PE NUMBER: 0604740F
PE TITLE: Integrated Command & Control Applications

| Exhibit R-2, RDT&E Budget Item Justification | | | | | | | DATE February 2006 | | |
|---|---|---|---|---|---|---|---|---|---|
| BUDGET ACTIVITY 05 System Development and Demonstration (SDD) | | | | | PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications | | | | |
| Cost ($ in Millions) | FY 2005 Actual | FY 2006 Estimate | FY 2007 Estimate | FY 2008 Estimate | FY 2009 Estimate | FY 2010 Estimate | FY 2011 Estimate | Cost to Complete | Total |
| Total Program Element (PE) Cost | 21.279 | 18.872 | 0.167 | 0.188 | 0.178 | 0.182 | 0.206 | Continuing | TBD |
| 2523    Product Lines | 0.258 | 0.161 | 0.167 | 0.188 | 0.178 | 0.182 | 0.206 | Continuing | TBD |
| 2524    Reuse and Component Support | 21.021 | 18.711 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | TBD |

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

The goal of the Integrated Command & Control Applications (IC2A) program is to reduce the development time, costs, and risks associated with the acquisition and development of an enterprise oriented Command & Control (C2) capability by defining a reference architecture to enhance a common application use and reuse.

Project 2523, Product Lines, minimizes development cost and time by defining a C2 architecture approach consistent with net-centric principles and guidance to ensure compliance and interoperability using standards based service oriented architecture components.  The use of web services as a common product line on a C2 reference architecture improves software quality, interoperability and reliability while reducing fielding times and overall life cycle costs.

Project 2524, Reuse and Component Support (RCS), identifies, develops, tests and provides re-useable software components and products to the IC2A program and to other programmed Systems of Record.  The RCS project is developing re-useable software components based current on Service Oriented Architectures and Web Services that will allow the AF to achieve a net-centric operations and warfare capability.

The IC2A program has determined that over 80% of the functionality of any command center software is common to all command centers for programs using product line concepts based on a C2 reference architecture.

This program is categorized as Budget Activity (BA) 5 to reflect a program in System Demonstration and Development (SD&D).

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

| | FY 2005 | FY 2006 | FY 2007 |
|---|---|---|---|
| (U)    Previous President's Budget | 0.258 | 0.161 | 0.264 |
| (U)    Current PBR/President's Budget | 21.279 | 18.872 | 0.167 |
| (U)    Total Adjustments | 21.021 | 18.711 | |
| (U)    Congressional Program Reductions | -0.016 | -0.016 | |
|         Congressional Rescissions | -0.266 | -0.273 | |
|         Congressional Increases | 21.900 | 19.000 | |
|         Reprogrammings | | | |
|         SBIR/STTR Transfer | -0.597 | | |

(U)    Significant Program Changes:

In FY06, Congress added $19.0M for:  1) Air Force Electronic Systems Command/National Product Line Asset Center (NPLACE), 2) Airborne Web Services (AWS), 3)

| Exhibit R-2, RDT&E Budget Item Justification | DATE February 2006 |
|---|---|
| BUDGET ACTIVITY<br>**05 System Development and Demonstration (SDD)** | PE NUMBER AND TITLE<br>**0604740F Integrated Command & Control Applications** |

Asset Source for Software Engineering Technology eWing Program (ASSET), 4) Distributed Mission Interoperability Toolkit (DMIT), 5) Enterprise Services for Reachback Capabilities, 6) Global Awareness Presentation System (GAPS), 7) Integration of Force Protection Enterprise System, and 8) Net-Centric Information Visualization Services (NIVS).

| Exhibit R-2a, RDT&E Project Justification | | DATE February 2006 |
|---|---|---|

| BUDGET ACTIVITY 05 System Development and Demonstration (SDD) | PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications | PROJECT NUMBER AND TITLE 2523 Product Lines |
|---|---|---|

| Cost ($ in Millions) | FY 2005 Actual | FY 2006 Estimate | FY 2007 Estimate | FY 2008 Estimate | FY 2009 Estimate | FY 2010 Estimate | FY 2011 Estimate | Cost to Complete | Total |
|---|---|---|---|---|---|---|---|---|---|
| 2523    Product Lines | 0.258 | 0.161 | 0.167 | 0.188 | 0.178 | 0.182 | 0.206 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |

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

The software architecture, developed by the Product Lines Project, forms a vital component of the Integrated Command and Control Applications (IC2A) program by providing pre-defined reference architecture as a foundation for a DoD enterprise C2 capability.  Using rapid prototyping techniques, a contractor can quickly tailor a reference architecture-based C2 component to the warfighter's needs and deliver an integrated, combat-ready system.  All product lines and components are based on net-centric principles, service oriented architecture and Core Enterprise Services to ensure joint compliance and interoperability; make maximum use of open system architectures, industry standards, Commercial off-the-shelf (COTS) products, and government furnished equipment; and incorporate multilevel security (MLS) features.  This effort ensures that components and systems are developed with a view of operating within a C2 enterprise instead of stovepipe functionality. Contractors develop and maintain a common integrated infrastructure in a collaborative, synergistic environment using validated, mature software engineering processes to help ensure the quality of the designs and components. Reference architecture based designs and tested software components reduce development costs, risks and time for the user.  New technologies, capabilities, and incremental developments are assessed and integrated into the architecture and components design as part of the product line development process to minimize any impact to the user.

This program is categorized as Budget Activity (BA) 5 to reflect a program in System Demonstration and Development (SD&D).

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

| | FY 2005 | FY 2006 | FY 2007 |
|---|---|---|---|
| (U)    Qualify components for product lines/program management support | 0.258 | 0.161 | 0.167 |
| (U)    Total Cost | 0.258 | 0.161 | 0.167 |

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

| | FY 2005 Actual | FY 2006 Estimate | FY 2007 Estimate | FY 2008 Estimate | FY 2009 Estimate | FY 2010 Estimate | FY 2011 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U)    Not applicable | | | | | | | | | |

**(U)    D. Acquisition Strategy**

All major contracts within  PE 0604740F were awarded after full and open competition.

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| Exhibit R-3, RDT&E Project Cost Analysis | | | | | | | | | | | DATE February 2006 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

| BUDGET ACTIVITY 05 System Development and Demonstration (SDD) | PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications | PROJECT NUMBER AND TITLE 2523 Product Lines |
|---|---|---|

| (U) Cost Categories (Tailor to WBS, or System/Item Requirements) ($ in Millions) | Contract Method & Type | Performing Activity & Location | Total Prior to FY 2005 Cost | FY 2005 Cost | FY 2005 Award Date | FY 2006 Cost | FY 2006 Award Date | FY 2007 Cost | FY 2007 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (U) Product Development | | | | | | | | | | | 0.000 | |
| Subtotal Product Development | | | 0.000 | 0.000 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.000 |
| Remarks: | | | | | | | | | | | | |
| (U) Support | | | | | | | | | | | 0.000 | |
| Subtotal Support | | | 0.000 | 0.000 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.000 |
| Remarks: | | | | | | | | | | | | |
| (U) Test & Evaluation | | | | | | | | | | | 0.000 | |
| Subtotal Test & Evaluation | | | 0.000 | 0.000 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.000 |
| Remarks: | | | | | | | | | | | | |
| (U) Management | | | | | | | | | | | | |
| Program Office Support | ITSP | ESC Hanscom AFB, MA | | 0.258 | Oct-04 | 0.161 | Oct-05 | 0.167 | Oct-06 | Continuing | TBD | TBD |
| Subtotal Management | | | 0.000 | 0.258 | | 0.161 | | 0.167 | | Continuing | TBD | TBD |
| Remarks: | | | | | | | | | | | | |
| (U) Total Cost | | | 0.000 | 0.258 | | 0.161 | | 0.167 | | Continuing | TBD | TBD |

Project 2523　　　　R-1 Shopping List - Item No. 89-5 of 89-13　　　　Exhibit R-3 (PE 0604740F)

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| Exhibit R-4, RDT&E Schedule Profile | DATE February 2006 |
|---|---|

| BUDGET ACTIVITY 05 System Development and Demonstration (SDD) | PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications | PROJECT NUMBER AND TITLE 2523 Product Lines |
|---|---|---|

## IC2A Schedule – Product Lines

As of: 10 JAN 06

| | FY05 | FY06 | FY07 | FY08 | FY09 | FY10 | FY11 |
|---|---|---|---|---|---|---|---|
| PROGRAM MANAGEMENT SUPPORT | | | | | | | → |

| Exhibit R-4a, RDT&E Schedule Detail | DATE **February 2006** |
|---|---|

| BUDGET ACTIVITY **05 System Development and Demonstration (SDD)** | PE NUMBER AND TITLE **0604740F Integrated Command & Control Applications** | PROJECT NUMBER AND TITLE **2523 Product Lines** |
|---|---|---|

| (U)   **Schedule Profile** | FY 2005 | FY 2006 | FY 2007 |
|---|---|---|---|
| (U)   Qualify components for product lines/program management support | 1-4Q | 1-4Q | 1-4Q |

Project 2523                R-1 Shopping List - Item No. 89-7 of 89-13                Exhibit R-4a (PE 0604740F)

| Exhibit R-2a, RDT&E Project Justification | | | | | | DATE February 2006 | | | |
|---|---|---|---|---|---|---|---|---|---|

| BUDGET ACTIVITY 05 System Development and Demonstration (SDD) | | | | PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications | | | PROJECT NUMBER AND TITLE 2524 Reuse and Component Support | | |
|---|---|---|---|---|---|---|---|---|---|

| Cost ($ in Millions) | FY 2005 Actual | FY 2006 Estimate | FY 2007 Estimate | FY 2008 Estimate | FY 2009 Estimate | FY 2010 Estimate | FY 2011 Estimate | Cost to Complete | Total |
|---|---|---|---|---|---|---|---|---|---|
| 2524    Reuse and Component Support | 21.021 | 18.711 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | TBD |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |

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

Reuse and Component Support (RCS) identifies, develops, tests and provides reuseable software components and products to the IC2A program and to other programmed Systems of Record.  The RCS project is developing reuseable software components based on Service Oriented Architectures and Web Services that will allow the AF to achieve a netcentric operations and warfare capability.  The components that are being developed are consistent with the Department of Defense Architecture Framework, the Air Force Architecture, Constellation Net, etc.  Further, these components are using guidance from the Net Centric Enterprise Services/Joint C2 (NCES/JC2) program as well as Net Centric Enterprise Solutions for Interoperability (NESI) and the C2 Enterprise Reference Architecture (C2ERA) to ensure long term viability as the AF moves towards a net centric operations capability.  These components consist of:

Airborne Web Services (AWS) - a series of web services for the AWACS and JSTARS programs to allow the exchange of data between the aircraft and ground users.

Asset Source for Software Engineering Technology/eWing (ASSET/eWing) - will provide fused Force Protection sensor data via web services using a Service Oriented Architecture.

Data Fusion and Integration of the Net-centric Force Protection Capability - will provide fused publish/subscribe services, an archive capability for the force protection community of interest.

Distributed Mission Interoperability Toolkit (DMIT) -  provides a service oriented architecture based communication, presence, and data compression capability at the infrastructure level.

Enterprise Service Reachback Capability  (ESRBC) - will provide access to multiple scenarios that will facilitate training and exercise networks to be established more quickly.

Global Awareness Presentation System (GAPS) - a visualization system that provides fused situational awareness and strategic information to commanders at US Strategic Command.

Air Force Electronic Systems Command/National Product Line Asset Center (NPLACE) - provides a development and test facility for various web services and service oriented architecture reference implementations.

Net Centric Information Visualization Services (NVIS) - will establish a framework and reference implementation for visualization geospatial data from satellite to personal view/perspective.

This program is categorized as Budget Activity (BA) 5 to reflect a program in System Demonstration and Development (SD&D)

| Exhibit R-2a, RDT&E Project Justification | | DATE February 2006 |
|---|---|---|
| BUDGET ACTIVITY **05 System Development and Demonstration (SDD)** | PE NUMBER AND TITLE **0604740F Integrated Command & Control Applications** | PROJECT NUMBER AND TITLE **2524 Reuse and Component Support** |

| **(U)** **B. Accomplishments/Planned Program ($ in Millions)** | FY 2005 | FY 2006 | FY 2007 |
|---|---|---|---|
| (U)   NPLACE | 2.497 | 2.455 | |
| (U)   ATIS eWING, JSTARS, C2 Mgr for AFSOC (FY05) | 6.635 | | |
| (U)   3D Viz  Services, IGEMS, GAPS (FY05) | 6.929 | | |
| (U)   Distributed Mission Interoperability Toolkit (DMIT) | 4.960 | 4.920 | |
| (U)   Enterprise Services for Reach Back Capabilities (ESRBC) | | 1.773 | |
| (U)   Data Fusion and Integration of the Net-centric Force Protection Enterprise Services (DFFP) | | 1.680 | |
| (U)   Airborne Web Services (AWS) Spiral 3 | | 1.679 | |
| (U)   Net-Centric Information Visualization Services (NVIS) aka SALVO | | 0.988 | |
| (U)   Global Awareness Presentation System (GAPS) for USSTRATCOM | | 0.988 | |
| (U)   Asset/eWing | | 4.228 | |
| (U)   Total Cost | 21.021 | 18.711 | 0.000 |

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

| | FY 2005 Actual | FY 2006 Estimate | FY 2007 Estimate | FY 2008 Estimate | FY 2009 Estimate | FY 2010 Estimate | FY 2011 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U)   Not applicable | | | | | | | | | |

**(U)  D. Acquisition Strategy**

All major contracts for Reuse and Component Support development will be awarded after full and open competition.

| Exhibit R-3, RDT&E Project Cost Analysis | DATE **February 2006** |
|---|---|

| BUDGET ACTIVITY **05 System Development and Demonstration (SDD)** | PE NUMBER AND TITLE **0604740F Integrated Command & Control Applications** | PROJECT NUMBER AND TITLE **2524 Reuse and Component Support** |
|---|---|---|

| (U) Cost Categories (Tailor to WBS, or System/Item Requirements) ($ in Millions) | Contract Method & Type | Performing Activity & Location | Total Prior to FY 2005 Cost | FY 2005 Cost | FY 2005 Award Date | FY 2006 Cost | FY 2006 Award Date | FY 2007 Cost | FY 2007 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (U) Product Development | | | | | | | | | | | | |
| NPLACE | C/FFP | West Virginia High Technology Center, West Virginia | | 2.300 | Feb-05 | 2.297 | Feb-06 | | | Continuing | TBD | TBD |
| ATIS eWING, JSTARS, C2 Manager for AFSOC | C/FFP | SAIC West Virginia | | 6.021 | Feb-05 | | | | | Continuing | TBD | TBD |
| 3-D Viz Services, IGEMS, GAPS | C/FFP | ProLogic, West Virginia | | 6.200 | Apr-05 | | | | | Continuing | TBD | TBD |
| DMIT | C/FFP | Gestalt, Camden, New Jersey | | 4.900 | Mar-05 | 4.603 | Mar-06 | | | Continuing | TBD | TBD |
| Enterprise Services for Reach Back Capabilities | C/FFP | Gestalt, Camden, New Jersey | | | | 1.660 | Mar-06 | | | Continuing | TBD | TBD |
| Integration of Force Protection Enterprise Services (DFFP) | C/FFP | Fenwick Tech Inc. West Virginia | | | | 1.573 | Apr-06 | | | Continuing | TBD | TBD |
| Airborne Web Services (AWS) Spiral 3 | C/FFP | SAIC West Virginia | | | | 1.572 | Mar-06 | | | Continuing | TBD | TBD |
| Net-Centric Info Visualization Services (NVIS) aka SALVO | C/FFP | ProLogic, West Virginia | | | | 0.925 | Mar-06 | | | Continuing | TBD | TBD |
| Global Awareness Presentation System for USSTRATCOM | C/FFP | ProLogic, West Virginia | | | | 0.925 | Mar-06 | | | Continuing | TBD | TBD |
| Asset/eWing | C/FFP | SAIC West Virginia | | | | 3.956 | Mar-06 | | | Continuing | TBD | TBD |
| Subtotal Product Development | | | 0.000 | 19.421 | | 17.511 | | 0.000 | | Continuing | TBD | TBD |
| Remarks: | | | | | | | | | | | | |
| (U) Support | | | | | | | | | | | | |
| Contractor Support | T&M | ESC Hanscom AFB, MA | | 0.800 | Feb-05 | 1.200 | May-06 | | | Continuing | TBD | TBD |
| Subtotal Support | | | 0.000 | 0.800 | | 1.200 | | 0.000 | | Continuing | TBD | TBD |
| Remarks: | | | | | | | | | | | | |
| (U) Test & Evaluation | | | | | | | | | | | 0.000 | |
| Subtotal Test & Evaluation | | | 0.000 | 0.000 | | 0.000 | | 0.000 | | 0.000 | 0.000 | 0.000 |
| Remarks: | | | | | | | | | | | | |
| (U) Management | | | | | | | | | | | | |

Project 2524     R-1 Shopping List - Item No. 89-10 of 89-13     Exhibit R-3 (PE 0604740F)

| Exhibit R-3, RDT&E Project Cost Analysis | | DATE February 2006 |
|---|---|---|

| BUDGET ACTIVITY **05 System Development and Demonstration (SDD)** | PE NUMBER AND TITLE **0604740F Integrated Command & Control Applications** | PROJECT NUMBER AND TITLE **2524 Reuse and Component Support** |
|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Program Management Support | | 0.800 | Feb-05 | | | Continuing | TBD | TBD |
| Subtotal Management | 0.000 | 0.800 | | 0.000 | 0.000 | Continuing | TBD | TBD |

Remarks:
(U) Not applicable.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| (U) Total Cost | 0.000 | 21.021 | | 18.711 | 0.000 | Continuing | TBD | TBD |

Remarks:

| Exhibit R-4, RDT&E Schedule Profile | DATE February 2006 |
|---|---|

| BUDGET ACTIVITY 05 System Development and Demonstration (SDD) | PE NUMBER AND TITLE 0604740F Integrated Command & Control Applications | PROJECT NUMBER AND TITLE 2524 Reuse and Component Support |
|---|---|---|

## IC2A Schedule

As of: 10 JAN 06

| | FY2005 | FY2006 | FY2006 |
|---|---|---|---|
| JStars web services | ▲   ▲ | ▲   ▲ | |
| DMIT | ▲   ▲ | ▲   ▲ | |
| ESRBC | | ▲   ▲ | |
| NVIS/SALVO | ▲ | ▲ | |
| GAPS | ▲ | ▲   ▲ | |
| NPLACE | ——————————————————→ | | |
| DFFP | | ▲   ▲ | |
| ASSET/eWing | | ▲   ▲ | |

Project 2524

R-1 Shopping List - Item No. 89-12 of 89-13

Exhibit R-4 (PE 0604740F)

| Exhibit R-4a, RDT&E Schedule Detail | DATE<br>**February 2006** |
|---|---|

| BUDGET ACTIVITY<br>**05 System Development and Demonstration (SDD)** | PE NUMBER AND TITLE<br>**0604740F Integrated Command &<br>Control Applications** | PROJECT NUMBER AND TITLE<br>**2524 Reuse and Component Support** |
|---|---|---|

| (U)  **Schedule Profile** | FY 2005 | FY 2006 | FY 2007 |
|---|---|---|---|
| (U)  NPLACE | 1-4Q | 1-4Q | |
| (U)  ATIS, JSTARS, C2 Manager for AFSOC | 2-4Q | | |
| (U)  3-D Viz Services, IGEMS, GAPS | 3-4Q | | |
| (U)  DMIT | 2-4Q | 2-4Q | |
| (U)  Enterprise Services for Reach Back Capabilities | | 2-4Q | |
| (U)  Airborne Web Services (AWS) Spiral 3 | | 2-4Q | |
| (U)  Global Awareness Presentation System for USSTRATCOM | 4Q | 2-4Q | |
| (U)  Asset eWING | | 2-4Q | |
| (U)  Net Centric Info Visualization Services (NVIS) | 4Q | 2Q | |
| (U)  Integration of Force Protection Enterprise Services (DFFP) | | 2-4Q | |

Project 2524    R-1 Shopping List - Item No. 89-13 of 89-13    Exhibit R-4a (PE 0604740F)

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