PE NUMBER: 0302015F
PE TITLE: E-4B NATIONAL AIRBORNE OPERATIONS CENTER

| Exhibit R-2, RDT&E Budget Item Justification | DATE February 2008 |
|---|---|
| BUDGET ACTIVITY<br>07 Operational System Development | PE NUMBER AND TITLE<br>0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER |

| Cost ($ in Millions) | FY 2007 Actual | FY 2008 Estimate | FY 2009 Estimate | FY 2010 Estimate | FY 2011 Estimate | FY 2012 Estimate | FY 2013 Estimate | Cost to Complete | Total |
|---|---|---|---|---|---|---|---|---|---|
| Total Program Element (PE) Cost | 2.728 | 19.406 | 4.069 | 11.554 | 4.622 | 1.846 | 5.983 | 0.000 | 210.293 |
| 4777 E-4B Aircraft Modernization | 2.728 | 19.406 | 4.069 | 11.554 | 4.622 | 1.846 | 5.983 | 0.000 | 210.293 |

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

The E-4B National Airborne Operations Center (NAOC) modernization program upgrades the fleet of highly modified Boeing 747-200 aircraft to add new capabilities and improve reliability for its primary missions. The E-4B NAOC fleet satisfies the military need for an airborne operations center with communications capabilities that permit military and civilian leadership to monitor and control military and civil national assets during all phases of nuclear and non-nuclear conflict or natural disaster. The E-4B NAOC fleet also satisfies the military requirement to provide a highly survivable alternate operations center to the National Military Command Center (NMCC). Developmental modifications include, but are not limited to, upgrades and enhancements to aircraft structures, propulsion system, fuel system, environmental control system, electrical generation and distribution systems, flight safety and navigation systems (with their associated communications equipment), and the related aircraft operations center facilities, equipment, and communications necessary for the E-4B fleet to execute its mission.

Developmental modifications currently underway or planned for accomplishment under this program include:

- The E-4B NAOC Aircraft Replacement Analysis of Alternatives (AoA) will analyze the cost, effectiveness, risk and affordability of various airframes mated with a mission package for replacement of the E-4B to support NAOC missions in 2020 and beyond as directed by the Deputy Secretary of Defense.

- The STU III Replacement project will replace the current Secure Telephone Units III (STU III) on board the E-4B with a more reliable secure voice system. The National Security Agency (NSA) has set a sunset date for the STU IIIR driving the need for a secure voice system that is certified for aircraft use. This modification will integrate a secure voice system that is certified for aircraft use into the E-4B.

- The C3 UHF Digitization upgrade will replace the analog Ultra High Frequency (UHF) link with a digital link to provide Internet Protocol (IP) based connectivity to unclassified and SECRET Internet as well as provide video teleconference (VTC) and Voice Over Internet Protocol (VOIP) capabilities. This modification is required for digital operation over the Northstar Ground Entry Point Network, which provides more flexibility and utility that the current UHF/Frequency Division Modulation (UHF/FDM) system. This modification will replace existing analog modems, routers, and High Assurance IP Encryptor (HAIPE) devices with digital modems, routers, and HAIPE devices.

The E-4B program is categorized as a Budget Activity 7 - Operational System Development, because it develops modifications for a fielded system.

| Exhibit R-2, RDT&E Budget Item Justification | DATE February 2008 |
|---|---|
| BUDGET ACTIVITY<br>07 Operational System Development | PE NUMBER AND TITLE<br>0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER |

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

| | | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|
| (U) | Previous President's Budget | 0.282 | 19.406 | 4.105 |
| (U) | Current PBR/President's Budget | 2.728 | 19.406 | 4.069 |
| (U) | Total Adjustments | 2.446 | | |
| (U) | Congressional Program Reductions | | | |
| | Congressional Rescissions | | | |
| | Congressional Increases | | | |
| | Reprogrammings | 2.446 | | |
| | SBIR/STTR Transfer | | | |

(U) Significant Program Changes:

$2.446M was added to the program for the E-4B NAOC Aircraft Replacement Analysis of Alternatives (AoA).

| Exhibit R-2a, RDT&E Project Justification | | | DATE: February 2008 |
|---|---|---|---|
| BUDGET ACTIVITY: 07 Operational System Development | PE NUMBER AND TITLE: 0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER | PROJECT NUMBER AND TITLE: 4777 E-4B Aircraft Modernization | |

| Cost ($ in Millions) | FY 2007 Actual | FY 2008 Estimate | FY 2009 Estimate | FY 2010 Estimate | FY 2011 Estimate | FY 2012 Estimate | FY 2013 Estimate | Cost to Complete | Total |
|---|---|---|---|---|---|---|---|---|---|
| 4777 E-4B Aircraft Modernization | 2.728 | 19.406 | 4.069 | 11.554 | 4.622 | 1.846 | 5.983 | 0.000 | 210.293 |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |

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

The E-4B National Airborne Operations Center (NAOC) modernization program upgrades the fleet of highly modified Boeing 747-200 aircraft to add new capabilities and improve reliability for its primary missions. The E-4B NAOC fleet satisfies the military need for an airborne operations center with communications capabilities that permit military and civilian leadership to monitor and control military and civil national assets during all phases of nuclear and non-nuclear conflict or natural disaster. The E-4B NAOC fleet also satisfies the military requirement to provide a highly survivable alternate operations center to the National Military Command Center (NMCC). Developmental modifications include, but are not limited to, upgrades and enhancements to aircraft structures, propulsion system, fuel system, environmental control system, electrical generation and distribution systems, flight safety and navigation systems (with their associated communications equipment), and the related aircraft operations center facilities, equipment, and communications necessary for the E-4B fleet to execute its mission.

Developmental modifications currently underway or planned for accomplishment under this program include:

- The E-4B NAOC Aircraft Replacement Analysis of Alternatives (AoA) will analyze the cost, effectiveness, risk and affordability of various airframes mated with a mission package for replacement of the E-4B to support NAOC missions in 2020 and beyond as directed by the Deputy Secretary of Defense.

- The STU III Replacement project will replace the current Secure Telephone Units III (STU III) on board the E-4B with a more reliable secure voice system. The National Security Agency (NSA) has set a sunset date for the STU IIIR driving the need for a secure voice system that is certified for aircraft use. This modification will integrate a secure voice system that is certified for aircraft use into the E-4B.

- The C3 UHF Digitization upgrade will replace the analog Ultra High Frequency (UHF) link with a digital link to provide Internet Protocol (IP) based connectivity to unclassified and SECRET Internet as well as provide video teleconference (VTC) and Voice Over Internet Protocol (VOIP) capabilities. This modification is required for digital operation over the Northstar Ground Entry Point Network, which provides more flexibility and utility that the current UHF/Frequency Division Modulation (UHF/FDM) system. This modification will replace existing analog modems, routers, and High Assurance IP Encryptor (HAIPE) devices with digital modems, routers, and HAIPE devices.

The E-4B program is categorized as a Budget Activity 7 - Operational System Development, because it develops modifications for a fielded system.

| **(U) B. Accomplishments/Planned Program ($ in Millions)** | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|
| (U) E-4B NAOC Aircraft Replacement Analysis of Alternatives (AoA) | 2.728 | | |
| (U) C-3 UHF - Prototype design, kit manufacturing, install, and test | | 2.891 | 3.734 |
| (U) STU III - Prototype design, kit manufacturing, install, and test | | 15.157 | |
| (U) Test plan development and test execution | | | 0.050 |

| Exhibit R-2a, RDT&E Project Justification | | DATE February 2008 |
|---|---|---|
| BUDGET ACTIVITY<br>07 Operational System Development | PE NUMBER AND TITLE<br>0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER | PROJECT NUMBER AND TITLE<br>4777 E-4B Aircraft Modernization |

| | B. Accomplishments/Planned Program ($ in Millions) | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|---|
| (U) | SPO support (A&AS) and travel | | 1.358 | 0.285 |
| (U) | Total Cost | 2.728 | 19.406 | 4.069 |

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

| | FY 2007 Actual | FY 2008 Estimate | FY 2009 Estimate | FY 2010 Estimate | FY 2011 Estimate | FY 2012 Estimate | FY 2013 Estimate | Cost to Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|
| (U) Aircraft Procurement AF, Budget Activity 5, Weapon System Code E00400, PE 0302015F; Mod 4389 C-3 UHF Digitization | | | 2.470 | 2.354 | | | | | |
| (U) Aircraft Procurement AF, Budget Activity 5, Weapon System Code E00400, PE 0302015F; Mod 4393 STU III Replacement | | | 12.662 | | | | | | |

**(U) D. Acquisition Strategy**

Implementation of modifications will be contracted under the sole source Product Support Integration (PSI) with Boeing - Wichita.

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

DATE: February 2008

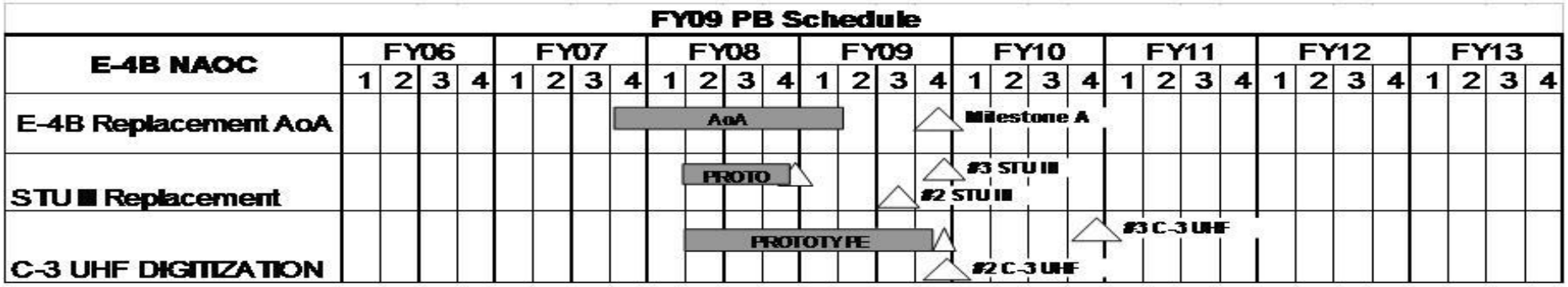
BUDGET ACTIVITY: 07 Operational System Development

PE NUMBER AND TITLE: 0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER

PROJECT NUMBER AND TITLE: 4777 E-4B Aircraft Modernization

| (U) Cost Categories (Tailor to WBS, or System/Item Requirements) ($ in Millions) | Contract Method & Type | Performing Activity & Location | Total Prior to FY 2007 Cost | FY 2007 Cost | FY 2007 Award Date | FY 2008 Cost | FY 2008 Award Date | FY 2009 Cost | FY 2009 Award Date | Cost to Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (U) Product Development | | | | | | | | | | | | |
| STU III replacement integration and testing | CPIF | Boeing, Wichita Development & Modification Center, Wichita, KS | | | | 15.157 | Feb-08 | 3.734 | Jan-09 | | 18.891 | 18.891 |
| C-3 UHF Digitization integration and testing | CPIF | Boeing, Wichita Development & Modification Center, Wichita, KS | | | | 2.891 | Feb-08 | | | | 2.891 | 2.891 |
| Subtotal Product Development | | | 0.000 | 0.000 | | 18.048 | | 3.734 | | 0.000 | 21.782 | 21.782 |
| Remarks: | | | | | | | | | | | | |
| (U) Support | | | | | | | | | | | | |
| Management and analysis support for AoA | MIPR to DISA | Booz Allen Hamilton, McLean, VA | | 2.728 | Jul-07 | | | | | | 2.728 | 2.728 |
| Subtotal Support | | | 0.000 | 2.728 | | 0.000 | | 0.000 | | 0.000 | 2.728 | 2.728 |
| Remarks: | | | | | | | | | | | | |
| (U) Test and Evaluation | | | | | | | | | | | | |
| Modification test plan development and test execution | MIPR to DISA | DISA | | | | | | 0.050 | | | 0.050 | 0.500 |
| Subtotal Test and Evaluation | | | 0.000 | 0.000 | | 0.000 | | 0.050 | | 0.000 | 0.050 | 0.500 |
| Remarks: | | | | | | | | | | | | |
| (U) Management | | | | | | | | | | | | |
| E-4B Program Office contractor support | Small Business T&M | Chickasaw Nation Industries, Inc., Oklahoma City, OK | | | | 1.358 | Jan-08 | 0.285 | Jan-09 | Continuing | TBD | TBD |
| Subtotal Management | | | 0.000 | 0.000 | | 1.358 | | 0.285 | | Continuing | TBD | TBD |
| Remarks: | | | | | | | | | | | | |
| (U) Total Cost | | | 0.000 | 2.728 | | 19.406 | | 4.069 | | Continuing | TBD | TBD |

| Exhibit R-4, RDT&E Schedule Profile | | DATE February 2008 |
|---|---|---|
| BUDGET ACTIVITY<br>07 Operational System Development | PE NUMBER AND TITLE<br>0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER | PROJECT NUMBER AND TITLE<br>4777 E-4B Aircraft Modernization |




AoA: Analysis of Alternatives
STU: Secure Telephone Units
C-3: Command, Control, and Communications
UHF: Ultra High Frequency

Planned Activity(s)
Completed Activity
Completed Event
Planned Event

As of: 11 Jan 08

| Exhibit R-4a, RDT&E Schedule Detail | | DATE: February 2008 |
|---|---|---|
| BUDGET ACTIVITY: 07 Operational System Development | PE NUMBER AND TITLE: 0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER | PROJECT NUMBER AND TITLE: 4777 E-4B Aircraft Modernization |

| (U) Schedule Profile | FY 2007 | FY 2008 | FY 2009 |
|---|---|---|---|
| (U) E-4B NAOC Aircraft Replacement AoA | 4Q | 1-4Q | 1Q |
| (U) Milestone A for E-4B NAOC Aircraft Replacement | | | 4Q |
| (U) C-3 UHF Digitization Prototype dev begins (design & kit) | | 2-4Q | |
| (U) -- C-3 UHF Digitization Prototype dev continues & install | | | 1-4Q |
| (U) STU III protoype development | | 2-4Q | |