Since FY98 PB, additional funds ($33.7M) were added in FY99 to support GATM requirements. Since FY98 PB, FY98 C-5 Avionics Modernization Program (AMP) has been reduced by $362K for general Congressional reductions and by $229K for SBIR.

Schedule: N/A

Technical: N/A

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) PE# 0401119F/C-5 Squadrons | | | | | | | | | |
| Aircraft Procurement, AF, BA-7,C-5, ABI, BP-19 | 0 | 1,483 | 1,381 | 1,428 | 1,455 | 1,310 | 1,282 | 0 | 8,339 |
| Aircraft Procurement, AF, BA-5,C-5 Mods, Avionics Modernization Program, BP-11 | 0 | 0 | 0 | 113,488 | 53,737 | 123,324 | 112,365 | 196,971 | 599,885 |
| Aircraft Procurement, AF, BA-5, C-5 Mod, Enhanced Ground Proximity Warning System (EGPWS), BP-11 | 0 | 0 | 5,335 | 3,890 | 3,900 | 4,825 | 398 | 0 | 18,348 |
| (U) PE# 0401218F/KC-135 Squadrons | | | | | | | | | |
| RDT&E, AF, BA-7 | 714 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 714 |
| Aircraft Procurement, AF, BA-7, KC-135 Mods, ABI, BP-19 | 0 | 1,490 | 1,505 | 1,501 | 1,460 | 1,486 | 1,453 | 0 | 8,895 |
| Operations & Maintenance, AF, BA-2 | 0 | 1,000 | 1,019 | 1,050 | 1,071 | 1,091 | TBD | TBD | TBD |
| (U) PE# 0305099F/Global Air Traffic Management (GATM) | | | | | | | | | |
| RDT&E, AF, BA-7 | 3,000 | 0 | 27,056 | 18,155 | 10,695 | 9,776 | 7,806 | TBD | TBD |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Airborne Broadcast Intelligence | | | | | | | | | | | | |
| (U) Avionics Modernization Program | | | | | | | | | | | | |

See Individual Project R-2 Exhibits for Schedule Profiles

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons

PROJECT: 4377

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4377 Airborne Broadcast Intelligence (ABI) C-5 | 651 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 651 |
| Quantity of RDT&E Articles | 1*/$350 | | | | | | | | 1*/$350 |

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

4377: Airborne Broadcast Intelligence (ABI): Airlift and Air Refueling Mission Area Plans identify a deficiency in ability to protect aircraft from hostilities during combat operations. The ABI system addresses this deficiency and increases aircrew survivability by providing aircrews with portable, on-aircraft mission equipment to receive and display critical real-time intelligence information. Strategic mobility aircrews often fly extended missions or transit enroute stations without full intelligence information capability. Information provided prior to mission departure is often outdated or incomplete upon arrival in theater. ABI provides increased threat situational awareness and enables aircrews to make mission modifications to avoid enemy threats under rapidly changing combat conditions. To limit system implementation costs, it is envisioned that ABI will "snap-on" to any AMC mobility fleet aircraft when this capability is needed. These systems are intended to be interchangeable between KC-135, KC-10, C-141, C-5, and C-17 operational wings, as required. This project was an FY97 new start to modify previously developed intelligence communication and display equipment to meet AMC requirements. This project was comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7, Operational Systems Development.

(U) FY 1997 ($ in Thousands):
- (U) 586 Engineering study/analysis; prototype development, modification, retrofit, and qualification/certification testing.
- (U) 65 Mission support
- (U) $651 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $0 Total

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons

PROJECT: 4377

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 653 | 0 | 0 | 653 |
| (U) Appropriated Value | 672 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -14 | | | |
| b. SBIR | -5 | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | -2 | | | |
| (U) Adjustments to Budget Years Since FY1998 PB | | | | |
| (U) Current Budget Submit/1999 President's Budget | 651 | 0 | 0 | 651 |

(U) Change Summary Explanation:

Funding: N/A

Schedule: N/A

Technical: N/A

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) PE# 0401119F/C-5 Squadrons | | | | | | | | | |
| Aircraft Procurement, AF, BA-7, C-5, ABI, BP-19 | 0 | 1,483 | 1,381 | 1,428 | 1,455 | 1,310 | 1,282 | 0 | 8,339 |
| (U) PE# 0401218F/KC-135 Squadrons | | | | | | | | | |
| RDT&E, AF, BA-7, ABI | 714 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 714 |
| Aircraft Procurement, AF, BA-7, KC-135, ABI, BP-19 | 0 | 1,490 | 1,505 | 1,501 | 1,460 | 1,486 | 1,453 | 0 | 8,895 |
| Operations & Maintenance, AF, BA-2, ABI | 0 | 1,000 | 1,019 | 1,050 | 1,071 | 1,091 | TBD | TBD | TBD |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401119F C-5 Airlift Squadrons<br>PROJECT 4377 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Program Office Startup | | * | | | | | | | | | | |
| (U) AOA/RDT&E Studies Complete | | | * | | | | | | | | | |
| (U) Prototype Demo | | | | * | | | | | | | | |
| (U) Initial Delivery | | | | | | X | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401119F C-5 Airlift Squadrons<br>PROJECT 4377 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Eng study/analysis; prototype development & testing | 586 | 0 | 0 |
| (U) Mission support | 65 | 0 | 0 |
| (U) Total | 651 | 0 | 0 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Lockheed Martin | C/CPAF | 29 Jun 97 | | 341 | | 341 | | | | 341 |
| M-Douglas | C/FFP | May 97 | | 70 | | 70 | | | | 70 |
| Support and Management Organizations | | | | | | | | | | |
| ESC | n/a | n/a | | n/a | | 240 | | | | 240 |

Test and Evaluation Organizations: Not applicable

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons

PROJECT: 4377

**Government Furnished Property:** None

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Subtotal Product Development | | | | | 411 | | | | 411 |
| Subtotal Support and Management | | | | | 240 | | | | 240 |
| Subtotal Test and Evaluation | | | | | 0 | | | | 0 |
| Total Project | | | | 0 | 651 | 0 | 0 | 0 | 651 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401119F C-5 Airlift Squadrons<br>PROJECT<br>4495 |

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4495 Avionics Modernization Program | 471 | 9,160 | 47,940 | 0 | 0 | 0 | 0 | 0 | 57,571 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

4495: Avionics Modernization Program: (Formerly called the C-5 All-Weather Flight Control System (AWFCS) Reliability Improvement Program) The C-5 Avionics Modernization Program redesigns the architecture of the avionics system to support the AWFCS Reliability Improvement Program and Global Air Traffic Management (GATM). The AWFCS replaces low reliability Line Replaceable Units (LRUs) in the automatic flight control system and replaces aging mechanical instruments in the engine and flight systems. Current trends indicate some control systems will be unsupportable within five years. A GATM capability, which encompasses communications, navigation, and surveillance requirements, will be concurrently incorporated into the aircraft to progress towards "free flight" capability. Integration of Enhanced Ground Proximity Warning System (EGPWS) Nav Safety enhancements is also part of the C-5 AMP (with separate funding). This project was comprised of low technical risk efforts supporting fielded weapons systems and, therefore, was assigned to Budget Activity 7, Operational Systems Development.

(U) FY 1997 ($ in Thousands):
- (U) 436 Contractor Technical Support
- (U) 35 Mission Support
- (U) $471 Total

(U) FY 1998 ($ in Thousands):
- (U) 1,354 System Engineering
- (U) 2,842 Hardware Design
- (U) 3,518 Software Development
- (U) 147 Design Data
- (U) 528 Program Management
- (U) 538 Contractor Technical Support
- (U) 233 Mission Support
- (U) $9,160 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401119F C-5 Airlift Squadrons |
| | PROJECT<br>4495 |

(U) FY 1999 ($ in Thousands):

| | | | |
|---|---|---|---|
| – | (U) | 6,329 | System Engineering |
| – | (U) | 2,936 | Hardware Design |
| – | (U) | 15,589 | Software Development |
| – | (U) | 2,279 | Design Data |
| – | (U) | 2,689 | Program Management |
| – | (U) | 5,600 | Prototype Fab/Install |
| – | (U) | 8,415 | System Design Test and Evaluation |
| – | (U) | 3,209 | Pre-Production Fab |
| – | (U) | 550 | Contractor Technical Support |
| – | (U) | 344 | Mission Support |
| – | (U) | $47,940 | Total |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 471 | 9,751 | 14,204 | 24,426 |
| (U) Appropriated Value | 481 | 9,751 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -10 | -362 | | |
| b. SBIR | | -229 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY1998 PB | | | 33,736 | |
| (U) Current Budget Submit/1999 President's Budget | 471 | 9,160 | 47,940 | 57,571 |

(U) Change Summary Explanation:

Funding: Since FY98 PB, additional funds ($33.7M) were added in FY99 to support Global Air Traffic Management (GATM) requirements. Since FY98 PB, FY98 C-5 AMP has been reduced by $362K for general Congressional reductions and by $229K for SBIR.

Schedule: N/A

Technical: N/A

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons

PROJECT: 4495

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) PE# 0401119F/C-5 Squadrons | | | | | | | | | |
| Aircraft Procurement, AF, BA-5, C-5 Mods, Avionics Modernization Program, BP-11 | 0 | 0 | 0 | 113,488 | 53,737 | 123,324 | 112,365 | 196,971 | 599,885 |
| Aircraft Procurement, AF, BA-5, C-5 Mod, Enhanced Ground Proximity Warning System (EGPWS), BP-11 | 0 | 0 | 5,335 | 3,890 | 3,900 | 4,825 | 398 | 0 | 18,348 |
| (U) PE# 0305099F/Global Air Traffic Management (GATM) | | | | | | | | | |
| RDT&E, AF, BA-7 | 3,000 | 0 | 27,056 | 18,155 | 10,695 | 9,776 | 7,806 | TBD | TBD |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Acquisition Strategy Panel | | | | * | | | | | | | | |
| (U) Draft RFP | | | | | X | | | | | | | |
| (U) Final RFP | | | | | | X | | | | | | |
| (U) Prototype Installation Start | | | | | | | | | | | | X |
| (U) Developmental Test Start (FY00/2) | | | | | | | | | | | | |
| (U) Production Installation Start (FY01/2) | | | | | | | | | | | | |
| (U) Prod Installation Complete (FY05/2) | | | | | | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401119F C-5 Airlift Squadrons

PROJECT: 4495

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) System Engineering | 0 | 1,354 | 6,329 |
| (U) Hardware Design | 0 | 2,842 | 2,936 |
| (U) Software Development | 0 | 3,518 | 15,589 |
| (U) Design Data | 0 | 147 | 2,279 |
| (U) Prototype Fab/Install | 0 | 0 | 5,600 |
| (U) Program Management | 0 | 528 | 2,689 |
| (U) System Design Test and Evaluation | 0 | 0 | 8,415 |
| (U) Pre-Production Fab | 0 | 0 | 3,209 |
| (U) Contractor Technical Support | 436 | 538 | 550 |
| (U) Mission Support | 35 | 233 | 344 |
| (U) Total | 471 | 9,160 | 47,940 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| SA-ALC/LA | C/CPAF | Sep 98 | TBD | 59,126 | 0 | 471 | 9,160 | 47,940 | 0 | 57,571 |

Support and Management Organizations: Not applicable

Test and Evaluation Organizations: Not applicable

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401119F C-5 Airlift Squadrons<br>PROJECT 4495 |

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

**Government Furnished Property:** None

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Subtotal Product Development | | | | | 471 | 9,160 | 47,940 | 0 | 57,571 |
| Subtotal Support and Management | | | | | 0 | 0 | 0 | 0 | 0 |
| Subtotal Test and Evaluation | | | | | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | 0 | 471 | 9,160 | 47,940 | 0 | 57,571 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401130F C-17 Aircraft

PROJECT: 2569

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2569 C-17 Aircraft | 71,365 | 104,568 | 123,069 | 154,369 | 159,266 | 114,538 | 111,119 | 43,050 | 6,614,894 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1* |

*** Aircraft T-1, FY87 Funded**

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

Airlift provides essential flexibility when responding to contingencies on short notice anywhere in the world. It is a major element of America's national security strategy and constitutes the most responsive means of meeting U.S. mobility requirements. Additional airlift capability is needed for rapid deployment of combat forces in support of national objectives. Specific tasks associated with the airlift mission include deployment, employment (airland and airdrop), sustaining support, retrograde, and combat redeployment. The C-17 can perform the entire spectrum of airlift missions and is specifically designed to operate effectively and efficiently in both strategic and theater environments. The C-17 provides a vast increase in overall airlift capability necessary to replace and exceed the capabilities lost from retiring the aging C-141 fleet from the Air Force inventory. Not only can the C-17 deliver outsize cargo to austere tactical environments, but it also reduces ground time during airland operations. The C-17 will perform the airlift mission well into the 21st century.

This program element is budgeted in Budget Activity 7, Operational System Development, because the program has completed Milestone III and is continuing producibility and performance improvements to support full-rate production and increase the operational capability of the C-17 through programmed modifications.

(U) **Acquisition Strategy**

The C-17 Acquisition Strategy is based on five separate contracts to support the entire scope of the C-17 weapon system. These five contracts are: 1) a multi-year procurement (MYP) aircraft contract (to economically purchase the full complement of production aircraft) - (APAF); 2) a Producibility Enhancement and Performance Improvement (PE/PI) contract (to develop cost reduction changes, capability enhancements, and design fixes to service-revealed problems) - (RDT&E, AF); 3) a Flexible Sustainment (field support) contract (to support the current and future fielded aircraft) - (APAF); 4) a MYP engine contract (for Government Furnished Equipment [GFE] engines) - (APAF); and 5) an aircrew training systems (ATS) contract (for aircrew training) - (APAF).

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401130F C-17 Aircraft<br>PROJECT 2569 |

The Congressionally-mandated Mobility Requirements Study (MRS), initially forwarded to Congress on 23 Jan 92 and updated on 28 Mar 95, validated the need for the C-17 aircraft. Two C-17 Defense Acquisition Board (DAB) decisions, contained in the 3 Nov 95 and 1 Feb 96 USD(A&T) Acquisition Decision Memoranda (ADMs), directed the Air Force to proceed with a 120-aircraft production program and pursue a multi-year procurement for the last 80 aircraft. The FY96 Supplemental Appropriations Act and FY97 Defense Appropriations Act approved a 7-year MYP program. The Air Force is proceeding with an 80-aircraft MYP program (along with engines to support them) to complete a 120-aircraft total purchase at the maximum affordable rate (FY97-03 Quantity: 8-9-13-15-15-15-5), beginning with the economic order quantity (EOQ) funding in FY96.

(U) FY 1997 ($ in Thousands):
- (U) 67,665 Continued product improvement development & testing
- (U) 2,200 Airframe durability test
- (U) 1,500 Producibility Enhancement/Performance Improvement (PE/PI) Government flight test
- (U) $71,365 Total

(U) FY 1998 ($ in Thousands):
- (U) 88,068 Continue product improvement development & testing
- (U) 5,000 Airframe durability test teardown
- (U) 11,500 PE/PI Government flight test
- (U) $104,568 Total

(U) FY 1999 ($ in Thousands):
- (U) 105,669 Continue product improvement development & testing
- (U) 5,900 Landing Gear durability test and Landing Gear and Aircraft Durability Improvements
- (U) 11,500 PE/PI Government flight test
- (U) $123,069 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401130F C-17 Aircraft<br>PROJECT 2569 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 71,774 | 113,605 | 202,344 | 6,627,754 |
| (U) Appropriated Value | 77,486 | 110,605 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -1,632 | -3,742 | | |
| b. SBIR | -81 | -2,295 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | -4,289 | | | |
| e. Rescissions | -119 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -79,275 | |
| (U) Current Budget Submit/1999 President's Budget | 71,365 | 104,568 | 123,069 | 6,614,894 |

(U) Change Summary Explanation:

Funding: The FY98 funding changes reflect Congressional action decreasing the budget by $3 million, and undistributed Congressional reductions. The FY99 budget changes reflect reductions to fund other DOD priorities for global mobility.

Schedule: Planned product improvement development and testing was rephased to reflect funding profile changes.

Technical: No changes.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401130F C-17 Aircraft

PROJECT: 2569

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) APAF, MYP, BA02, PE0401130F | 2,075,110 | 2,130,510 | 2,900,492 | 3,181,520 | 3,181,116 | 3,045,281 | 1,370,471 | 223,800 | 32,137,727 |
| (U) APAF, Initial Spares, BA06, PE0401130F | 5,195 | 70,710 | 112,330 | 187,967 | 159,016 | 167,209 | 167,035 | 522,300 | 1,994,547 |
| (U) APAF, A/C Mods, BA05, PE0401130F | 51,834 | 57,731 | 45,704 | 82,516 | 106,892 | 119,302 | 133,747 | 814,140 | 1,461,583 |
| (U) MilCon, Facilities, PE0401130F | 80,905 | 6,470 | 70,956 | 29,422 | | | | | 357,253 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Acquisition Milestones: | | | | | | | | | | | | |
| Milestone III (1st Qtr FY96) | | | | | | | | | | | | |
| (U) Engineering Milestones: | | | | | | | | | | | | |
| Durability Article Test (3rd Lifetime) | | | | | | | | | | | | |
| (U) Contract Milestone | | | | | | | | | | | | |
| Lot IX (8 a/c) | * | | | | | | | | | | | |
| Lot X Adv Proc (9 a/c) | | * | | | | | | | | | | |
| Lot X (9 a/c) | | | | | X | | | | | | | |
| Lot XI Adv Proc (13 a/c) | | | | | | X | | | | | | |
| Lot XI (13 a/c) | | | | | | | | | X | | | |
| Lot XII Adv Proc (15 a/c) | | | | | | | | | | X | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401130F C-17 Aircraft

PROJECT: 2569

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Contractor Furnished Engineering & Test | 69,765 | 93,068 | 111,569 |
| (U) Test, Other Government Costs (OGC) | 1,600 | 11,500 | 11,500 |
| (U) Total | 71,365 | 104,568 | 123,069 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Douglas Aircraft | C,FPI/FP | 8/31/81 | 5,190,366 | 5,190,366 | 5,190,366 | 0 | 0 | 0 | 0 | 5,190,366 |
| Douglas Aircraft | C,CPFF | 7/13/95 | 874,253 | 874,253 | 81,868 | 64,765 | 88,268 | 111,569 | 528,492 | 874,962 |
| Pratt & Whitney | C,FP | 5/24/91 | 25,346 | 25,346 | 25,346 | 0 | 0 | 0 | 0 | 25,346 |
| Douglas Aircraft | C,FPI | 4/14/89 | na | na | 83,885 | 0 | 0 | 0 | 0 | 83,885 |
| Pratt & Whitney | FP+EPA | 4/18/95 | 8,300 | 8,300 | 0 | 5,000 | 3,300 | 0 | 0 | 8,300 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401130F C-17 Aircraft

PROJECT: 2569

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Support and Management Organizations | | | | | | | | | | |
| Mission Support OGC | PO | | | | 97,000 | 100 | 100 | 0 | 0 | 97,200 |
| Site Activation OGC | PO | | | | 1,500 | 0 | 0 | 0 | 0 | 1,500 |
| Miscellaneous | PO | | | | 43,435 | 0 | 900 | 0 | 0 | 44,335 |
| Test and Evaluation Organizations | | | | | | | | | | |
| Combined Test Force | PO | Dec 97 | | | 196,718 | 1,500 | 11,500 | 11,500 | 54,000 | 275,218 |
| Wright Labs/Arnold Eng Dev Center | PO | | | | 10,252 | 0 | 0 | 0 | 0 | 10,252 |
| Other | PO | | | | 3,030 | 0 | 500 | 0 | 0 | 3,530 |
| Subtotal Product Development | | | | | 5,381,465 | 69,765 | 91,568 | 111,569 | 528,492 | 6,182,859 |
| Subtotal Support and Management | | | | | 141,935 | 100 | 1,000 | 0 | 0 | 143,035 |
| Subtotal Test and Evaluation | | | | | 210,000 | 1,500 | 12,000 | 11,500 | 54,000 | 289,000 |
| Total Project | | | | | 5,733,400 | 71,365 | 104,568 | 123,069 | 582,492 | 6,614,894 |

**Government Furnished Property:** None

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401214F Air Cargo Materiel Handling (463-L)

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 3,100 | 5,610 | 512 | 511 | 0 | 0 | 0 | 0 | 50,633 |
| 5120 60K Pound Capacity Aircraft Loader | 2,202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43,102 |
| 5150 Next Generation Small Loader (NGSL) | 898 | 5,610 | 512 | 511 | 0 | 0 | 0 | 0 | 7,531 |
| Quantity of RDT&E Articles | 0 | 4/$2,800* | 0 | 0 | 0 | 0 | 0 | 0 | 4/$2,800* |

* A total of six NGSL loaders will be procured. Two additional loaders and support procured under OSD Foreign Comparative Test (FCT) Program ($1,840).

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

This program element contains two projects integral to the Air Force's ability to mobilize forces and equipment worldwide. The two projects involve testing, developing, and fielding two new aircraft cargo loaders. These new loaders will alleviate critical loader deficiencies and provide the Air Force with a flexible balance of large and small loader capability for the future. The 60K Tunner loader replaces the 40K loader as the strategic aerial port workhorse servicing all military cargo and Civil Reserve Air Fleet (CRAF) aircraft. The NGSL replaces aging 25K loaders and complements the 60K loader fleet by providing increased deployability and cargo handling capacity at smaller, but operationally vital peacetime and contingency airfields. More importantly, the 60K loader and NGSL have a high reach capability required for direct interface with Wide-Body Aircraft (WBA). This improved capability eliminates the current requirement for a fleet of wide-body elevator loader (WBEL) equipment used in conjunction with both the 40K and 25K loaders to service WBA. Starting in FY97, the Air Force realigned the 60K RDT&E funding from PE 0604704F, Common Support Equipment Development, into this dedicated program element, which also contains the 60K procurement funding. The RDT&E and procurement funding for the NGSL has also been aligned to this program element. Acquisition of the NGSL to support operational mobility aircraft requires no significant development effort; therefore, it is categorized as BA-7, operational system development.

(U) **Acquisition Strategy:**

5120: 60K Pound Capacity Aircraft Loader: The 60K loader program incorporated an approach whereby two manufacturers built two prototypes each to compete in a "drive-off" competition. This competition resulted in a production contract award to a single manufacturer. Development effort completed in FY97.

5150: NGSL: Two Non-Developmental Item (NDI) loader manufacturers will be selected during full and open competition to build three loaders each. Loaders will compete in a "drive-off" competition and the winner will be awarded a follow-on production contract.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401214F Air Cargo Materiel Handling (463-L)

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 3,145 | 7,947 | 522 | 52,514* |
| (U) Appropriated Value | 3,212 | 5,947 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -67 | -225 | | |
| b. SBIR | | -112 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | -40 | | | |
| e. Rescissions | -5 | | | |
| (U) Adjustments to Budget Years Since FY1998 PB | | | -10 | |
| (U) Current Budget Submit/1999 President's Budget | 3,100 | 5,610 | 512 | 50,633 |

* Note: Total cost was inadvertently reported in FY98 PB as $12,138.

(U) Change Summary Explanation:

Funding: FY98 reflects $225K in Congressional reductions and $112K for SBIR. FY97 was reduced $40K for a below threshold reprogramming (BTR) to Next Generation Heater Program (PE 0708026F).

Schedule: N/A

Technical: N/A

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement, AF, BA-2, Air Cargo Materiel Handling, PE0401214F | 0 | 81,615 | 91,720 | 102,148 | 79,135 | 63,796 | 86,794 | TBD | TBD |

(U) D. **Schedule Profile:**

See individual project R-2 Exhibits for schedule profiles

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401214F Air Cargo Materiel Handling (463-L)

PROJECT: 5120

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 5120 60K Pound Capacity Aircraft Loader | 2,202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43,102 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

5120: 60K Pound Capacity Aircraft Loader: This project completed the 60K aircraft transporter/loader development to fulfill Air Mobility Command's (AMC) requirement, as documented in Operational Requirement Document (ORD) 002-89-III. The project provided a single unique loader to replace existing 40K loaders, wide-body elevator loaders, and lower lobe loaders to on/off load various type aircraft including the C-17, C-5, C-141, C-130, C-27, KC-10, and Civil Reserve Air Fleet (CRAF). The 60K loader can be driven on/off the C-17, C-5, and C-141 aircraft without shoring and is the only loading vehicle capable of moving type V airdrop platform carrying a full 60,000 pounds as required by the US Army. The 60K loader is significantly more reliable than the 40K loader and will facilitate a major reduction in deployment preparation time, from 30 manhours to 3 manhours for each loader.

(U) FY 1997 ($ in Thousands):
- (U) 414 Program Office Support (TDY, Supplies)
- (U) 1,788 Continued contracted advisory and assistance services
- (U) $2,202 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $0 Total

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401214F Air Cargo Materiel Handling (463-L)

PROJECT: 5120

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 579 | 0 | 0 | 41,479* |
| (U) Appropriated Value | 592 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -13 | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | 1,623 | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY1998 PB | | | | |
| (U) Current Budget Submit/1999 President's Budget | 2,202 | 0 | 0 | 43,102 |

* Note: Total cost was inadvertently reported in FY98 PB as $579.

(U) Change Summary Explanation:

Funding: FY97 $1,623K realigned from NGSL program (Project 5150) for contract advisory and assistance services in support of program restructure and $13K for Congressional reductions.

Schedule: N/A

Technical: N/A

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement, AF, BA-2, Air Cargo Materiel Handling, PE0401214F | 0 | 81,615 | 91,720 | 82,358 | 35,633 | 4,367 | 2,925 | TBD | TBD |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401214F Air Cargo Materiel Handling (463-L) |
| | PROJECT<br>5120 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Complete IOT&E | | | | | | X | | | | | | |
| (U) Milestone III | | | | | | | X | | | | | |
| (U) IOC | | | | | | | | X | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401214F Air Cargo Materiel Handling (463-L) |
| | PROJECT<br>5120 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Program Management Support | 414 | | |
| (U) Advisory and assistance services | 1,788 | | |
| (U) Total | 2,202 | 0 | 0 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| WR-ALC/LEA | | | | | 40,900 | 0 | 0 | 0 | 0 | 40,900 |
| Support and Management Organizations: | | | | | | | | | | |
| Modern Technolgies Corp (MTC) | SS/Indefinite Delivery Indefinite Quantity | 12 Jun 97 | | | 0 | 1,637 | 0 | 0 | 0 | 1,637 |
| WR-ALC/LEA | | | | | 0 | 565 | 0 | 0 | 0 | 565 |

Test and Evaluation Organizations: Not applicable

**Government Furnished Property:** None

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401214F Air Cargo Materiel Handling (463-L) |
| | PROJECT<br>5120 |

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

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Subtotal Product Development | | | | 40,900 | 0 | 0 | 0 | 0 | 40,900 |
| Subtotal Support and Management | | | | 0 | 2,202 | 0 | 0 | 0 | 2,202 |
| Subtotal Test and Evaluation | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | 40,900 | 2,202 | 0 | 0 | 0 | 43,102 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401214F Air Cargo Materiel Handling (463-L)

PROJECT: 5150

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 5150 Next Generation Small Loader (NGSL) | 898 | 5,610 | 512 | 511 | 0 | 0 | 0 | 0 | 7,531 |
| Quantity of RDT&E Articles | 0 | 4/$2,800* | 0 | 0 | 0 | 0 | 0 | 0 | 4/$2,800* |

* A total of six NGSL loaders will be procured. Two additional loaders and support procured under OSD Foreign Comparative Test (FCT) Program ($1,840).

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

5150: Next Generation Small Loader: The NGSL (25K to 35K pound capacity) program supports acquisition and delivery of 264 loaders that, with the 60K loader, will form the backbone of the Global Reach airlift 463-L (pallet) movement system. Upgrading the current loader fleet with the NGSL will correct the critical high-reach shortcomings of existing 25K loaders and will provide increased flexibility to ensure the Air Force meets its global mobility commitments.

Currently, the Air Force uses a 30-year old 25K loader with an extremely low mean time between failure (approx. 10 hours). Additionally, the 25K pound loader lacks high reach capability and requires a separate wide body elevator loader (a fixed high lift transfer platform) to off/on load KC-10 and Civil Reserve Air Fleet (CRAF) Wide-Body Aircraft (WBA). The NGSL will replace the aging 25K pound loader and wide-body elevator loaders, providing the Department of Defense with a single, reliable cargo handling system that can reach the deck heights of the KC-10 and CRAF WBA and can lower to the C-130 deck height. Additionally, the smaller NGSL will be air transportable on the C-130, allowing worldwide deployment to contingency airfields.

The NGSL program will select two Non-Developmental Item (NDI) loader manufacturers to build three loaders each. Loaders will compete in a "drive-off" competition, and the winner will be awarded a follow-on production contract.

(U) FY 1997 ($ in Thousands):
- (U) 598 Operational Assessment of Commercial Off-the-Shelf (COTS) Loaders
- (U) 300 Program management support
- (U) $898 Total

(U) FY 1998 ($ in Thousands):
- (U) 5,100 Acquire and test Non-Developmental Item (NDI) test articles
- (U) 510 Program management support
- (U) $5,610 Total

(U) FY 1999 ($ in Thousands):
- (U) 512 Program management support
- (U) $512 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE: February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0401214F Air Cargo Materiel Handling (463-L) / PROJECT: 5150 |

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 2,566 | 7,947 | 522 | 11,559 |
| (U) Appropriated Value | 2,620 | 5,947 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -54 | -225 | | |
| b. SBIR | | -112 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | -1,663 | | | |
| e. Rescissions | -5 | | | |
| (U) Adjustments to Budget Years Since FY1998 PB | | | -10 | |
| (U) Current Budget Submit/1999 President's Budget | 898 | 5,610 | 512 | 7,531 |

(U) Change Summary Explanation:

Funding: FY97 $1,623K realigned to 60K loader (Project 5120) and $40K below threshold reprogramming (BTR) to Next Generation Heater Program (PE 0708026F), and $5K for rescissions. FY98 reflects $225K in Congressional reductions and $112K for SBIR.

Schedule: N/A

Technical: N/A

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401214F Air Cargo Materiel Handling (463-L) |
| | PROJECT<br>5150 |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement, AF, BA-2, Air Cargo Materiel Handling, PE0401214F | 0 | 0 | 0 | 19,790 | 43,502 | 59,429 | 83,869 | 0 | 206,590 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Quick Look Assessment (completion) | | * | | | | | | | | | | |
| (U) Test article contract award | | | | | | | | X | | | | |
| (U) Competitive drive-off (start) | | | | | | | | | | | | X |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401214F Air Cargo Materiel Handling (463-L) |
| | PROJECT<br>5150 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Operational Assessment of COTS Loaders | 598 | 0 | 0 |
| (U) Acquire and test Non-Developmental Item (NDI) test articles | 0 | 5,100 | 0 |
| (U) Provide program management support | 300 | 510 | 512 |
| (U) Total | 898 | 5,610 | 512 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations: | | | | | | | | | | |
| WR-ALC/LEA | FFP/PR | FY98/2 | | | 0 | 598 | 5,610 | 512 | 511 | 7,231 |
| Support and Management Organizations: | | | | | | | | | | |
| Technical Support Contract | | | | | 0 | 300 | 0 | 0 | 0 | 300 |

Test and Evaluation Organizations: Not applicable

**Government Furnished Property:** None

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401214F Air Cargo Materiel Handling (463-L) |
| | PROJECT<br>5150 |

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

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Subtotal Product Development | | | | 0 | 598 | 5,610 | 512 | 511 | 7,231 |
| Subtotal Support and Management | | | | 0 | 300 | 0 | 0 | 0 | 300 |
| Subtotal Test and Evaluation | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | 0 | 898 | 5,610 | 512 | 511 | 7,531 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401218F KC-135 Squadrons

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 714 | 1,863 | 11,093 | 2,310 | 501 | 498 | 505 | Continuing | Continuing |
| 4286 Multipoint* | 0 | 0 | 9,423 | 0 | 0 | 0 | 0 | 0 | 9,423 |
| 4403 Airborne Broadcast Intelligence (ABI) KC-135 | 714 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 714 |
| 4494 KC-135 Aging Aircraft Program | 0 | 1,863 | 1,670 | 2,310 | 501 | 498 | 505 | Continuing | Continuing |
| Quantity of RDT&E Articles | 2/$500 | 0 | 1/$5,000 | 0 | 0 | 0 | 0 | 0 | 3/$5,500 |

* The only funds budgeted for this project in FY99 are for CINC Support Aircraft Study.

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

4286: CINC Support Aircraft Study: Air Mobility Command (AMC) is the lead command for Commander-in-Chief (CINC) Support aircraft issues. The existing CINC Support aircraft fleet suffers from high airframe hours, corrosion, and outdated navigation and communication systems. Support costs continue to escalate because each aircraft is unique and increasingly unsupportable. The acquisition strategy is to develop and prototype the communications architecture necessary to support the warfighting CINCs on a KC-135R. The architecture must meet DoDD 4660.3 and MCM 131-46 requirements and includes: JCS communications baseline suite, an integrated Communications Management System (CMS), and a state-of-the-art, high-throughput communications backbone which provides for "plug-and-play" capability for specialized pieces of communications equipment. This aircraft will be used to determine the production configuration of subsequent CINC support aircraft. Contract will be competitively awarded. The project comprises low technical risk efforts supporting fielded weapon systems or Commercial-Off-The-Shelf (COTS) acquisition and, therefore, is assigned to Budget Activity 7, Operational Systems Development. A permanent BPAC will be assigned at a later date.

4403: Airborne Broadcast Intelligence (ABI): The Air Mobility Command (AMC) Airlift and Air Refueling Mission Area Plans identify a deficiency in the ability to protect aircraft from hostilities during combat operations. ABI addresses this deficiency and increases air crew survivability by providing aircrews with portable, on-aircraft mission equipment to receive and display critical, real-time intelligence information. Strategic mobility aircrews often fly extended missions or transit enroute stations without full intelligence information capability. Information provided prior to mission departure is often outdated or incomplete upon arrival in theater. ABI provides increased threat situational awareness and enables aircrews to make mission modifications to avoid enemy threats under rapidly changing combat conditions. To limit system implementation costs, it is envisioned that ABI will be "snapped-on" to any AMC mobility fleet aircraft when this capability is needed. These systems are intended to be transferred between KC-135, KC-10, C-141, C-5, and C-17 operational wings, as required. This project is an FY97 new start to modify and integrate on the KC-135 previously developed intelligence communication and display equipment to meet AMC requirements. Two RDT&E test articles will be procured in FY97, with delivery in FY98. This project comprises low technical risk efforts supporting fielded weapons systems and, therefore, is assigned to Budget Activity 7, Operational Systems Development.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401218F KC-135 Squadrons |

4494: KC-135 Aging Aircraft Program: This program, in part, supports the aging aircraft corrosion and fatigue project CORAL REACH. CORAL REACH studies include the analysis and testing efforts in the area of aging aircraft, to include corrosion, fatigue, and stress corrosion cracking. The USAF will utilize CORAL REACH activities to improve KC-135 Programmed Depot Maintenance efficiency and to provide direction for future aging aircraft efforts to maintain the KC-135 as a viable airframe. CORAL REACH results provide accurate data for incorporation into the KC-135 Economic Life Study planned for FY00. The KC-135 Economic Life Study consists of studies for structure, systems, and component support as well as cost benefit analyses to support an Analysis of Alternatives (AOA). The AOA addresses replacement schedules for the KC-135 based on economic decision points. This effort is a low technical risk effort supporting a fielded weapon system and, therefore, is assigned to Budget Activity 7, Operational Systems Development.

(U) **Acquisition Strategy:**

4286: CINC Support Aircraft Study: The acquisition strategy is to develop and prototype the communications architecture necessary to support the Warfighting CINCs on a KC-135R. This aircraft will be used to determine the production configuration of subsequent CINC support aircraft.

4403: Airborne Broadcast Intelligence (ABI): The acquisition strategy for ABI was to re-utilize software and non-developmental hardware already prototyped in a competitive, fixed-price, contract award environment.

4494: KC-135 Aging Aircraft Program: The acquisition strategy consists primarily of separate task orders (with separate statements of work) ranging from fixed price to cost plus contracts. These task orders address a myriad of aging aircraft activities against existing contract vehicles, such as the SPO-managed KC-135 Fleet Support Contract and Design Engineering Program contracts managed through the Air Logistics Centers.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401218F KC-135 Squadrons |

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 715 | 1,992 | 1,704 | cont |
| (U) Appropriated Value | 757 | 1,992 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -23 | -90 | | |
| b. SBIR | -19 | -39 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | -1 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 9,389 | cont |
| (U) Current Budget Submit/1999 President's Budget | 714 | 1,863 | 11,093 | cont |

(U) Change Summary Explanation:

Funding: In FY98, KC-135 Aging Aircraft Program funds were integrated with the former KC-135 Economic Life Study BPAC that had $959K in FY00. Since FY98 PB, FY98 Aging Aircraft program has been reduced by $90K for general Congressional reductions and by $39K for SBIR.

Schedule: N/A

Technical: N/A

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401218F KC-135 Squadrons |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) PE# 0401218F/KC-135 Squadrons | | | | | | | | | |
| (U) Aircraft Procurement, AF, BA-7, KC-135 CINC Aircraft, BP-11 | | | | 29,154 | 46,545 | | | | 75,699 |
| (U) Aircraft Procurement, AF, BA-7 Other Production Charges, ABI, BP-19 | | 1,490 | 1,505 | 1,501 | 1,460 | 1,486 | 1,453 | 0 | 8,895 |
| (U) Operations & Maintenance, AF, BA-2 Mobilization, ABI | | 1,000 | 1,019 | 1,050 | 1,071 | 1,091 | TBD | TBD | TBD |
| (U) PE# 0401119F/C-5 Squadrons | | | | | | | | | |
| (U) RDT&E, AF, BA-7 Operational Systems Development, ABI | 651 | | | | | | | | 651 |
| (U) Aircraft Procurement, AF, BA-7 Other Production Charges, ABI, BP-19 | | 1,483 | 1,381 | 1,428 | 1,455 | 1,310 | 1,282 | 0 | 8,339 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) CINC Support Aircraft | | | | | | | | | | | | |
| (U) Airborne Broadcast Intelligence (ABI) | | | | | | | | | | | | |
| (U) KC-135 Aging Aircraft Program | | | | | | | | | | | | |

See Individual R-2 Exhibits for Schedule Profiles

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401218F KC-135 Squadrons

PROJECT: 4286

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4286 Multipoint* | 0 | 0 | 9,423 | 0 | 0 | 0 | 0 | 0 | 9,423 |
| Quantity of RDT&E Articles | 0 | 0 | 1/$5,000 | 0 | 0 | 0 | 0 | 0 | 1/$5,000 |

* The only funds budgeted for this project in FY99 are for CINC Support Aircraft Study.

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

Air Mobility Command (AMC) is the lead command for Commander-in-Chief (CINC) Support aircraft issues. The existing CINC Support aircraft fleet suffers from high airframe hours, corrosion, and outdated navigation and communication systems. Support costs continue to escalate because each aircraft is unique and increasingly unsupportable. The acquisition strategy is to develop and prototype the communications architecture necessary to support the warfighting CINCs on a KC-135R. The architecture must meet DoDD 4660.3 and MCM 131-46 requirements and includes: JCS communications baseline suite, an integrated Communications Management System (CMS), and a state-of-the-art, high-throughput communications backbone which provides for "plug-and-play" capability for specialized pieces of communications equipment. This aircraft will be used to determine the production configuration of subsequent CINC support aircraft. Contract will be competitively awarded. The project comprises low technical risk efforts supporting fielded weapon systems or Commercial-Off-The-Shelf (COTS) acquisition and, therefore, is assigned to Budget Activity 7, Operational Systems Development.

(U) FY 1997 ($ in Thousands):
- (U) $0 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $7,000 Communications equipment- INMARSAT, Console, Switch, STU III, UHF, VHF, Mil SATCOM, Data Communications
- (U) $800 Installation
- (U) $1,300 Testing
- (U) $323 Program Management
- (U) $9,423 Total

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401218F KC-135 Squadrons

PROJECT: 4286

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 0 | 0 | 0 | 0 |
| (U) Appropriated Value | | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | +9,423 | |
| (U) Current Budget Submit/1999 President's Budget | | | 9,423 | 9,423 |

(U) Change Summary Explanation:

Funding: Since FY98 PB, $9,423K was added for CINC Support Aircraft, FY99 new start.

Schedule:

Technical:

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | FY 2004 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| (U) PE# 0401218F/KC-135 Squadrons | | | | | | | | | | |
| (U) Aircraft Procurement, AF, BA-7, KC-135 CINC Aircraft, BP-11 | | | | 29,154 | 46,545 | | | | | 75,699 |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Communications Prototype Complete (4Q/FY00) | | | | | | | | | | | | |
| (U) Prototype Demo (4Q/FY00) | | | | | | | | | | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401218F KC-135 Squadrons<br>PROJECT 4286 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Communications equipment | | | 7,000 |
| (U) Installation | | | 800 |
| (U) Testing | | | 1,300 |
| (U) Program Management, Engineering Change Orders | | | 323 |
| (U) Total | | | 9,423 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| ASC | TBD | TBD | TBD | TBD | 0 | 0 | 0 | 7,800 | 0 | 7,800 |
| Support and Management Organizations | | | | | | | | | | |
| TBD | | | | | | | | 323 | | 323 |
| Test and Evaluation Organizations | | | | | | | | | | |
| TBD | | | | | | | | 1,300 | | 1,300 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401218F KC-135 Squadrons | PROJECT<br>4286 |

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

**Government Furnished Property:** TBD

| | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget FY 2000 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Subtotal Product Development | | | | | | | 7,800 | 0 | 0 | 7,800 |
| Subtotal Support and Management | | | | | | | 323 | 0 | 0 | 323 |
| Subtotal Test and Evaluation | | | | | | | 1,300 | 0 | 0 | 1,300 |
| Total Project | | | | | | | 9,423 | 0 | 0 | 9,423 |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | | | | | | | | DATE: February 1998 | |
|---|---|---|---|---|---|---|---|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | | | | PE NUMBER AND TITLE: 0401218F KC-135 Squadrons | | | | | PROJECT: 4403 |
| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
| 4403 Airborne Broadcast Intelligence (ABI) KC-135 | 714 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 714 |
| Quantity of RDT&E Articles | 2/$500 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2/$500 |

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

The Air Mobility Command (AMC) Airlift and Air Refueling Mission Area Plans identify a deficiency in the ability to protect aircraft from hostilities during combat operations. The Airborne Broadcast Intelligence (ABI) system addresses this deficiency and increases aircrew survivability by providing aircrews with portable, on-aircraft mission equipment to receive and display critical, real-time intelligence information. Strategic mobility aircrews often fly extended missions or transit enroute stations without full intelligence information capability. Information provided prior to mission departure is often outdated or incomplete upon arrival in theater. ABI provides increased threat situational awareness and enables aircrews to make mission modifications to avoid enemy threats under rapidly changing combat conditions. To limit system implementation costs, ABI will "snap-on" to any AMC mobility fleet aircraft when this capability is needed. These systems are intended to be transformed between KC-135, KC-10, C-141, C-5, and C-17 operational wings, as required. This project is an FY97 new start to modify and integrate on the KC-135 previously developed intelligence communication and display equipment to meet AMC requirements. USAF will procure two RDT&E test articles in FY97, with delivery in FY98. This project comprises low technical risk efforts supporting fielded weapons systems and, therefore, is assigned to Budget Activity 7, Operational Systems Development.

(U) FY 1997 ($ in Thousands):
- (U) 200 Engineering study/analysis; prototype development, modification, retrofit, and qualification/certification testing
- (U) 502 Software development
- (U) 12 Mission support
- (U) $714 Total

(U) FY 1998 ($ in Thousands):
- (U) $0 Total

(U) FY 1999 ($ in Thousands):
- (U) $0 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401218F KC-135 Squadrons<br>PROJECT 4403 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 715 | 0 | 0 | 715 |
| (U) Appropriated Value | 757 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -23 | | | |
| b. SBIR | -19 | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | -1 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | | |
| (U) Current Budget Submit/1999 President's Budget | 714 | 0 | 0 | 714 |

(U) Change Summary Explanation:

Funding: N/A

Schedule: N/A

Technical: N/A

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401218F KC-135 Squadrons<br>PROJECT 4403 |

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) PE# 0401218F/KC-135 Squadrons | | | | | | | | | |
| (U) Aircraft Procurement, AF, BA-7 | | 1,490 | 1,505 | 1,501 | 1,460 | 1,486 | 1,453 | 0 | 8,895 |
| Other Production Charges, ABI, BP-19 | | | | | | | | | |
| (U) Operations & Maintenance, AF, BA-2 | | 1,000 | 1,019 | 1,050 | 1,071 | 1,091 | TBD | TBD | TBD |
| Mobilization, ABI | | | | | | | | | |
| (U) PE# 0401119F/C-5 Squadrons | | | | | | | | | |
| (U) RDT&E, AF, BA-7 | 651 | | | | | | | | 651 |
| Operational Systems Development, ABI | | | | | | | | | |
| (U) Aircraft Procurement, AF, BA-7 | | 1,483 | 1,381 | 1,428 | 1,455 | 1,310 | 1,282 | 0 | 8,339 |
| Other Production Charges, ABI, BP-19 | | | | | | | | | |

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) AOA/RDT&E Studies Complete | | | * | | | | | | | | | |
| (U) Certification/Qualification Testing | | | | * | | | | | | | | |
| (U) Prototype Demo | | | | * | | | | | | | | |
| (U) Integration (Deliverables to Unit) | | | | | | X | X | X | X | X | X | X |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401218F KC-135 Squadrons<br>PROJECT 4403 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Engineering study/analysis, prototype development & testing | 200 | | |
| (U) Software development | 502 | | |
| (U) Mission support | 12 | | |
| (U) Total | 714 | 0 | 0 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Lockheed Martin Command & Control Systems | C/CPAF | 29 June 97 | | 702 | | 702 | 0 | 0 | 0 | 702 |
| Support and Management Organizations | | | | | | | | | | |
| ESC | n/a | n/a | | 12 | | 12 | 0 | 0 | 0 | 12 |

Test and Evaluation Organizations: Not applicable

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401218F KC-135 Squadrons<br>PROJECT 4403 |

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

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| **Government Furnished Property:** None | | | | | | | | | | |
| Subtotal Product Development | | | | | 0 | 702 | 0 | 0 | 0 | 702 |
| Subtotal Support and Management | | | | | 0 | 12 | 0 | 0 | 0 | 12 |
| Subtotal Test and Evaluation | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | | 0 | 714 | 0 | 0 | 0 | 714 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401218F KC-135 Squadrons

PROJECT: 4494

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4494 KC-135 Aging Aircraft Program | 0 | 1,863 | 1,670 | 2,310 | 501 | 498 | 505 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

This program, in part, supports the aging aircraft corrosion and fatigue project CORAL REACH. CORAL REACH studies include the analysis and testing efforts in the area of aging aircraft, to include corrosion, fatigue, and stress corrosion cracking. The USAF will utilize CORAL REACH activities to improve KC-135 Programmed Depot Maintenance efficiency and to provide direction for future aging aircraft efforts to maintain the KC-135 as a viable airframe. CORAL REACH results provide accurate data for incorporation into the KC-135 Economic Life Study planned for FY00. The KC-135 Economic Service Life Study consists of studies for structure, systems, and component support as well as cost benefit analyses to support an Analysis of Alternatives (AOA). The AOA addresses replacement schedules for the KC-135 based on economic decision points. This effort is a low technical risk effort supporting a fielded weapon system and, therefore, is assigned to Budget Activity 7, Operational Systems Development.

(U) FY 1997 ($ in Thousands):

- (U) $0 Total

(U) FY 1998 ($ in Thousands):

- (U) 41 Corrosion/crack growth rate and fatigue determination and testing
- (U) 107 Basic materials test and predictive technique
- (U) 1,415 Functional Systems Integrity Program (FSIP)
- (U) 300 Mission support/contractor support
- (U) $1,863 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401218F KC-135 Squadrons |
| | PROJECT<br>4494 |

(U) FY 1999 ($ in Thousands):

- (U) 100 Corrosion/crack growth rate and fatigue determination and testing
- (U) 495 Functional Systems Integrity Program (FSIP)
- (U) 966 Market survey and system cost estimates
- (U) 109 Mission support/contractor support
- (U) $1,670 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY1998 PB) | 0 | 1,992 | 1,704 | continuing |
| (U) Appropriated Value | | 1,992 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | | -90 | | |
| b. SBIR | | -39 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -34 | |
| (U) Current Budget Submit/1999 President's Budget | 0 | 1,863 | 1,670 | continuing |

(U) Change Summary Explanation:

Funding: In FY98, KC-135 Aging Aircraft Program funds were integrated with the former KC-135 Economic Life Study BPAC (project 4494) that had $959K in FY00. Since FY98 PB, FY98 Aging Aircraft program has been reduced $90K for general Congressional reductions and $39K for SBIR. FY99 Aging Aircraft program has been reduced $34K for inflation adjustments.

Schedule: N/A

Technical: N/A

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0401218F KC-135 Squadrons |
| | PROJECT<br>4494 |

(U) C. **Other Program Funding Summary ($ in Thousands):** Not applicable

(U) D. **Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Corrosion & Fatigue Testing | | | * | | | | | | | | | |
| (U) Materials Test & Predictive Tech. | | | * | | | | | | | | | |
| (U) FSIP | | * | | | | | | | | | | |
| (U) Mission Support | | * | | | | | | | | | | |
| (U) Begin Market Survey | | | | | | | | | | X | | |

Note: Activities are on-going

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401218F KC-135 Squadrons

PROJECT: 4494

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Corrosion/crack growth determination and testing | 0 | 41 | 100 |
| (U) Basic materials test and predictive technique | | 107 | 0 |
| (U) Functional Systems Integrity Program (FSIP) | | 1,415 | 495 |
| (U) Market survey and system cost estimates | | 0 | 966 |
| (U) Mission support/contractor support | | 300 | 109 |
| (U) Total | 0 | 1,863 | 1,670 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Boeing | C/KC-135 Fleet Support SS/FFP | Oct 97-Mar 99 | TBD | TBD | 400 | 0 | 1,715 | 704 | continuing | continuing |
| Support and Management Organizations | | | | | | | | | | |
| ARINC, Frontier, other support contractors | Design Engineering Program (DEP) C/FP | Oct 97-Mar 99 | | | 0 | 0 | 148 | 966 | continuing | continuing |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0401218F KC-135 Squadrons

PROJECT: 4494

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

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Test and Evaluation Organizations | | | | | | | | | | |
| FAA, Wright Labs, etc. | Project Order/MPIR | Oct 97-Mar 99 | | | 100 | 0 | 0 | 0 | continuing | continuing |
| **Government Furnished Property:** None | | | | | | | | | | |
| Subtotal Product Development | | | | | 400 | 0 | 1,715 | 704 | continuing | continuing |
| Subtotal Support and Management | | | | | 0 | 0 | 148 | 966 | continuing | continuing |
| Subtotal Test and Evaluation | | | | | 100 | 0 | 0 | 0 | continuing | continuing |
| Total Project | | | | | 500 | 0 | 1,863 | 1,670 | continuing | continuing |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0702207F Depot Maintenance (Non-If)

PROJECT: 3326

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3326 Precision Measurement & Calibration | 1,375 | 1,482 | 1,530 | 1,566 | 1,602 | 1,629 | 1,667 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

This program develops, tests, and evaluates national and Air Force measurement standards and calibration equipment in support of all Air Force programs and activities, including over 120 base Precision Measurement Equipment Laboratories (PMELs) worldwide. Metrology research and development provides technology to support systems in all phases of development and acquisition, as well as Air Force R&D laboratories, test ranges, ground test facilities, and operational weapons systems support. Rapidly changing technology requires continuing research and development of measurement standards and calibration equipment to ensure modern weapon systems meet Air Force readiness objectives. This program addresses all metrology disciplines and includes the technology areas of laser, infrared, microwave, millimeter wave, optical, physical, mechanical, electrical, electronic, and ionizing radiation measurements.

Metrology is a technical discipline devoted to the science of measurements and to the study and improvement of measurement technology. Measurements are the foundation of military system development, quality assurance, hardware conformance testing and system readiness tests. The integrity of these tests is assured through calibration and traceability assurance schemes. The capability to measure and calibrate must parallel the emergence of new technology, new ranges, and new capabilities of military systems. Lack of new measurement capability impedes or blocks the successful exploitation of new technologies, especially in the movement from development laboratory to production to deployment. R&D efforts are essential within the DoD to pace these requirements, otherwise, these same new systems will suffer time delays, excessive cost, and increased risk due to unreliable test results in all phases of development, production, deployment and operation. This program is in budget activity 7 - Operational System Development because it supports operational systems.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0702207F Depot Maintenance (Non-If) / PROJECT: 3326 |

**Acquisition Strategy:**

(U) FY 1997 ($ in Thousands):

- (U) $750 Completed development of radiance and irradiance detector standards and continued development of an enchanced electrical substitution radiometer, tunable lasers for radiometry, an improved blackbody pyrometer and other national measurement standards to support Air Force infrared / laser / electro-optical weapon systems and support equipment.
- (U) $410 Continued development of microwave standards for noise figure measurements, radar cross-section test range measurements, and high power standards to support radar and radio frequency (RF) communication systems.
- (U) $165 Continued development of national standards for electrical resistance and high speed pulse measurements to support high accuracy electronic test equipment.
- (U) $50 Continued development of national standards and National Institute of Standards and Technology (NIST) traceability for calibration of ionizing radiation hazard instrumentation.
- (U) $1,375 Total

(U) FY 1998 ($ in Thousands):

- (U) $762 Complete development of an improved blackbody calibrator for the AF Primary Standards Laboratory, an enhanced electrical substitution radiometer, a pyroelectric radiometer, and an improved blackbody pyrometer; and begin development of a portable cryogenic radiometer to support infrared test chambers. Continue development of other national measurement standards to support Air Force infrared / laser / electro-optical weapon systems and support equipment.
- (U) $240 Complete high power standards and continue development of microwave standards for noise figure measurements and radar cross-section test range measurements to support radar and RF communication systems.
- (U) $150 Begin development of methods to characterize micro-electromechanical sensors (MEMS) and continue development of improved methods to reduce coordinate measuring machine (CMM) measurement uncertainty.
- (U) $180 Begin development of methods to determine the frequency response characterization of capacitors. Continue development of national standards for electrical resistance and development of high speed pulse measurements to support high accuracy electronic test equipment.
- (U) $65 Begin large area source metrology project, and continue to develop national standards and NIST traceablility for calibration of ionizing radiation hazard instrumentation.
- (U) $1,397 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0702207F Depot Maintenance (Non-If) |
| | PROJECT<br>3326 |

(U) FY 1999 ($ in Thousands):

| | | | |
|---|---|---|---|
| – | (U) | $785 | Complete the development of tunable lasers for radiometry and detector standards for long wavelength infrared measurements; and continue development of other national measurement standards to support Air Force infrared / laser / electro-optical weapon systems and support equipment. |
| – | (U) | $280 | Continue development of standards for radar support, RF communications systems, and radar cross-section range measurements. |
| – | (U) | $150 | Complete development of methods to characterize micro-electromechanical sensors (MEMS) and continue development of improved calibration support for coordinate measuring machine (CMMs). |
| – | (U) | $220 | Begin development of transportable high value resistance standards and continue development of standards for electrical measurements to support high accuracy electronic test equipment. |
| – | (U) | $65 | Complete beta measurement traceability project and continue large area source metrology project and the development of national standards for calibration of ionizing radiation hazard instrumentation. |
| – | (U) | $1,500 | Total |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE | |
|---|---|---|
| | February 1998 | |
| BUDGET ACTIVITY | PE NUMBER AND TITLE | PROJECT |
| 7 - Operational System Development | 0702207F Depot Maintenance (Non-If) | 3326 |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget FY 1998 PB | 1,444 | 1,482 | 1,530 | TBD |
| (U) Appropriated Value | 1,444 | 1,482 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -30 | -48 | | |
| b. SBIR | -37 | -37 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Recissions | -2 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -30 | |
| (U) Current Budget Submit/FY 1999 PB | 1,375 | 1,397 | 1,500 | TBD |

(U) Change Summary Explanation:

Funding: FY1999 $30 has been re-allocated to fund higher priorities (-30).
Schedule: None
Technical: None

(U) **C. Other Program Funding Summary ($ in Thousands)** (U) None

(U) **D. Schedule Profile** (U) None

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0702207F Depot Maintenance (Non-If) |
| | PROJECT<br>3326 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Develop Measurement Standards & Calibration Support | 1,354 | 1,370 | 1,472 |
| (U) Travel | 21 | 27 | 28 |
| (U) Total | 1,375 | 1,397 | 1,500 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| National Institute of Standards & Technology | MIPR (DD FORM 448) | 1st QTR | TBD | TBD | 10,914 | 1,354 | 1,370 | 1,472 | Continue | TBD |
| AFMC | In House | Various | TBD | TBD | 98 | 21 | 27 | 28 | Continue | TBD |
| Support and Management Organizations | | | | | | | | | | |
| Test and Evaluation Organizations | | | | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0702207F Depot Maintenance (Non-If)

PROJECT: 3326

**Government Furnished Property:** N/A

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Subtotal Product Development | | | | 11,012 | 1,375 | 1,397 | 1,500 | Continue | TBD |
| Subtotal Support and Management | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal Test and Evaluation | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | 11,012 | 1,375 | 1,397 | 1,500 | Continue | TBD |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708011F Industrial Preparedness

PROJECT: 2865

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2865 Industrial Preparedness-Manufacturing Technology | 48,615 | 45,020 | 50,997 | 52,758 | 54,498 | 55,162 | 55,850 | 0 | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) A. **Mission Description and Budget Item Justification:** The Manufacturing Technology (ManTech) program is a corporate Air Force program that establishes and demonstrates advancements in manufacturing process technologies, manufacturing engineering systems, and industrial practices, and transitions these advancements into weapon systems design, development, acquisition, and/or sustainment. ManTech provides cost reduction processes and practices and new manufacturing capabilities applicable to existing as well as new weapon systems under development. ManTech strives to make superior mission enabling technologies an affordable life cycle reality by expanding access to a capable, responsible, multi-use industrial base with efficiencies comparable to world class enterprises. Program efforts accelerate shop floor manufacturing process maturation, at every stage of development, through increased emphasis on cost, time, and quality risks in transition. Best processes are evaluated and adapted for application. Where mature processes are not available, laboratory-developed initial process capabilities are matured and inserted into weapon system programs. ManTech goes beyond just factory floor manufacturing/repair processes and encompasses every activity within an industrial enterprise, ranging from above the shop floor activities, including tools for integrated product process development (IPPD), to supplier base interactions and performance. The strategies and best practices of world-class enterprises are analyzed and the performance of defense suppliers benchmarked. The world's best industrial practices are adapted and validated in multiple pilot projects and deployed in defense applications. Project efforts address and target all industry levels, from large prime contractors to small material and parts vendors. Program efforts also enhance the organic repair/remanufacture capability to affordably sustain the aging weapon systems inventory. This program is in Budget Activity 7, Operational System Development, because it provides support to systems in production and/or operational use.

(U) **Acquisition Strategy:** All major contracts in this Program Element were awarded after full and open competition.

(U) FY 1997 ($ in Thousands):

- (U) $35,065 Established and demonstrated cost-effective and efficient manufacturing technologies for critical, high quality, reliable structural, propulsion, and electronic components and assemblies required for existing and next generation aircraft. Conducted pilot efforts in high-payoff endeavors aimed at validating potential benefits from flexible manufacturing, commercial/military integration, quality processing, and supplier improvements. Conducted long-term projects focused on IPPD tools.
  - (U) Initiated effort to validate revolutionary concepts for manufacture of "all composite" vehicles at a cost of 50% of alternate structures.
  - (U) Continued effort to reduce investment casting manufacturing costs by 50%, focusing on the gas turbine engine supplier base.
  - (U) Completed effort for affordable production of multifunctional radomes for fighters, achieving a 30% manufacturing cost reduction.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0708011F Industrial Preparedness / PROJECT: 2865 |

– (U) $7,280 Established and demonstrated cost-effective repair and remanufacture technologies to affordably sustain existing weapon systems and to enhance mission readiness. Reduced repair and maintenance cycle time for aging systems and established remanufacturing capabilities able to rapidly generate standardized replacement parts on demand.
- (U) Completed effort to provide Air Logistics Centers (ALCs) with the tools needed to prepare spare parts procurement packages.
- (U) Established metal forming simulation remanufacturing processes for logistics centers to generate standardized replacement structures.
- (U) Initiated nondestructive inspection efforts (moisture detection, large area disbonds, and filmless radiography) for aging aircraft.
- (U) Completed effort to enable the ALCs to efficiently design and develop composite secondary structure by providing an automated drafting and analysis capability.

– (U) $3,405 Established and demonstrated efficient and cost-effective manufacturing methods for high performance, high reliability electronics, lightweight structures, and efficient propulsion methods for advanced tactical missiles. Established manufacturing improvements required to transition precision guided munitions subsystems into production. Conducted pilot efforts in high-payoff endeavors aimed at validating potential benefits accrued from inserting best practices in production of weapon systems.
- (U) Completed effort to establish manufacturing processes capable of producing affordable tactical grade fiber optic gyroscopes in support of missiles.
- (U) Initiated efforts to enable the affordable manufacture of ballistic wind sensors for use in munitions targeting and/or wind shear detection systems.
- (U) Continued programs to implement lean benchmarking findings by demonstrating a modular factory approach to the manufacture of missile components.

– (U) $2,865 Established and demonstrated affordable, flexible manufacturing processes to reduce the cost and lead time of higher performance spacecraft and launch vehicles. Established effective and efficient manufacturing technology for critical high quality, reliable electronic components and assemblies required for surveillance, tracking communications links, and data/signal processing. Conducted pilot efforts in high-payoff endeavors aimed at providing efficient, low-cost capability to produce components and weapon systems in the space, launch, and Command, Control, Communications, and Intelligence (C3I) industrial base sectors.
- (U) Continued process refinement phase of effort to establish manufacturing processes for affordable power efficient, space-qualified multi-bandgap solar cells.
- (U) Initiated activity defining benchmarking approach for applying lean principles to space and launch industry sector.

– (U) $48,615 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0708011F Industrial Preparedness |
| | PROJECT<br>2865 |

(U) FY 1998 ($ in Thousands):

– (U) $34,120 Establish and demonstrate cost-effective and efficient manufacturing technologies for critical, high quality, reliable structural, propulsion, and electronic components and assemblies required for existing and next generation aircraft. Conduct pilot efforts in high-payoff endeavors aimed at validating potential benefits accrued from flexible manufacturing, commercial military integration, quality processing, and supplier improvements. Conduct long-term projects focused on integrated product process development (IPPD) tools.

- (U) Complete pilot efforts to demonstrate manufacture of military electronic components on a commercial line and to incorporate best commercial practices into defense production facilities.
- (U) Complete effort of the Design and Manufacture of Low-Cost Composite Engine parts.
- (U) Continue the Lean Aircraft Initiative to reduce non-value-added activities across the manufacturing enterprise.
- (U) Continue the Composites Affordability Initiative to manufacture composite structures affordably.
- (U) Initiate the Lean Implementation project focused on supply chain processes and practices.

– (U) $6,545 Establish and demonstrate cost-effective repair and manufacturing technologies for affordable sustainment of existing weapon systems and to enhance mission readiness. Reduce repair and maintenance cycle time for aging systems and establish remanufacturing capabilities which will rapidly generate standardized replacement parts on demand.

- (U) Complete effort to establish and demonstrate the capability to capture electronic device test requirements independent of specific test equipment, thereby, reducing the warfighter's systems life cycle burden.
- (U) Initiate efforts to establish process improvements for repair/manufacture of large area structures on aging aircraft.
- (U) Initiate efforts to mitigate the risk associated with electronic parts obsolescence.
- (U) Initiate effort to establish a laser shock peening process in order to reduce high cycle fatigue failures in engine turbine blades.
- (U) Initiate effort to respond rapidly to issues required by the aging aircraft fleet.

– (U) $2,295 Establish and demonstrate efficient and cost-effective manufacturing methods for high performance, high reliability electronics, lightweight structures, and efficient propulsion methods for advanced tactical missiles. Establish manufacturing improvements required to transition precision guided munitions' subsystems into production. Conduct pilot efforts in high-payoff endeavors aimed at validating potential benefits accrued from inserting best practices in the production of weapon systems.

- (U) Complete Lean Implementation effort to establish and demonstrate the ability to produce military electronic modules on a commercial line.
- (U) Continue the effort to establish an affordable manufacturing process for Light Detection and Ranging (LIDAR) wind sensors for munitions targeting, wind shear detection, and air data gathering.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0708011F Industrial Preparedness |
| | PROJECT<br>2865 |

- (U) $2,060 Establish and demonstrate affordable, flexible manufacturing processes to reduce the cost and lead time of higher performance spacecraft and launch vehicles. Establish effective and efficient manufacturing technology for critical high quality, reliable electronic component and assemblies required for surveillance, tracking communication links, and data/signal processing. Conduct pilot efforts in high-payoff endeavors aimed at providing efficient, low-cost capability to produce components and weapon systems in the space, launch, and Command, Control, Communications, and Intelligence (C3I) industrial base sectors.
  - (U) Complete efforts for finding efficient and affordable methods to produce rugate coatings.
  - (U) Continue efforts to establish manufacturing processes for affordable power efficient, space-qualified multi-bandgap solar cells.
  - (U) Continue Lean Space Initiative to infuse lean principles, concepts, and practices into the defense space industry.
- (U) $45,020 Total

(U) FY 1999 ($ in Thousands):

- (U) $24,610 Establish and demonstrate cost-effective and efficient manufacturing technologies for critical, high quality, reliable structural, propulsion, and electronic components and assemblies required for existing and next generation aircraft. Conduct pilot efforts in high-payoff endeavors aimed at validating potential benefits accrued from flexible manufacturing, commercial military integration, quality processing and supplier improvements. Conduct long-term projects focused on integrated product process development (IPPD) tools.
  - (U) Complete Phase II efforts on the Lean Aircraft Initiative to benchmark lean production concepts for the military aircraft industry.
  - (U) Complete the MEREOS project for a next generation data base management system for the reconciliation of Bill of Materials.
  - (U) Continue efforts to validate revolutionary approaches for manufacture of "all composite" air vehicles at costs of 50% of alternative structures.
  - (U) Continue effort to realize Rapid Response Improvement Process enhancements.
  - (U) Initiate efforts to establish an affordable Passive Infrared (IR) Coatings application process.
  - (U) Initiate effort focused on crucial lead time reduction and affordability enhancement of engine forgings.
  - (U) Initiate initiative addressing enhancement of small/medium supplier base providing components for weapon systems in acquisition stage of life cycle.
- (U) $18,010 Establish and demonstrate cost-effective repair and manufacturing technologies for affordable sustainment of existing weapon systems and to enhance mission readiness. Reduce repair and maintenance cycle time for aging systems and establish remanufacturing capabilities able to rapidly generate standardized replacement parts on demand.
  - (U) Complete Initial Lean Sustainment effort to identify approaches to transform depot maintenance support infrastructure into a world class enterprise.
  - (U) Continue efforts to establish large area structural repair capability for aging aircraft.
  - (U) Continue efforts to mitigate risk associated with the issue of electronics parts obsolescence.
  - (U) Continue effort on Lean Implementation of turbine engine blade tip repair to cut repair costs and reduce scrap by 30%.
  - (U) Continue to productionize the laser shock peening process.
  - (U) Initiate new sustainment initiatives focused on lean implementation, aging system requirements, and life cycle cost (LCC) reduction.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0708011F Industrial Preparedness<br>PROJECT 2865 |

– (U) $1,020 Establish and demonstrate efficient and cost-effective manufacturing methods for high performance, highly reliable electronics, lightweight structures, and efficient propulsion methods for advanced tactical missiles. Establish manufacturing improvements required to transition precision guided munitions' subsystems into production. Conduct pilot efforts in high-payoff endeavors aimed at validating potential benefits accrued from inserting best practices in production of weapon systems.

- (U) Continue Light Detection and Ranging (LIDAR) efforts to establish an affordably manufactured LIDAR wind sensor for munitions targeting, wind shear detection, and air data gathering.

– (U) $7,357 Establish and demonstrate affordable, flexible manufacturing processes to reduce the cost and lead time of higher performance spacecraft and launch vehicles. Establish effective and efficient manufacturing technology for critical high quality, reliable electronic component and assemblies required for surveillance, tracking communication links, and data/signal processing. Conduct pilot efforts in high-payoff endeavors aimed at providing efficient, low-cost capability to produce components and weapon systems in the space, launch, and Command, Control, Communications, and Intelligence (C3I) industrial base sectors.

- (U) Complete effort to establish manufacturing processes for affordable power efficient, multi-bandgap solar cells.
- (U) Continue effort to infuse lean production principles into defense space, aircraft, and launch vehicle industries.
- (U) Initiate effort to rapidly respond to manufacturing issues in the industrial base.
- (U) Initiate implementation of lean concepts in space sector industrial base.
- (U) Initiate activities focused on providing affordable manufacturing processes for spacecraft electronic components and launch vehicle propulsion components.

– (U) $50,997 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0708011F Industrial Preparedness<br>PROJECT 2865 |

(U) **B. Program Change Summary ($ in Thousands):**

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 50,632 | 48,429 | 45,923 | Continuing |
| (U) Appropriated Value | 52,969 | 48,429 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -1,194 | -2,396 | | |
| b. SBIR | -1,143 | -1,013 | | |
| c. Omnibus/Other Above Threshold Reprogrammings | -1,933 | | | |
| d. Below Threshold Reprogrammings | | | | |
| e. Rescissions | -84 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 5,074 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 48,615 | 45,020 | 50,997 | Continuing |

(U) Change Summary Explanation:
Funding: Changes to this PE since the previous President's Budget are due to Air Force priorities and budget constraints.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) **C. Other Program Funding Summary:** Not Applicable.

(U) **D. Schedule Profile:** Not Applicable.

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE | |
|---|---|---|
| | February 1998 | |
| BUDGET ACTIVITY | PE NUMBER AND TITLE | PROJECT |
| 7 - Operational System Development | 0708011F Industrial Preparedness | 2865 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Manufacturing technologies for aircraft components | 35,065 | 34,120 | 24,610 |
| (U) Repair/remanufacture technologies for weapon systems sustainment | 7,280 | 6,545 | 18,010 |
| (U) Manufacturing methods for missile and munition assemblies | 3,405 | 2,295 | 1,020 |
| (U) Manufacturing processes to reduce spacecraft and launch vehicle costs | 2,865 | 2,060 | 7,357 |
| (U) Total | 48,615 | 45,020 | 50,997 |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0708011F Industrial Preparedness<br>PROJECT 2865 |

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

**Performing Organizations**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | FY 1997 | FY 1998 | FY 1999 | To Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Numerous | Various | Various | N/A | N/A | N/A | 24,945 | 21,182 | 35,262 | Cont | Cont |
| TRW | CPFF | May 94 | | | 13,200 | 4,200 | 3,600 | 0 | 0 | 21,000 |
| Howmet | Cost Share | Jul 95 | | | 2,500 | 2,000 | 5,000 | 4,000 | 8,750 | 22,250 |
| Ontek | CPFF | Jan 95 | | | 3,000 | 1,600 | 1,400 | 1,000 | 0 | 7,000 |
| Spectrolab | CPFF | Sep 95 | | | 250 | 900 | 1,250 | 660 | 0 | 3,060 |
| General Atomics | CPFF | Aug 93 | | | 2,900 | 0 | 1,230 | 1,250 | 425 | 5,805 |
| IBM | CPFF | Sep 93 | | | 2,800 | 1,300 | 170 | 0 | 0 | 4,270 |
| Lockheed | Cost Share | Jun 96 | | | 500 | 1,188 | 761 | 0 | 0 | 2,449 |
| McDnld Douglas | CPFF | May 94 | | | 28,100 | 9,800 | 1,811 | 0 | 0 | 39,711 |
| TRW | CPFF | Sep 93 | | | 400 | 1,532 | 1,191 | 0 | 0 | 3,123 |
| Boeing | CA | Dec 97 | | | 0 | 150 | 400 | 925 | 1125 | 2600 |
| CAI(Consortium) | CPFF | Aug 97 | | | 0 | 1,000 | 6,500 | 4,500 | 13,500 | 25,500 |
| Elec Parts Obsol | TBD | TBD | | | 0 | 0 | 525 | 3,400 | 10,325 | 14,250 |

Support and Management Organizations - In-House Support.
Test and Evaluation Organizations - Not Applicable.

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0708011F Industrial Preparedness | PROJECT<br>2865 |

Government Furnished Property - Not Applicable.

| | | | | | | |
|---|---|---|---|---|---|---|
| Subtotal Product Development | N/A | 48,615 | 45,020 | 50,997 | Cont | Cont |
| Subtotal Support and Management | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal Test and Evaluation | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | N/A | 48,615 | 45,020 | 50,997 | Cont | Cont |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708026F Product/Reliable/Avail/Maintain Prog

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 15,856 | 21,764 | 970 | 9,753 | 20,891 | 30,685 | 30,948 | Continuing | Continuing |
| 2146 PRAM | 15,856 | 12,306 | 970 | 9,753 | 20,891 | 30,685 | 30,948 | Continuing | Continuing |
| 4761 Aging Aircraft | 0 | 9,458 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

(U) A. **Mission Description and Budget Item Justification:** This Operational Systems Development program addresses acute reliability and maintainability (R&M) deficiencies by funding prototypes of developing and mature, commercial-off-the-shelf technologies that can be incorporated into existing Air Force weapon systems and subsystems. The objective of this program is to emphasize the rapid incorporation of R&M technology "fixes" that will improve the operational capability of weapon systems and equipment at a significantly lower cost. PRAM, a level-of-funding program, depends on MAJCOM, Air Logistics Center (ALC), and field support to implement the technology once the initial investment is completed. This program is in Budget Activity 7, Operational Systems Development, because projects are being engineered for already operational weapon systems. Note: Congress added $22 million to this program in FY 1998: $10 million for aging aircraft; $8 million for blade repair facility efforts; and $4 million for aging landing gear efforts.

(U) **Acquisition Strategy:** All projects within this Program Element were awarded competitively, either by full and open competition or by amending task order contracts with competition for subcontracts.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0708026F Product/Reliable/Avail/Maintain Prog |

(U) **B. Program Change Summary ($ in Thousands):**

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 15,842 | 1,032 | 990 | Cont |
| (U) Appropriated Value | 16,564 | 23,032 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -346 | -772 | | |
| b. SBIR | -376 | -496 | | |
| c. Omnibus/Other Above Threshold Reprogrammings | | | | |
| d. Below Threshold Reprogrammings | 40 | | | |
| e. Rescissions | -26 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -20 | |
| (U) Current Budget Submit/FY 1999 PB | 15,856 | 21,764 | 970 | Cont |

(U) Change Summary Explanation:

Funding: Changes to this PE since the previous President's Budget are due to Air Force priorities and budget constraints. Below Threshold Reprogramming for new H-1 heaters.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) **C. Other Program Funding Summary:** Not Applicable.

(U) **D. Schedule Profile:** Not Applicable.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0708026F Product/Reliable/Avail/Maintain Prog<br>PROJECT 2146 |

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 2146 PRAM | 15,856 | 12,306 | 970 | 9,753 | 20,891 | 30,685 | 30,948 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |

(U) A. **Mission Description and Budget Item Justification:** PRAM addresses acute reliability and maintainability (R&M) deficiencies by funding prototypes of developing and mature, commercial-off-the-shelf technologies that can be incorporated into existing Air Force weapon systems and subsystems. The objective of this program is to emphasize the rapid incorporation of R&M technology "fixes" that will improve the operational capability of weapon systems and equipment at a significantly lower cost. Average project length is twenty-seven months. This program has a proven return on investment averaging 18:1. PRAM, a level-of-funding program, depends on MAJCOM and field support to implement the technology when the initial investment is completed.

(U) FY 1997 ($ in Thousands):

- (U) $3,827 Completed efforts on Electro-Optical Viewing System (EVS) Data Presentation Group, Reusable Software for Spacecraft, Combination Generator Air Conditioner, Solid State High Band Generator, Fiber Optic Rate Gyro, Recore of Primary/Secondary Heat Exchanger, Expendable Countermeasures (EXCM) Bay Gasket, Hand-Held Directional Reflectometer, USM-464 Display and Software Media, and Module Bus Standardization Initiative.
- (U) $2,707 Commenced blade tip project to model the repair facility at Oklahoma City Air Logistics Center. The study identified several potential improvements that would improve material flow and efficiency.
- (U) $2,555 Continued work on aircraft subsystem R&M projects, including redesigning the inflatable overwing fairing seals and pivot bearing for the B-1. Completed efforts on a bird proof canopy and an advanced hybrid oxygen system (AHOS).
- (U) $2,237 Continued work on aerospace support equipment R&M projects, including composite mobile maintenance stands and the System 2000 Maintainer project. Completed the H-1 heater replacement.
- (U) $1,646 Supported aging aircraft initiatives in corrosion, composites, and repair.
  - (U) Provided quantitative tools needed to make intelligent, reliable forecasts of potential corrosion damage and to permit proactive engineering and maintenance to ensure the continued safe operation of aging aircraft weapon systems.
  - (U) Improved the data collection of optical detection of hidden corrosion inspection records and the system ability to catalog them for analysis.
  - (U) Accomplished enhancements and modifications necessary to the eddy current inspection system, using prototyped hardware as a baseline; end result is a nondestructive inspection system dedicated to lap joint corrosion inspections.
- (U) $1,638 Completed ALR-20 panoramic indicator project and continued initial work on focal planar optics display.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0708026F Product/Reliable/Avail/Maintain Prog |
| | PROJECT<br>2146 |

- (U) $700 Continued airframe R&M durability patch project aimed at developing a field repair patch for vibro-acoustic cracks in sheet metal and support structures.
- (U) $465 Completed several short-term projects identified through Air Force Materiel Command's Technology Master Plan (TMP). TMP projects are prioritized based on operational capability, reliability and maintainability improvement, and cost.
- (U) $81 Continued ongoing nickel-hydrogen battery and multi-spectral satellite identification space systems efforts.
- (U) $15,856 Total

(U) FY 1998 ($ in Thousands):

- (U) $7,196 Begin improvement projects at Oklahoma City Air Logistics Center blade repair facility aimed at improving process flow and increasing shop efficiency.
- (U) $265 Complete B-1 projects focusing on subsystem R&M, significantly increasing overwing fairing seal and pivot bearing service lives.
- (U) $1,480 Continue work on aerospace support equipment R&M projects. Complete Advanced Technology Demonstration for next generation munition handler and complete composite mobile maintenance stands project. Begin E-3 rotodome test set effort.
- (U) $790 Continue work on aircraft avionics R&M projects. Complete the initial phase of the focal planar optics display and the C-141 electric starlifter project.
- (U) $1,137 Continue work on airframe R&M projects, including development of a durability patch for low-cost, reliable installation in the field.
- (U) $473 Complete projects identified through Air Force Materiel Command's TMP. TMP projects are prioritized based on operational capability, reliability and maintainability improvement, and cost.
- (U) $95 Complete space system efforts for nickel hydrogen battery and satellite identification.
- (U) $500 Initiate base infrastructure R&M projects. Begin seismic range scoring system effort.
- (U) $370 Start and complete high priority quick response projects identifed by operational commands outside the normal annual planning process.
- (U) $12,306 Total

(U) FY 1999 ($ in Thousands):

- (U) $470 Continue airframe R&M projects. Begin C-130 corrosion-resistant longerons and measurement of paint thickness on fiberglass radomes efforts.
- (U) $320 Completed several short-term projects identified through Air Force Materiel Command's TMP. TMP projects are prioritized based on operational capability, reliability and maintainability improvement, and cost.
- (U) $180 Start and complete high priority, quick response R&M projects identified by operational commands.
- (U) 970 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0708026F Product/Reliable/Avail/Maintain Prog<br>PROJECT 2146 |

(U) B. **Program Change Summary ($ in Thousands):**

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 15,842 | 1,032 | 990 | Cont |
| (U) Current Budget Submit/FY 1999 PB | 15,856 | 12,306 | 970 | Cont |

(U) Change Summary Explanation:

Funding: Changes to this PE since the previous President's Budget are due to Air Force priorities and budget constraints.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) C. **Other Program Funding Summary:** Not Applicable.

(U) D. **Schedule Profile:** Not Applicable.

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0708026F Product/Reliable/Avail/Maintain Prog |
| | PROJECT<br>2146 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) EVS Data Presentation Group | 3,827 | 0 | |
| (U) Blade Tip Repair Project | 2,707 | 7,196 | |
| (U) Aircraft Subsystem R&M | 2,555 | 265 | |
| (U) Aerospace Support Equipment R&M | 2,237 | 1,480 | |
| (U) Aging Aircraft | 1,646 | 0 | |
| (U) Aircraft Avionics R&M | 1,638 | 790 | |
| (U) Airframe R&M | 700 | 1,137 | 470 |
| (U) TMP Projects | 465 | 473 | 320 |
| (U) Space Systems R&M | 81 | 95 | |
| (U) Base Infrastructure R&M | 0 | 500 | |
| (U) Quick Response | 0 | 370 | 180 |
| (U) Total | 15,856 | 12,306 | 970 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | FY 1997 | FY 1998 | FY 1999 | To Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Numerous | Various | Various | N/A | N/A | N/A | 14,040 | 11,052 | 690 | Cont | Cont |
| Government | Various | Various | N/A | N/A | N/A | 1,816 | 1,254 | 280 | Cont | Cont |

Support and Management Organizations - In-House Support.

Test and Evaluation Organizations - Not Applicable.

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | | | DATE: February 1998 | |
|---|---|---|---|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0708026F Product/Reliable/Avail/Maintain Prog | | | | PROJECT: 2146 |

**Government Furnished Property**: Not Applicable.

Product Development Property - Not Applicable.

Support and Management Property - Not Applicable.

Test and Evaluation Property - Not Applicable.

| | | | | | |
|---|---|---|---|---|---|
| Subtotal Product Development | 15,856 | 12,306 | 970 | Cont | Cont |
| Subtotal Support and Management | 0 | 0 | 0 | 0 | 0 |
| Subtotal Test and Evaluation | 0 | 0 | 0 | 0 | 0 |
| Total Project | 15,856 | 12,306 | 970 | Cont | Cont |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708026F Product/Reliable/Avail/Maintain Prog

PROJECT: 4761

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4761 Aging Aircraft | 0 | 9,458 | 0 | 0 | 0 | 0 | 0 | Continuing | Continuing |
| Quantity of RDT&E Articles | | | | | | | | | |

(U) A. **Mission Description and Budget Item Justification:** This program is comprised of multiple efforts which will transition needed technologies from laboratory research and commercial technology development into fieldable tools or capabilities. Projects will target critical needs of the aging fleet such as corrosion, structural integrity, and improved non-destructive inspection (NDI) methods. Corrosion-related projects include hidden corrosion detection (NDI methods such as eddy current and thermography) and developing a corrosion prediction capability. Structural integrity projects will include the development of alternate repair capabilities and capability to predict widespread fatigue damage. In addition to the NDI projects addressing corrosion detection, other NDI projects will address multi-layer crack detection and detection of cracks under composite patches. These projects are focused on developing tools (NDI equipment, computer models) and capabilities (alternate repair processes) for Air Logistics Centers (ALCs) use in extending useful aircraft service life, resolving flight safety problems, or replacing components no longer procurable. Projects will typically yield a single, validated prototype system or capability that is production ready; final depot or field implementation (equipment purchases, tech order updates, training, etc.) will be the responsibility of the Major Commands (MAJCOMs) and ALCs. There is strong emphasis on developing solutions that will benefit multiple weapon systems, thereby, reducing or eliminating stovepipe development of platform-specific solutions. Note: Aging aircraft efforts for FY 1999 and out are addressed in PE 0605011F, RDT&E for Aging Aircraft.

(U) FY 1997: Not Applicable.

(U) FY 1998 ($ in Thousands):

- (U) $6,000 Support Aging Aircraft initiatives in NDI, structural integrity, and corrosion.
  - (U) Further expand the capability of the ultrasonic scan to detect fatigue cracks in second layer structure. This effort will evaluate potential applications for C-141, C-130, and F-15 inspections.
  - (U) Improve the throughput for scanning and erasing the reusable phosphor screen for filmless radiography, which should reduce the touch labor required for manual processing.
  - (U) Expand the use of composite patch repairs beyond wing structures to include thin-skin fuselage structures.
  - (U) Develop corrosion growth rate model, evaluate corrosion monitoring devices, evaluate material substitution as a repair option, and evaluate commercial maintenance practices to determine applicability to military aircraft.
- (U) $3,458 Develop engineering logistics analysis tools to help predict future failure rates, maintain flight safety, and extend the life of aircraft landing gear.
- (U) $9,458 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0708026F Product/Reliable/Avail/Maintain Prog<br>PROJECT 4761 |

(U) FY 1999: Not Applicable.

(U) **B. Program Change Summary ($ in Thousands):**

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 0 | 0 | 0 | |
| (U) Current Budget Submit/FY 1999 PB | 0 | 9,458 | 0 | |

(U) Change Summary Explanation:

Funding: Congress added $10 million to this Program in FY 1998 for aging aircraft.

Schedule: Not Applicable.

Technical: Not Applicable.

(U) **C. Other Program Funding:** Not Applicable.

(U) **D. Schedule Profile:**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) RFP Release | | | | | | X | | | | | | |
| (U) Contract Awards | | | | | | X | X | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708026F Product/Reliable/Avail/Maintain Prog

PROJECT: 4761

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Aging Aircraft Initiatives | 0 | 6,000 | 0 |
| (U) Aging Landing Gear | 0 | 3,458 | 0 |
| (U) Total | 0 | 9,458 | 0 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| SAIC | Mod | TBD | | | 0 | 0 | 1,900 | 0 | 0 | 1,900 |
| SW Research | Mod | TBD | | | 0 | 0 | 1,500 | 0 | 0 | 1,500 |
| NCI | TBD | TBD | | | 0 | 0 | 1,990 | 0 | 0 | 1,990 |
| Liberty Tech | CPFF | TBD | | | 0 | 0 | 475 | 0 | 0 | 475 |
| General Atomics | TBD | TBD | | | 0 | 0 | 3,458 | 0 | 0 | 3,458 |
| TBD | TBD | TBD | | | 0 | 0 | 135 | 0 | 0 | 135 |

Support and Management Organizations - Not Applicable.

Test and Evaluation Organizations - Not Applicable.

**Government Furnished Property:** Not Applicable.

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708026F Product/Reliable/Avail/Maintain Prog

PROJECT: 4761

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property - None | | | | | | | | | |
| Support and Management Property - None | | | | | | | | | |
| Test and Evaluation Property - None | | | | | | | | | |
| Subtotal Product Development | | | | 0 | 0 | 9,458 | 0 | Cont | Cont |
| Subtotal Support and Management | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal Test and Evaluation | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | 0 | 0 | 9,458 | 0 | Cont | Cont |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708071F Joint Logistics Program - Ammunition System

PROJECT: 4679

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4679 Ammunition Management Standard System (AMSS) | 13,780 | 0* | 16,086 | 13,474 | 11,554 | 11,672 | 11,814 | 14,748 | 101,470 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

All funds in FY 97 and FY 99 through 03 were converted from Operations & Maintenance (O&M) to RDT&E to align with the actual use of the funds for development activity.
* $8,342 of FY 98 funds were reclassified to RDT&E from the O&M Appropriation.

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

Air Force is the Executive Agent for AMSS. AMSS is the joint migration system being developed to improve and integrate ammunition management business functions and data across the DoD. It directly supports the goals of the DoD Logistics Strategic Plan (1996 edition) to: reduce logistics response times, provide total asset visibility, develop seamless logistics systems, and streamline the logistics infrastructure. When fully operational, AMSS will provide integrated, flexible, and timely ammunition management information necessary for the planning, provisioning, and sustainment of military operations world-wide. The first release of the system will contain sufficient functionality to all Services to allow the current legacy systems to either be turned off completely or used minimally. The functionality to be included in the first release of AMSS has been identified by the Services' Configuration Management Team. Additional required functionality will be added in future releases based upon Service priority and available funding. When completely developed, integrated and implemented AMSS will support the functionality for all ammunition management at the Inventory Control Point (ICP) and command levels. This program is in Budget Activity 7 - Operational System Development because it modernizes automated information systems.

(U) **Acquisition Strategy:** All Contracts within this Program Element were awarded after full and open competition.

(U) FY 1997 ($ in Thousands):
- (U) $8,370 Software Development
- (U) $3,703 Support Contractors, Mission support, etc.
- (U) $1,707 Government Furnished Equipment (GFE)/Commercial Off The Shelf (COTS)
- (U) $13,780 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0708071F Joint Logistics Program - Ammunition System<br>PROJECT 4679 |

(U) FY 1998* ($ in Thousands):

- (U) $3,479 Software Development
- (U) $3,829 Support Contractors, Mission support, etc
- (U) $830 GFE/COTS
- (U) $204 GFE and COTS software update, debug, maintenance.
- (U) $8,342 Total

* FY 98 funds were reclassified to RDT&E from the O&M Appropriation.

(U) FY 1999 ($ in Thousands):

- (U) $ 11,120 Software Development
- (U) $ 4,245 Support Contractors, Mission support, etc
- (U) $ 721 GFE and COTS software update, debug, maintenance.
- (U) $ 16,086 Total

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

| | FY 1997 | FY 1998* | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | | | 0 | TBD |
| (U) Appropriated Value | | | | TBD |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | 13,780 | | | |
| d. Below Threshold Reprogramming | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 16,086 | |
| (U) Current Budget Submit/FY 99 Presidents Budget | 13,780 | 0* | 16,086 | TBD |

(U) Change Summary Explanation:

Funding: FY 97 1415-3 reprogramming action converted funds from O&M to RDT&E. All funds in FY 99 through 03 were converted from O&M to RDT&E to align with the actual use of the funds for development activity.

* $8,342 of FY 98 funds were reclassified to RDT&E from the O&M Appropriation.

Schedule: No change.

Technical: No change.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0708071F Joint Logistics Program - Ammunition System<br>PROJECT 4679 |

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

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) **Phase 0ne** | | | | | | | | | | | | |
| Development Contract Award | | | | X | | | | | | | | |
| Critical Design Review | | | | | | | X | | | | | |
| Full Scale Development Complete | | | | | | | | | | | | X |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708071F Joint Logistics Program - Ammunition System

PROJECT: 4679

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

| | FY 1997 | FY 1998* | FY 1999 |
|---|---|---|---|
| (U) Software Development EDS | 8,370 | 3,479 | 11,120 |
| (U) Other Govt Costs | 3,703 | 3,829 | 4,245 |
| (U) Government Furnished Equipment (GFE)/COTS | 1,707 | 830 | 0 |
| (U) GFE and COTS software update, debug, maintenance | 0 | 204 | 721 |
| (U) Total | 13,780 | 8,342 | 16,086 |

* FY 98 funds were reclassified to RDT&E from the O&M Appropriation.

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organization | | | | | | | | | | |
| EDS | Cost + Award Fee | 7 Jul 97 | $24,254 | $27,662* | -0- | $8,370* | $3,479* | $11,120* | $4,693* | $27,662* |
| Unknown | TBD | TBD | | 24,070* | -0- | -0- | -0- | -0- | 24,070* | 24,070* |
| *Includes 2% DISA fee | | | | | | | | | | |
| Support and Management Organizations: | | | | | | | | | | |
| Innolog, KPMG, MITRE, MCR | | | 12,874 | 12,874 | -0- | 2,500 | 1,790 | 1,438 | 7146 | 12,874 |
| SPO WPAFB | | | 12,777 | 12,777 | -0- | 1,103 | 1,939 | 2,407 | 7,602 | 13,051 |
| GFE and COTS software update, debug, maintenance. | TBD | TBD | 9,418 | 9,418 | -0- | | 204 | 721 | 8,493 | 9,418 |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708071F Joint Logistics Program - Ammunition System

PROJECT: 4679

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Test and Evaluation Organizations: | | | | | | | | | | |
| Army OPTEC | | | 1,000 | 1,000 | -0- | -0- | -0- | 200 | -800- | 1000 |
| IV&V | | | 1,380 | 1,380 | -0- | 100 | 100 | 200 | -980- | 1,380 |

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

**Government Furnished Property:**

| Item Description | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Delivery Date | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998* | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|
| Product Development Property | | | | | | | | | |
| COTS S/W and H/W | GSA Sc. | As Req'd | As Req'd | -0- | 1,707 | 830 | -0- | -0- | 2,537 |
| Support and Management Property | | | | | | | | | |
| COTS S/W | GSA Sch. | As Req'd | As Req'd | -0- | -0- | -0- | -0- | 3,229 | 3,229 |
| Hardware | GSA Sch. | As Req'd | As Req'd | --0- | -0- | -0- | -0- | 6,249 | 6,249 |
| Test and Evaluation Property: Shared with development resources | | | | | | | | | |
| Subtotal Product Development | | | | -0- | 10,077 | 4,309 | 11,120 | 28,763 | 54,269 |
| Subtotal Support and Management | | | | -0- | 3,603 | 3933 | 4566 | 32,719 | 44,821 |
| Subtotal Test and Evaluation | | | | -0- | 100 | 100 | 400 | 1,780 | 2,380 |
| Total Project | | | | -0- | 13,780 | 8,342 | 16,086 | 63262 | 101,470 |

* Funds have been reclassified to RDT&E from O&M Appropriation.

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD)

| | COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|
| | Total Program Element (PE) Cost | 25,329 | 3,404 | 23,010 | 23,840 | 31,506 | 32,057 | 31,087 | Continuing | Continuing |
| 3090 | Embedded Computer Resources Support Improvement Program (ESIP) | 2,913 | 2,052 | 2,344 | 2,428 | 2,419 | 3,461 | 3,523 | Continuing | Continuing |
| 3318 | Product Data Systems Modernization (PDSM) | 1,933 | 1,352 | 1,349 | 1,391 | 3,809 | 2,464 | 2,509 | Continuing | Continuing |
| 3759 | Air Force Support Equipment Management (AFSEM)** | 3,261 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | TBD |
| 4654 | Integrated Maintenance Data System (IMDS)* | 17,222 | 0* | 19,317 | 20,021 | 25,278 | 26,132 | 25,055 | Continuing | Continuing |
| | Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

* IMDS FY 98 funds ($18.541 million) reside within PE 0603108F. Beyond FY 98, all IMDS funds reside within PE 0708611F, project 4654.

** AFSEM program terminated at end of FY 97.

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

This program will develop and field an AF standard maintenance information system to integrate information systems supporting Air Force maintenance activities into a single open architecture, modern decision support system. This enhanced decision support system will increase operational production capability and support system efficiency, while decreasing mobility infrastructure requirements and cost of operations. Other projects improve support of embedded computer system software, automate and standardize weapon system support processes, establish advanced support methodologies, provide automated tools and infrastructure environments, and improve readiness support to facilitate rapid software turnaround in response to changing mission and/or threat requirements. Efforts perform research and development to update Air Force digital data standards to commercial industry standards that support the Continuous Acquisition and Life-Cycle Support (CALS) concept. This program funds the Air Force support equipment (SE) management objective to develop, support, distribute, and maintain products that improve Air Force SE acquisition. It supports the Air Force Automatic Test Systems (ATS) Product Master Plan and Air Force ATS Database to identify and evaluate all Air Force ATS for both long and short-term planning. This program is in budget activity 7 - Operational System Development, because projects are being engineered to support already operational weapon systems.

(U) **Acquisition Strategy:**

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

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD)

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget FY 1998 PB | 8,107 | 3,657 | 3,767 | Continuing |
| (U) Appropriated Value | 8,405 | 3,657 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -178 | -168 | | |
| b. SBIR | -120 | -85 | | |
| c. Omnibus or Other Above Threshold Reprogramming | 17,332 | | | |
| d. Below Threshold Reprogramming | -44 | | | |
| e. Rescissions | -66 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 19,243 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 25,329 | 3,404 | 23,010 | Continuing |

(U) Change Summary Explanation:

Funding: Funding for IMDS for FY 97 and FY 99 and outyears transferred from PE 0603108F. FY 98 funds ($19.753 million) still remain in PE 0603108F because FY 97 reclassification was approved after the FY 98 President's Budget was finalized.

Schedule: Not applicable.

Technical: Not applicable.

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Other Procurement - AF, BA 7, P-1:55, PE 0708611F (Project 3090 ESIP) | 1,645 | 1,997 | 2,632 | 2,284 | 2,322 | 2,378 | 2,434 | Cont | Cont |
| (U) O&M- AF (Project 3090, ESIP) | 11,622 | 12,096 | 10,543 | 10,989 | 14,127 | 14,391 | 14,668 | Cont | Cont |
| (U) Other Procurement - AF BA 7, P-1:55, PE 0708611F (Project 4654 IMDS) | 0 | 2,800 | 2,751 | 2,721 | 2,686 | 2,688 | 2,648 | Cont | Cont |
| (U) O&M - AF (Project 4654 IMDS) | 0 | 886 | 949 | 1,879 | 1,855 | 1,891 | 1,926 | Cont | Cont |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0708611F Support Systems Development (SSD) |

**Related RDT&E:**

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) PE 0603108F, Integrated Data Systems (IDS)* | 0 | 18,541 | 0 | 0 | 0 | 0 | 0 | Cont | Cont |

* RDT&E funds located within PE 0603108F, Project 4427, Integrated Maintenance Data Systems (IMDS).

(U) D. **Schedule Profile:**
See individual projects.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD)

PROJECT: 3090

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3090 Embedded Computer Resources Support Improvement Program (ESIP) | 2,913 | 2,052 | 2,344 | 2,428 | 2,419 | 3,461 | 3,523 | Continuing | Continuing |

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

This project conducts research to improve support of embedded computer system software. It encompasses automation and standardization of support processes, advanced support methodologies, tools and environments, and readiness support to facilitate rapid turnaround of software in response to changing mission and/or changing threat requirements. This project is in Budget Activity 7, Operational System Development, because efforts are being engineered to support already operational weapon systems.

(U) **Acquisition Strategy:**

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

(U) **FY 1997 ($ in Thousands):**

- (U) $25 Demonstrate real-time fault-tolerant software demonstration.
- (U) $1,008 Develop virtual simulator module switching unit.
- (U) $600 RF testing techniques.
- (U) $470 Enhanced Ada re-engineering demonstration.
- (U) $470 JOVIAL prototype verification and validation system.
- (U) $70 Demonstrated automated visualization capability.
- (U) $270 Advanced Avionics Verification and Validation (AAV&V).
- (U) $2,913 Total

(U) **FY 1998 ($ in Thousands):**

- (U) $130 Advanced Avionics Verification and Validation (AAV&V).
- (U) $165 Adaptive Software Technology Development (ASTD).
- (U) $255 Automated Operational Flight Program (OFP) Validation (AutoVal).
- (U) $255 Incremental Software Evolution for Real-Time (INSERT).
- (U) $390 Legacy Software Re-Engineering Technology (LSRET).
- (U) $130 Reconfigurable Avionics Computer Emulator (RACE).
- (U) $130 System Avionics Laboratory Support (SALS).
- (U) $597 Virtual Test Station (VTS).
- (U) $2,052 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0708611F Support Systems Development (SSD) |
| | PROJECT<br>3090 |

(U) **FY 1999 ($ in Thousands):**

- (U) $350 Adaptive Software Technology Development (ASTD).
- (U) $320 Automated Operational Flight Program (OFP) Validation (AutoVal).
- (U) $255 Incremental Software Evolution for Real-Time (INSERT).
- (U) $307 Legacy Software Re-Engineering Technology (LSRET).
- (U) $130 Reconfigurable Avionics Computer Emulator (RACE).
- (U) $130 System Avionics Laboratory Support (SALS).
- (U) $597 Virtual Test Station (VTS).
- (U) $255 Future Embedded Computer Systems Support Technologies (FEST)
- (U) $2,344 Total

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget FY 1998 PB | 2,913 | 2,207 | 2,391 | Continuing |
| (U) Appropriated Value | 2,975 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -62 | -109 | | |
| b. SBIR | | -46 | | |
| c. Omnibus or Other Above Threshold Reprogramming | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -47 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 2,913 | 2,052 | 2,344 | Continuing |

(U) Change Summary Explanation:

Funding: Not applicable
Schedule: Not applicable.
Technical: Not applicable.

(U) C. **Other Program Funding Summary ($ in Thousands):**
See page 2, C., Other Program Funding Summary.

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD)

PROJECT: 3090

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Demonstrate real-time fault tolerant software techniques. | | X | | | | | | | | | | |
| (U) Develop virtual simulator module switching unit. | X | | | | | | | | | | | |
| (U) RF testing techniques. | | | | X | | | | | | | | |
| (U) Enhanced Ada re-engineering demonstration. | | | | X | | | | | | | | |
| (U) Begin Advanced Avionics Verification and Validation (AAV&V). | | | X | | | | | | | | | |
| (U) Complete Advanced Avionics Verification and Validation (AAV&V). | | | | | | X | | | | | | |
| (U) JOVIAL prototype verification and validation system. | X | | | | | | | | | | | |
| (U) Demonstrate automated visualization capability. | | X | | | | | | | | | | |
| (U) Begin Automated OFP Validation (AutoVal) | | | | | X | | | | | | | |
| (U) Complete Automated OFP Validation (AutoVal) | | | | | | | | | X | | | |
| (U) Begin Incremental Software Evolution for Real-Time (INSERT). | | | | | | X | | | | | | |
| (U) Complete Incremental Software Evolution for Real-Time (INSERT). | | | | | | | | | | X | | |
| (U) Begin Legacy Software Re-Engineering Technology (LSRET). | | | | | | | X | | | | | |
| (U) Complete Legacy Software Re-Engineering Technology (LSRET). | | | | | | | | | | | X | |
| (U) Begin Virtual Test Station. | | | | | | | X | | | | | |
| (U) Complete Virtual Test Station. | | | | | | | | | | | X | |
| (U) Future Embedded Computer Systems Support Technologies (FEST) | | | | | | | | | X | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD)

PROJECT: 3090

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Demonstrate real-time fault tolerant software techniques. | 25 | | |
| (U) Develop virtual simulator module switching unit. | 1,008 | | |
| (U) RF testing techniques. | 600 | | |
| (U) Enhanced Ada re-engineering demonstration. | 470 | | |
| (U) JOVIAL prototype verification and validation system. | 470 | | |
| (U) Demonstrate automated visualization capability. | 70 | | |
| (U) Advanced Avionics Verification and Validation (AAV&V). | 270 | 130 | |
| (U) Adaptive Software Technology Development (ASTD). | | 165 | 350 |
| (U) Automated OFP Validation (AutoVal). | | 255 | 320 |
| (U) Incremental Software Evolution for Real-Time (INSERT). | | 255 | 255 |
| (U) Legacy Software Re-Engineering Technology (LSRET). | | 390 | 307 |
| (U) Reconfigurable Avionics Computer Emulator (RACE). | | 130 | 130 |
| (U) System Avionics Laboratory Support (SALS). | | 130 | 130 |
| (U) Virtual Test Station (VTS). | | 597 | 597 |
| (U) Future Embedded Computer Systems Support Technologies (FEST). | | | 255 |
| (U) Total | 2,913 | 2,052 | 2,344 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| SAIC | D.O. | Various | N/A | N/A | $2,913 | $697 | $660 | $406 | N/A | N/A |
| TASC | D.O. | Various | N/A | N/A | $1,449 | $931 | $450 | $100 | N/A | N/A |
| TRW | D.O. | Various | N/A | N/A | $1,131 | 0 | 0 | 0 | 0 | $1,131 |
| Various | Various | Various | N/A | N/A | 516 | $348 | $587 | $549 | N/A | N/A |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD)

PROJECT: 3090

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Support and Management Organizations | | | | | | | | | | |
| OO-ALC | N/A | N/A | N/A | N/A | 0 | $937 | $355 | $1,289 | N/A | N/A |
| Test and Evaluation Organizations | | | | | | | | | | |
| Not applicable. | | | | | | | | | | |
| **Government Furnished Property:** | | | | | | | | | | |
| Not applicable. | | | | | | | | | | |
| Subtotal Product Development | | | | | $6,009 | $1,976 | $1,697 | $1,055 | N/A | N/A |
| Subtotal Support and Management | | | | | 0 | $937 | $355 | $1,289 | N/A | N/A |
| Subtotal Test and Evaluation | | | | | 0 | 0 | 0 | 0 | N/A | N/A |
| Total Project | | | | | $6,009 | $2,913 | $2,052 | $2,344 | N/A | N/A |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD)

PROJECT: 3318

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3318 Product Data Systems Modernization (PDSM) | 1,933 | 1,352 | 1,349 | 1,391 | 3,809 | 2,464 | 2,509 | Continuing | Continuing |

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

This project implements digital product data management within the Air Force Integrated Weapon System Management infrastructure and ensures uninterrupted transition of functional capabilities of legacy systems to the new joint systems. This project is in Budget Activity 7, Operational System Development, because activities support development and implementation of common information system programs.

(U) **Acquisition Strategy:**

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

(U) **FY 1997 ($ in Thousands):**

- (U) $300 Manage AF technical data activities.
- (U) $265 Plan/participate/activate JEDMICS sites.
- (U) $206 Develop and maintain digital data templates for new acquisition technical orders.
- (U) $420 Plan/participate in JCALS to ensure AF requirements and schedules are met.
- (U) $474 Activate AF JCALS sites to ensure timely and accurate data is available and useable.
- (U) $208 Test digital data specifications/standards and represent AF at international standards' activities.
- (U) $60 Provide direct support to weapon systems, Logistics and Product Centers, and MAJCOMs.
- (U) $1,933 Total

(U) **FY 1998 ($ in Thousands):**

- (U) $243 Manage AF technical data activities.
- (U) $24 Plan/participate/activate/sustain JEDMICS.
- (U) $188 Develop and maintain digital data templates for new acquisition technical orders.
- (U) $253 Plan/participate in JCALS to ensure AF requirements are met.
- (U) $394 Activate AF JCALS sites to ensure timely and accurate data is available and useable.
- (U) $188 Test digital data specifications/standards and represent AF at international standards activities.
- (U) $62 Provide direct support to weapon systems, Logistics and Product Centers, and MAJCOMs.
- (U) $1,352 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD) / PROJECT: 3318 |

(U) **FY 1999 ($ in Thousands):**

| | | |
|---|---|---|
| – (U) | $232 | Manage AF technical data activities. |
| – (U) | $12 | Sustain JEDMICS. |
| – (U) | $180 | Develop and maintain digital data templates for new acquisition technical orders. |
| – (U) | $243 | Plan/participate in JCALS to ensure AF requirements are met. |
| – (U) | $449 | Activate AF JCALS sites to ensure timely and accurate data is available and useable. |
| – (U) | $180 | Test digital data specifications/standards and represent AF at international standards activities. |
| – (U) | $53 | Provide direct support to weapon systems, Logistics and Product Centers, and MAJCOMs. |
| – (U) | $1,349 | Total |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget FY 1998 PB | 1,933 | 1,450 | 1,376 | Continuing |
| (U) Appropriated Value | 1,974 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -41 | -59 | | |
| b. SBIR | | -39 | | |
| c. Omnibus or Other Above Threshold Reprogramming | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | -27 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 1,933 | 1,352 | 1,349 | Continuing |

(U) Change Summary Explanation:

Funding: Not applicable

Schedule: Not applicable.

Technical: Not applicable.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0708611F Support Systems Development (SSD) |
| | PROJECT<br>3318 |

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

Not applicable.

(U) D. Schedule Profile

Not applicable. This is a support and management level of effort program. All activities are ongoing.

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD)

PROJECT: 3318

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Manage AF technical data activities. | 300 | 243 | 232 |
| (U Plan/participate/activate JEDMICS sites. | 265 | 24 | 12 |
| (U) Test digital data specifications/standards and represent AF at international standards activities. | 208 | 188 | 180 |
| (U) Develop and maintain digital data templates for new acquisition technical orders | 206 | 188 | 180 |
| (U Plan/participate in JCALS to ensure AF requirements and schedules are met. | 420 | 253 | 243 |
| (U) Activate AF JCALS sites to ensure timely and accurate data is available and useable. | 474 | 394 | 449 |
| (U) Provide direct support to weapon systems, Logistics and Product Centers, and Major Commands (MAJCOMs). | 60 | 62 | 53 |
| (U) Total | 1,933 | 1,352 | 1,349 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Not applicable. | | | | | | | | | | |
| Support and Management Organizations | | | | | | | | | | |
| RJO | ECRC | Var | N/A | N/A | 6,684 | 597 | 418 | 416 | TBD | TBD |
| LOGTEC | GSA | Var | N/A | N/A | 10,027 | 978 | 684 | 683 | TBD | TBD |
| BTAS | 8a | Var | N/A | N/A | 0 | 358 | 250 | 250 | TBD | TBD |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0708611F Support Systems Development (SSD) — PROJECT 3318 |

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Test and Evaluation Organizations<br>Not applicable. | | | | | | | | | | |
| **Government Furnished Property:**<br>Not applicable. | | | | | | | | | | |
| Subtotal Product Development | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Subtotal Support and Management | | | | | 16,711 | 1,933 | 1,352 | 1,349 | TBD | TBD |
| Subtotal Test and Evaluation | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | | 16,711 | 1,933 | 1,352 | 1,349 | TBD | TBD |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD)

PROJECT: 3759

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 3759 Air Force Support Equipment Management (AFSEM)** | 3,261 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | TBD |

** AFSEM program terminates at end of FY 97.

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

The Automatic Test Systems (ATS) Product Group Manager (PGM) Product Master Plan (PMP) and ATS Database development effort is designed to give the ATS Product Group Manager (PGM) the tools to track and plan Air Force ATS direction. The PMP will support standardization and ATS PGM long-term planning by capturing essential data on all Air Force ATS. The Database will include all ATS identified in the PMP and be used to interface with Integrated Weapon System Master Plans. The ATS Database will also include the ATS Tracking Requirements Database. It will provide ATS users and managers the capability to determine existing ATS inventory and ATS developments. The ATS Database will be made available remotely to ATS PGM customers via Ethernet Local Area Network and be accessible on the World Wide Web. The follow-on effort to use the developed ATS Product Master Plan and ATS Database tools require specialized studies focusing on targeted ATS product lines to achieve ATS standardization and common support equipment goals. The ATS Standardization effort will accomplish analyses, development and/or acquisition plans for standardized ATS and ATS software to satisfy replacement requirements for aging/unsupportable Depot and intermediate avionics ATS, and include expansion capabilities for the addition of new weapon system requirements. Accomplishment of up-front ATS requirements analyses with a goal to provide improved logistics support for multiple weapon systems, while downsizing the Air Force ATS inventory, will ensure Air Force and DoD goals are met. This program is in Budget Activity 7, Operational System Development, because projects are being engineered to support already operational weapon systems.

(U) **Acquisition Strategy:**

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

(U) FY 1997

| | | |
|---|---|---|
| – (U) | 367 | Develop detailed Product Line Master Plans. |
| – (U) | 41 | Update ATS Database. |
| – (U) | 7 | Program Management Support. |
| – (U) | 2,846 | SPARES Project - Congressional add |
| – (U) | 3,261 | Total |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0708611F Support Systems Development (SSD) |
| | PROJECT<br>3759 |

(U) FY 1998
Not applicable. Program terminated.

(U) FY 1999
Not applicable. Program terminated.

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget FY 1998 PB | 3,261 | 0 | 0 | 3,261 |
| (U) Appropriated Value | 3,456 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | -75 | | | |
| b. SBIR | -120 | | | |
| c. Omnibus or Other Above Threshold Reprogramming | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | | |
| (U) Current Budget Submit/FY 1999 President's Budget | 3,261 | 0 | 0 | 3,261 |

(U) Change Summary Explanation:

Funding: AFSEM efforts terminated at end of FY97.

Schedule: Not applicable.

Technical: Elimination of AFSEM funding will limit the ability of the ATS PGM to track and plan ATS development efficiently.

(U) **C. Other Program Funding Summary ($ in Thousands)**
Not applicable.

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0708611F Support Systems Development (SSD) |
| | PROJECT<br>3759 |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Complete program management support | | | | X | | | | | | | | |
| (U) Complete update of ATS Database | | | | X | | | | | | | | |
| (U) Complete maintaining of ATS Database software | | | | X | | | | | | | | |
| (U) Complete development of detailed Product Line Master Plans (Continue) | | | | X | | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD)

PROJECT: 3759

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) Develop detailed Product Line Master Plans. | 367 | | |
| (U) Update ATS Database. | 41 | | |
| (U) Program Management Support. | 7 | | |
| (U) SPARES Project - Congressional add | 2,846 | | |
| (U) Total | 3,261 | | |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| General Atomics | FFP | | N/A | N/A | 0 | 2,846 | 0 | 0 | 0 | 2,846 |
| SAIC | | 16 Jul 97 | N/A | N/A | 1,120 | 408 | 0 | 0 | 0 | 1,528 |
| Various | Various | Various | N/A | N/A | 363 | 0 | 0 | 0 | 0 | 363 |
| Support and Management Organizations | | | | | | | | | | |
| PC System | Desktop V | 21 Jul 97 | N/A | N/A | 0 | 5 | 0 | 0 | 0 | 5 |
| ESC | N/A | N/A | N/A | N/A | 137 | 2 | 0 | 0 | 0 | 139 |
| Test and Evaluation Organizations | | | | | | | | | | |
| Not applicable. | | | | | | | | | | |
| **Government Furnished Property:** | | | | | | | | | | |
| Not applicable. | | | | | | | | | | |
| Subtotal Product Development | | | | | 1,483 | 3,254 | 0 | 0 | 0 | 4,737 |
| Subtotal Support and Management | | | | | 137 | 7 | 0 | 0 | 0 | 144 |
| Subtotal Test and Evaluation | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | | 1,620 | 3,261 | 0 | 0 | 0 | 4,881 |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD)

PROJECT: 4654

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4654 Integrated Maintenance Data System (IMDS)* | 17,222 | 0* | 19,317 | 20,021 | 25,278 | 26,132 | 25,055 | Continuing | Continuing |

* IMDS FY 98 funds ($18.541 million) reside within PE 0603108F. Beyond FY 98, all IMDS funds reside within PE 0708611F, project 4654.

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

The IMDS program is an evolutionary acquisition program to develop and field an AF standard maintenance information system. This program element integrates information systems supporting Air Force maintenance activities into a single open architecture, modern decision support system. This enhanced decision support system will increase operational production capability and support system efficiency, while decreasing mobility infrastructure requirements and cost of operations. The IMDS System will be integrated with the Combat Support Information System (CSIS) being developed by the Global Combat Support System – Air Force (GCSS-AF) Program. IMDS integrates multiple and diverse maintenance Management Information Systems into a single open system client/server network. IMDS will provide a single virtual data repository for access by all Air Force command levels. Full IMDS capability is reached through six increments of the application software, each increment building on the previous one. The first increment entered test at Eglin AFB July 97 after one year of development. The second increment will enter test in Summer 98 with delivery starting to the field in 2nd Quarter FY98. Increments 1&2 establish core capabilities at the retail level. Increment 3 starts wholesale level functionality as well as continued expansion of retail capabilities. This program is Budget Activity 7, Operational System Development, because projects are being engineered to support already operational weapon systems.

(U) **Acquisition Strategy:**

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

(U) **FY 1997 ($ in Thousands):**

- (U) IMDS system contract
- (U) $12,419 Increment 1 (development &fielding of base-level beta version to Eglin AFB, migration of TICARRS (The Interim CAMS (Core Automated Maintenance System) and REMIS (Reliability and Maintainability Information System) Reporting System) functionality)
- (U) $900 Increment 2 (enhancement of beta version to core required capabilities for Eglin AFB, and Operational Test at Moody AFB)
- (U) Operations
- (U) $2,078 Support Contractors (technical engineering & management support)
- (U) $1,825 SPO Operations (TDY, equipment, & supply)
- (U) $17,222 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE: February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD) / PROJECT: 4654 |

(U) **FY 1998 ($ in Thousands) (funding resides within PE 0603108F, project 4427):**

| | | |
|---|---|---|
| – (U) | | IMDS system contract |
| – (U) | $13,511 | Increment 2 (continue enhancement of beta version to core required capabilities for Eglin AFB, and Operational Test at Moody AFB) |
| – (U) | $788 | Increment 3 (enhancement of backshop/full base-level requirements, initiation of REMIS (Reliability and Maintainability Information System) replacement) |
| – (U) | | Operations |
| – (U) | 2,459 | Support Contractors (technical engineering & management support) |
| – (U) | 1,783 | SPO Operations (TDY, equipment, & supply) |
| – (U) | $18,541 | Total |

(U) **FY 1999 ($ in Thousands):**

| | | |
|---|---|---|
| – (U) | | IMDS system contract |
| – (U) | $13,009 | Increment 3 (continue enhancement of backshop/full base-level requirements, initiation of REMIS (Reliability and Maintainability Information System) replacement) |
| – (U) | $3,300 | Increment 4 (Complete REMIS functionality, initiate depot maintenance capabilities) |
| – (U) | | Operations |
| – (U) | 1,797 | Support Contractors (technical engineering & management support) |
| – (U) | 1,211 | SPO Operations (TDY, equipment, & supply) |
| – (U) | $19,317 | Total |

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 EXHIBIT)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD)

PROJECT: 4654

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

| | FY 1997 | FY 1998* | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget FY 1998 PB | 0 | 0 | 0 | Continuing |
| (U) Appropriated Value | 0 | | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Congressional/General Reductions | | | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogramming | 17332 | | | |
| d. Below Threshold Reprogramming | -44 | | | |
| e. Rescissions | -66 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | 19,317 | |
| (U) Current Budget Submit/FY 1999 President's Budget | 17,222 | 0 | 19,317 | Continuing |

(U) Change Summary Explanation:

Funding: * IMDS FY 98 funds ($18.541 million) reside within PE 0603108F. Beyond FY 98, all IMDS funds reside within PE 0708611F, project 4654.

Schedule: OT&E delayed one year due to funding cuts and Quadrennial Defense Review (QDR) impacts to beta sites and requirements changes.

Technical: Not applicable.

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

See page 2, C., Other Program Funding Summary.

(U) **D. Schedule Profile**

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Complete Development of IMDS core capability | | | | | | | X | | | | | |
| (U) OT&E Core (Increments 1, 2, & 3) | | | | | | | | | | | X | |
| (U) IMDS System Contract (Inc 3) | | | | | | | | X | | | | |
| (U) IMDS System Contract (Inc 4) | | | | | | | | | | | | X |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE: February 1998 |
|---|---|
| BUDGET ACTIVITY: 7 - Operational System Development | PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD) / PROJECT: 4654 |

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

| | FY 1997 | FY 1998* | FY 1999 |
|---|---|---|---|
| (U) IMDS System Contract | 12,419 | | |
| Increment 1 | 900 | 13,511 | |
| Increment 2 | | 788 | 13,009 |
| Increment 3 | | | 3,300 |
| Increment 4 | | | |
| (U) Operations | | | |
| Support Contractors | 2,078 | 2,459 | 1,797 |
| SPO Operations | 1,825 | 1,783 | 1,211 |
| (U) Total | 17,222 | 18,541 | 19,317 |

* IMDS FY 98 funds ($18.541 million) reside within PE 0603108F. Beyond FY 98, all IMDS funds reside within PE 0708611F, project 4654.

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0708611F Support Systems Development (SSD) |
| | PROJECT<br>4654 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| Andersen Consulting | CPAF | 19 Jul 96 | N/A | N/A | 8,628 | 13,319 | 15,511 | 16,309 | TBD | TBD |
| Support and Management Organizations | | | | | | | | | | |
| MITRE | | Var | N/A | N/A | 2,548 | 1,018 | 1,010 | 640 | TBD | TBD |
| TEMS | | Var | N/A | N/A | 3,225 | 1,060 | 1,449 | 1,157 | TBD | TBD |
| ESC | N/A | N/A | N/A | N/A | 8,189 | 1,825 | 571 | 1,211 | TBD | TBD |
| Test and Evaluation Organizations | | | | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0708611F Support Systems Development (SSD)

PROJECT: 4654

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| **Government Furnished Property:** Not applicable. | | | | | | | | | | |
| Subtotal Product Development | | | | | 8,628 | 13,319 | 15,511 | 16,309 | TBD | TBD |
| Subtotal Support and Management | | | | | 13,962 | 3,903 | 3,030 | 3,008 | TBD | TBD |
| Subtotal Test and Evaluation | | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Project | | | | | 22,590 | 17,222 | 18,541 | 19,317 | TBD | TBD |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0804734F Cryptologic/SIGINT Related Skill Training

PROJECT: 1005

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 1005 Sentinel Bright Phase II | 1,778 | 1,258 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

Provides funding required for the SENTINEL II (SII) Integration Program which is designed to complete the software development begun under SENTINEL BRIGHT II (SBII) and to automate and integrate the commercial off-the-shelf hardware and software purchased for SBII and SENTINEL ASPEN II (SAII) systems. SBII supports cryptologic analysts and maintenance personnel; SAII supports general military intelligence personnel. This program parallels the fielding of modernized operational intelligence systems and corrects long-standing deficiencies in training "mission ready" intelligence professionals. During FY 97, the program was refocused to a COTS integration effort. The remainder of the development effort will support COTS integration, and if COTS products do not satisfy requirements, development will be required. System integration will be completed in FY98. This program is in Budget Activity 7 because it is developing an automated training system/software which will be used to train intelligence professionals to accomplish their mission.

(U) **Acquisition Strategy:** SII was a modernization effort originally phased in blocks. During FY 97, the AF realized they could get a better product for the same amount of funding by using a COTS strategy, so they started using the IC4I contract which has three prime contractors. Bids will be solicited from each contractor on the IC4I contract for each phase of the COTS acquisition. The strategy is to use a spiral acquisition process, allowing for maximum upgrade capability and maintaining commonality with other training systems already in use at Goodfellow AFB while keeping requirements flexible and budget fixed.

(U) FY 1997 ($ in Thousands):

| | |
|---|---|
| (U) $150 | SENTINEL II Contract: Maintained contractor's development facility/test bed |
| (U) $400 | MITRE: Provided engineering support, operational requirements analysis, integration management, and risk assessment |
| (U) $100 | 46th Test Squadron: Provided test support for DT&E efforts |
| (U) $125 | Program Office: Included various types of administrative support, including mission travel |
| (U) $1,003 | IC4I Contract: Supported integration/extension of COTS products to meet requirements and development when COTS products alone did not satisfy requirements |
| (U) $1,778 | Total |

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0804734F Cryptologic/SIGINT Related Skill Training |
| | PROJECT<br>1005 |

(U) FY 1998 ($ in Thousands):

| | |
|---|---|
| (U) $647 | IC4I Contract: Will complete COTS integration and development required to meet SII requirements |
| (U) $477 | MITRE: Will provide engineering support, operational requirements analysis, integration management, and risk assessment |
| (U) $134 | Program Office: Will include various types of administrative support including mission travel |
| (U) $1,258 | Total |

(U) FY 1999 ($ in Thousands):

| | |
|---|---|
| (U) $0 | Total |

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 1,781 | 1,427 | 0 | 7,900 |
| (U) Appropriated Value | 1,887 | 1,427 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Reductions | -65 | -145 | | |
| b. SBIR | -41 | -24 | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Recissions | -3 | | | |
| (U) Current Budget Submit/FY 1999 President's Budget | 1,778 | 1,258 | 0 | 7,330 |

(U) Change Summary Explanation:

Funding: Changes due to Congressional reductions

Schedule: None

Technical: None

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

Not Applicable

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0804734F Cryptologic/SIGINT Related Skill Training<br>PROJECT 1005 |

(U) D. Schedule Profile

| | FY 1997 | | | | FY 1998 | | | | FY 1999 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) Draft ORD | | | | X | | | | | | | | |
| (U) Begin SENTINEL STAR (SENTINEL Tech Arch and Replacement) Mods | | | | X | | | | | | | | |
| (U) Network Upgrade | | | | | X | | | | | | | |
| (U) Final ORD | | | | | X | | | | | | | |
| (U) COTS/Hardware Prototype | | | | | | | X | | | | | |
| (U) Install Classrooms | | | | | | | | | X | | | |

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0804734F Cryptologic/SIGINT Related Skill Training<br>PROJECT 1005 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) System Upgrade | 1,003 | 647 | 0 |
| (U) System Engineering Development | 400 | 477 | |
| (U) Travel | 40 | 50 | |
| (U) Program Office Support | 85 | 84 | |
| (U) Test and Evaluation | 100 | 0 | |
| (U) Contract Development Facility | 150 | 0 | |
| (U) Total | 1,778 | 1,258 | 0 |

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

**Performing Organizations:**

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Product Development Organizations | | | | | | | | | | |
| (U) E-Systems | CPAF | Mar 93 | N/A | N/A | 2,184 | 150 | 0 | 0 | 0 | 2,334 |
| (U) IC4I Contract | IDIQ | Apr 98 | TBD | TBD | 0 | 1,003 | 647 | 0 | 0 | 1,650 |
| Support and Management Organizations | | | | | | | | | | |
| (U) Program Support | N/A | N/A | N/A | N/A | 564 | 125 | 134 | 0 | 0 | 823 |
| (U) MITRE | T&M | Mar 93 | N/A | N/A | 1,546 | 400 | 477 | 0 | 0 | 2,423 |
| Test and Evaluation Organizations | | | | | | | | | | |

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0804734F Cryptologic/SIGINT Related Skill Training

PROJECT: 1005

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| (U) 46th Test Sqdn | AF Form 616 | TBD | N/A | N/A | 0 | 100 | 0 | 0 | 0 | 100 |

**Government Furnished Property:** None

| | | | | | | |
|---|---|---|---|---|---|---|
| Subtotal Product Development | 2,184 | 1,153 | 647 | 0 | 0 | 3,984 |
| Subtotal Support and Management | 2,110 | 525 | 611 | 0 | 0 | 3,246 |
| Subtotal Test and Evaluation | 0 | 100 | 0 | 0 | 0 | 100 |
| Total Project | 4,294 | 1,778 | 1,258 | 0 | 0 | 7,330 |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0901218F Civilian Compensation Program

PROJECT: 4139

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 4139 Security Require Determination | 6,261 | 6,285 | 6,756 | 6,973 | 7,210 | 7,119 | 7,149 | 0 | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

This program element provides for payment of civilian compensation benefits for disability due to personal injury sustained while in the performance of duty or due to employment-related disease according to the Federal Employees Compensation Act (FECA) under Title 5 U.S.C., Chapter 81. The Department of Labor (DOL) administers this program and charges the Department of the Air Force for its employee costs; therefore, this is a MUST PAY bill for Air Force. The PE excludes manpower authorizations and costs.

**Acquisition Strategy:**

(U) FY 1997 ($ in Thousands):
- (U) $6,261 Required to continue a program to compensate employees assigned to RDT&E facilities for worked-related injury or disease.
- (U) $6,261* Total (Actual AF bill)

(U) FY 1998 ($ in Thousands):
- (U) $6,285 Required to continue a program to compensate employees assigned to RDT&E facilities for worked-related injury or disease
- (U) $6,285 Total

(U) FY 1999 ($ in Thousands):
- (U) $6,756 Required to continue a program to compensate employees assigned to RDT&E facilities for worked-related injury or disease
- (U) $6,756 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>0901218F Civilian Compensation Program<br>PROJECT 4139 |

(U) B. Program Change Summary ($ in Thousands)

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget | 5,793 | 6,497 | 6,756 | TBD |
| (U) Appropriated Value | 5,917 | 6,497 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | -124 | -212 | | |
| b. SBIR | | | | |
| c. Omnibus or Other Above Threshold Reprogram | | | | |
| d. Below Threshold Reprogramming | 468 | | | |
| e. Recission | | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | | |
| (U) Current Budget Submit/ FY 1999 President's Budget | 6,261 | 6,285 | 6,756 | TBD |

(U) Change Summary Explanation:

Funding: Decreases in FY98 (-212) for civilian injury and unemployment compensation costs are due to medical inflation decreases and Consumer Price Index (CPI) decreases. This information was provided by the Department of Labor (DOL) based on their analysis of FY 97 Federal Employees Compensation Act (FECA) Chargeback costs. DOL administers this program and charges the Air Force for its employee's compensation costs; therefore, both programs are MUST PAY bills mandated by law (5 USC, Chapter 81).

Schedule: N/A

Technical: N/A

# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 0901218F Civilian Compensation Program

PROJECT: 4139

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

| | FY 1997 | FY 1998 | FY 1999 | FY 2000 | FY 2001 | FY 2002 | FY 2003 | To Compl | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Operation and Maintenance | 21,283 | 21,562 | 22,355 | 22,679 | 23,528 | 25,245 | 25,759 | 0 | TBD |

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# RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 1001018F NATO JSTARS

PROJECT: 0002

| COST ($ In Thousands) | FY 1997 Actual | FY 1998 Estimate | FY 1999 Estimate | FY 2000 Estimate | FY 2001 Estimate | FY 2002 Estimate | FY 2003 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| 0002 NATO JSTARS | 5,975* | 26,061 | 0 | 0 | 0 | 0 | 0 | 0 | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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

NATO initiated the Alliance Ground Surveillance (AGS) program to provide NATO commanders near-real time surveillance and targeting information on moving and stationary ground targets (growth to maritime operations), slow moving rotary and fixed wing aircraft, and rotating antennas from airborne platforms. To meet these needs, the US proposed a "Fast Track" strategy comprised of the modification and enhancement of the US Joint Surveillance Target Attack Radar System (Joint STARS). The Conference of National Armament Directors (CNAD) postponed a decision on Alliance Ground Surveillance (AGS), directed the NATO Project Structure to intensively search for fresh concepts and acquisition options to meet the complete AGS capability, and report these new options at the April 1998 CNAD. The United States, in response to this direction, has proposed an option whereby NATO would develop and procure a system based on the ongoing US Joint STARS Radar Technology Insertion Program (RTIP) contained on a platform of NATO's choice. The US is conduction a feasibility study of this option during FY1998.

An evaluation of the tasks required to support the Government's ongoing efforts to find new alternatives resulted in a contract change proposal to the NATO Phase IV Study extending the period of performance through 31 May 1998 in lieu of January 1998 for support of additional tasks requested by OSD and for continuation of NATO Consultation Command and Control Agency (NC3A) activities. The NATO AGS Integrated Product Team (IPT) has determined that it is premature to develop and award a major new study effort prior to the next CNAD meeting. This program is in Budget Activity 7, Operational System Development, because it involves development on a system that has been operationally fielded.

(U) Acquisition Strategy -The U.S. and other NATO nations are developing fresh concepts and acquisition options to meet the AGS requirements, giving due consideration to an air segment made up of both NATO-owned and national assets, and a NATO-owned ground segment. The CNAD stipulated that these options be prepared for presentation to, and consideration by, the CNAD at its April 1998 meeting.

(U) FY 1997 ($ in Thousands)

- (U) $3,782 NATO Studies
- (U) $25 Provisional Project Office
- (U) $2,168 Other Government Costs (ESC/JPO Support)
- (U) $5,975 Total

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>1001018F NATO JSTARS |
| | PROJECT<br>0002 |

(U) FY 1998 ($ in Thousands)

- (U) $2,086 NATO Studies
- (U) $100 Provisional Project Office
- (U) $2,905 Other Government Cost (ESC/JPO Support)
- (U) $19,000 Pending Approval for Above Threshold Reprogramming
- (U) **$24,091** **Total**

(U) FY 1999 ($ in Thousands)

- (U) $0 Total

**(Note: FY99 budget is established at $0)**

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

| | FY 1997 | FY 1998 | FY 1999 | Total Cost |
|---|---|---|---|---|
| (U) Previous President's Budget (FY 1998 PB) | 0 | 36,061 | 0 | |
| (U) Appropriated Value | 0 | 26,061 | | |
| (U) Adjustments to Appropriated Value | | | | |
| a. Cong Gen Reductions | -25 | -1355 | | |
| b. SBIR | -158 | -615 | | |
| c. Omnibus or Other Above Threshold Reprogram | *6,168 | | | |
| d. Below Threshold Reprogramming | | | | |
| e. Rescissions | -10 | | | |
| (U) Adjustments to Budget Years Since FY 1998 PB | | | | |
| (U) Current Budget Submit/FY 1999 President's Budget | 5,975 | **24,091 | 0 | |

(U) Change Summary Explanation:

(U) Funding: *FY97 Appropriation Act provided $6.3 Million for Joint STARS, PE64770, in support of the initial NATO AGS effort. Funds were reclassified (1415-3) from PE 64770F into A1018F. **Portion of current budget ($19,000) awaiting AF reprogramming.

(U) Schedule: None

(U) Technical: None

| RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit) | DATE February 1998 |
|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>1001018F NATO JSTARS |
| | PROJECT<br>0002 |

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

None.

(U) D. Schedule Profile

| | FY 1998 | | | | FY 1999 | | | | FY 2000 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| (U) CNAD Decision | | | X | | | | | | | | | |
| (U) Completion of Phase IV | | | X | | | | | | | | | |

Legend:
X- Denotes Planned Activity
* - Denotes Completed Activity

| RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3) | | DATE February 1998 |
|---|---|---|
| BUDGET ACTIVITY<br>7 - Operational System Development | PE NUMBER AND TITLE<br>1001018F NATO JSTARS | PROJECT<br>0002 |

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

| | FY 1997 | FY 1998 | FY 1999 |
|---|---|---|---|
| (U) NATO Studies | 3,782 | 2,086 | 0 |
| (U) Provisional Project Office (PPO) | 25 | 100 | 0 |
| (U) Other Government Costs | 2,168 | 2,905 | 0 |
| (U) Awaiting AF Reprogramming Actions | | 19,000 | |
| (U) Total | 5,975 | 24,091 | 0 |

**NOTE: FY1999 and out budgets will be dependent upon CNAD decision in Apr 98.**

# RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 1998

BUDGET ACTIVITY: 7 - Operational System Development

PE NUMBER AND TITLE: 1001018F NATO JSTARS

PROJECT: 0002

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

Performing Organizations:

| Contractor or Government Performing Activity | Contract Method/Type or Funding Vehicle | Award or Obligation Date | Performing Activity EAC | Project Office EAC | Total Prior to FY 1997 | Budget FY 1997 | Budget FY 1998 | Budget FY 1999 | Budget to Complete | Total Program |
|---|---|---|---|---|---|---|---|---|---|---|
| Northrop Grumman | Fixed Price | Apr 96 | | | 2,478 | 0 | 0 | 0 | 0 | 2,478 |
| Rome Labs | Fixed Price | Sep 96 | | | 485 | 0 | 0 | 0 | 0 | 485 |
| Northrop Grumman | Fixed Price | Jan 97 | | | | 3,782 | 0 | 0 | 0 | 3,782 |
| Northrop Grumman | TBD | Jan 98 | | | | | 2,086 | 0 | 0 | 2000 |
| Various Contracts | TBD | | | | | | *19,000 | | | |
| Product Development Organizations | | | | | | | | | | |
| ESC (Provisional Project Office) | | | | | | | 100 | | | 100 |
| Support and Management Organizations | | | | | | | | | | |
| MITRE | Cost Plus Award Fee | Oct 94/ Jun 96 | | | 518 | 739 | 785 | | | |
| TEMS | IDIQ | Mar - May 96 | | | 476 | 757 | 1,197 | | | |
| Miscellaneous | Various Contracts | | | | 324 | 697 | 923 | | | |
| Total Project | | | | | 4,281 | 5,975 | 24,091 | | | |

Test and Evaluation Organizations

**Government Furnished Property:** None

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