

**UNCLASSIFIED**

PE NUMBER: 0302015F

PE TITLE: E-4B NATIONAL AIRBORNE OPERATIONS CENTER

<b>Exhibit R-2, RDT&amp;E Budget Item Justification</b>								DATE <b>February 2004</b>	
<b>BUDGET ACTIVITY</b> <b>07 Operational System Development</b>				<b>PE NUMBER AND TITLE</b> <b>0302015F E-4B NATIONAL AIRBORNE OPERATIONS CENTER</b>					
Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total
Total Program Element (PE) Cost	47.393	44.000	11.172	6.323	0.286	0.000	0.000	0.000	0.000
4777 E-4B Aircraft Modernization	47.393	44.000	11.172	6.323	0.286	0.000	0.000	0.000	0.000

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

The E-4B National Airborne Operations Center (NAOC) modernization program upgrades the fleet of four highly modified Boeing 747-200 aircraft to add new capability and improve reliability in support of the two primary missions for this weapon system. The E-4B NAOC fleet satisfies the military requirement to provide a survivable operations center as an alternate to the National Military Command Center (NMCC) located in the Pentagon. The E-4B NAOC fleet also satisfies the military need for an airborne operations center with communications capabilities that will permit senior national leadership to monitor and control military and civil national assets during all phases of national conflict or disaster. 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 primary mission as an alternate NMCC.

Modifications currently underway or planned for accomplishment under this project in the next four to five years include:

Modification Block 1 (Mod Blk 1): A group designator for modifications being started and completed together on the same aircraft. The RDT&E elements of Mod Blk 1 include Audio Infrastructure Update (AIU) (formerly Block 5A) and Global Air Traffic Management (GATM) II. The Senior Leaders Communication System (SLCS) is also included in the Mod Blk 1 work, but is not considered R&D work. The SLCS modification is entirely funded with Procurement (Aircraft Modification) funds.

AIU affects the primary mission internal audio distribution and recording system. It replaces obsolete 1960s era equipment with digital technology that corrects a major sustainment issue associated with out-dated analog voice data distribution and recording equipment. The planning for internal the noise reduction modification of the senior leadership conference room (Area 4) was completed during FY03 as part of the "Block 5B - Data Concept Exploration". The exploration revealed that installation of the Area 4 noise reduction would be most efficiently performed if done in conjunction with the AIU modification. Consequently, the internal noise reduction modification is being performed during the same depot period that the AIU modification was begun, November 2003. Future noise reduction modifications will be accomplished during depot periods in conjunction with the AIU portion of the Mod Blk 1 modification.

GATM II is the second part of a 3-phased implementation of Global Access, Navigation, and Safety/Global Air Traffic Management modifications to permit unencumbered access to international airspace and to maintain the level of E-4B flight safety consistent with civil standards that become effective in CY05.

SLCS: Completion of FY02 DERF funded SLCS study during FY02 concluded that the technical solution to the SLCS requirements would not require research and development. Consequently, the SLCS modification is funded with Aircraft Procurement modification funds. SLCS will provide an 'office in the sky' capability for senior

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leaders that includes commercial Direct Broadcast Service (DBS), and video teleconferencing capability, plus access to Defense Information System Network (DISN) and Public Switch Network (PSN) for voice, video and data exchange on and off the airplane (external e-mail and Internet access).

Data LAN (Local Area Network) Infrastructure (DLI) (formerly part of Block 5B): A primary mission equipment modification that will greatly improve the ability to store, manipulate, distribute and view information related to the aircraft's primary mission. These enhancements will increase the accuracy, timeliness, and throughput of tactical and strategic information presented to embarked military decision-making commanders. (Internal Noise Reduction moved to AIU portion of Mod Blk 1)

Because the E-4B program develops modifications for a fielded system, it is categorized as a budget activity 7 - Operational System Development.

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

	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Previous President's Budget	47.867	44.377	53.164
(U) Current PBR/President's Budget	47.393	44.000	11.172
(U) Total Adjustments	-0.474	-0.377	
(U) Congressional Program Reductions		-0.377	
Congressional Rescissions	-0.706		
Congressional Increases			
Reprogrammings	1.372		
SBIR/STTR Transfer	-1.140		

(U) **Significant Program Changes:**

The FY05 plan for Mod Blk 1 and for Data LAN Infrastructure (DLI), formerly a major component of Block 5B, has been changed. The production schedule for Mod Blk 1 has been accelerated while the estimated cost of the DLI RDT&E work during FY05 has been decreased due to a new DLI technical approach. The net effect is to increase the FY05 Procurement funds request and to decrease the FY05 RDT&E request as shown above.

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

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Cost (\$ in Millions)	FY 2003 Actual	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total	
4777 E-4B Aircraft Modernization	47.393	44.000	11.172	6.323	0.286	0.000	0.000	0.000	0.000	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

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

The E-4B National Airborne Operations Center (NAOC) modernization program upgrades the fleet of four highly modified Boeing 747-200 aircraft to add new capability and improve reliability in support of the two primary missions for this weapon system. The E-4B NAOC fleet satisfies the military requirement to provide a survivable operations center as an alternate to the National Military Command Center (NMCC) located in the Pentagon. The E-4B NAOC fleet also satisfies the military need for an airborne operations center with communications capabilities that will permit senior national leadership to monitor and control military and civil national assets during all phases of national conflict or disaster. 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 primary mission as an alternate NMCC.

Modifications currently underway or planned for accomplishment under this project in the next four to five years include:

Modification Block 1 (Mod Blk 1): A group designator for modifications being started and completed together on the same aircraft. The RDT&E elements of Mod Blk 1 include Audio Infrastructure Update (AIU) (formerly Block 5A) and Global Air Traffic Management (GATM) II. The Senior Leaders Communication System (SLCS) is also included in the Mod Blk 1 work, but is not considered R&D work. The SLCS modification is entirely funded with Procurement (Aircraft Modification) funds.

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GATM II is the second part of a 3-phased implementation of Global Access, Navigation, and Safety/Global Air Traffic Management modifications to permit unencumbered access to international airspace and to maintain the level of E-4B flight safety consistent with civil standards that become effective in CY05.

SLCS: Completion of FY02 DERF funded SLCS study during FY02 concluded that the technical solution to the SLCS requirements would not require research and development. Consequently, the SLCS modification is funded with Aircraft Procurement modification funds. SLCS will provide an 'office in the sky' capability for senior leaders that includes commercial Direct Broadcast Service (DBS), and video teleconferencing capability, plus access to Defense Information System Network (DISN) and

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Public Switch Network (PSN) for voice, video and data exchange on and off the airplane (external e-mail and Internet access).

Data LAN (Local Area Network) Infrastructure (DLI) (formerly part of Block 5B): A primary mission equipment modification that will greatly improve the ability to store, manipulate, distribute and view information related to the aircraft's primary mission. These enhancements will increase the accuracy, timeliness, and throughput of tactical and strategic information presented to embarked military decision-making commanders. (Internal Noise Reduction moved to AIU portion of Mod Blk 1)

Because the E-4B program develops modifications for a fielded system, it is categorized as a budget activity 7 - Operational System Development.

<b>(U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Accomplishment/Planned Program	0.000	0.000	
(U) Complete AIU (formerly part of Blk 5A, now a component of Mod Blk 1) System Engineering & Prototype Kit	40.438	6.581	
(U) Complete Data LAN Infrastructure (formerly part of Blk 5B) - Data Concept Exploration	0.025	0.250	
(U) Complete GATM II System Engineering and Prototype Kit	4.686	1.000	
(U) Contractor Technical and Program Management Support	2.244	2.805	1.504
(U) Mod Blk 1 - AIU prototype installation (formerly called Block 5A)		30.000	8.996
(U) Mod Blk 1 - GATM II prototype installation		3.364	0.672
(U) Total Cost	47.393	44.000	11.172

<b>(U) <u>C. Other Program Funding Summary (\$ in Millions)</u></b>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN Aircraft Procurement AF, Budget Activity 5, Weapon System Code E00400, PE									
(U) 0302015F; Mod 4381 (AIU--formerly Blk 5A);4381B (Blk 5B); Mod 9709 (GATM Phase II)	19.145	49.726	96.564	91.570	64.482	22.508			343.995

**(U) D. Acquisition Strategy**  
 A mod block structure has been established which includes AIU (formerly part of Block 5A), GATM II and SLCS (note: SLCS doesn't require RDT&E funding). System engineering, design, and prototype installation is being done under a Cost Plus Incentive Fee (CPIF) contract with Boeing - Wichita Development & Modification Center. Installations are performed in conjunction with Program Depot Maintenance (PDM) at Boeing's Wichita facility.

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

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<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method &amp; Type</u>	<u>Performing Activity &amp; Location</u>	<u>Total</u> <u>Prior to FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Cost</u>	<u>FY</u> <u>2003</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2004</u> <u>Cost</u>	<u>FY</u> <u>2004</u> <u>Award</u> <u>Date</u>	<u>FY</u> <u>2005</u> <u>Cost</u>	<u>FY</u> <u>2005</u> <u>Award</u> <u>Date</u>	<u>Cost to</u> <u>Complete</u>	<u>Total</u> <u>Cost</u>	<u>Target</u> <u>Value of</u> <u>Contract</u>
<u>(U) Product Development</u>												
Boeing	Sole Source CPAF/T&M	Boeing Aerospace Operations	55.003	18.529	Oct-02						73.532	
Boeing - Wichita	Sole Source CPIF	Wichita Development & Modificaiton Center		26.620	Feb-03	41.195	Nov-03	9.668	Nov-04		77.483	
None											0.000	
Subtotal Product Development			55.003	45.149		41.195		9.668		0.000	151.015	0.000
Remarks:												
<u>(U) Support</u>												
DISA	MIPR		0.250	0.365	Apr-03	0.613	Mar-04	0.100	Mar-05		1.328	
None											0.000	
Subtotal Support			0.250	0.365		0.613		0.100		0.000	1.328	0.000
Remarks:												
<u>(U) Test &amp; Evaluation</u>												
605 FT	Project Order		0.172	0.271	Jan-03	0.284	Nov-03	0.100	Nov-04		0.827	
None											0.000	
Subtotal Test & Evaluation			0.172	0.271		0.284		0.100		0.000	0.827	0.000
Remarks:												
<u>(U) Management</u>												
Program Office contractor support	Sole Source T&M		2.732	1.608	Oct-02	1.908	Jan-04	1.304	Jan-05		7.552	
Subtotal Management			2.732	1.608		1.908		1.304		0.000	7.552	0.000
Remarks:												
<u>(U) Total Cost</u>			58.157	47.393		44.000		11.172		0.000	160.722	0.000

Exhibit R-4, RDT&E Schedule Profile

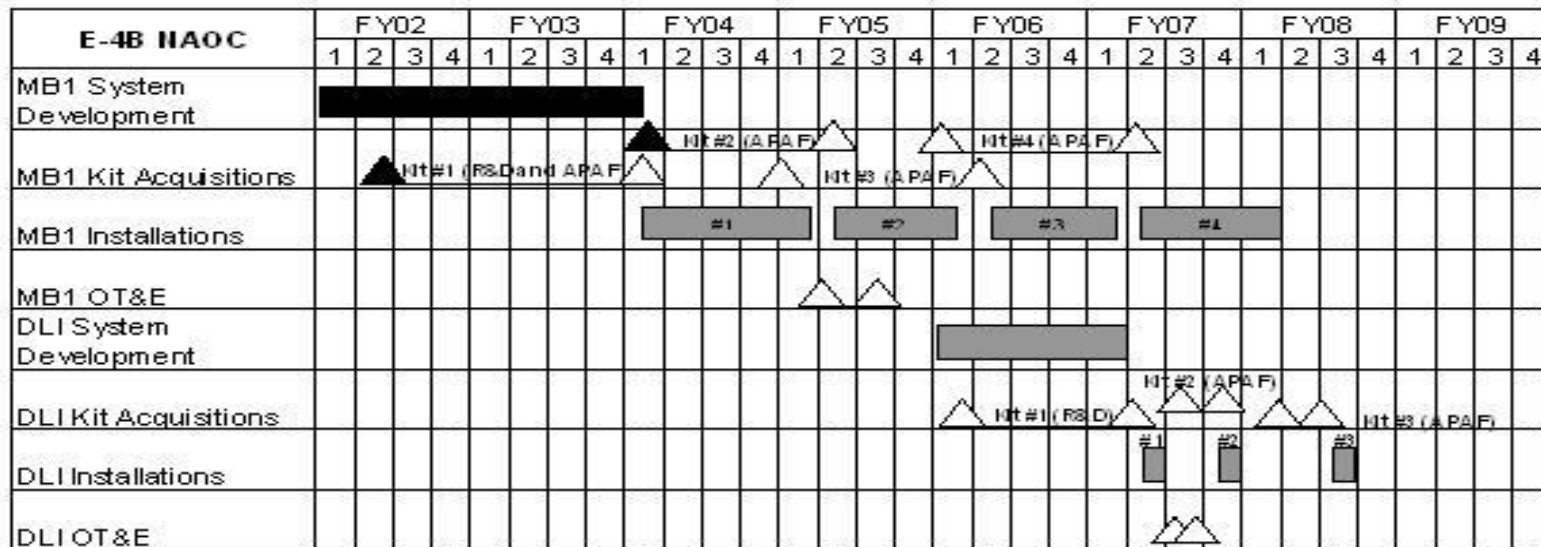
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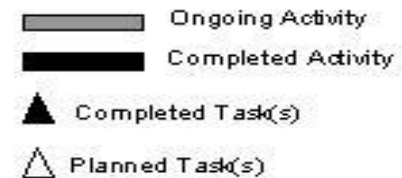
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- MB1: Modification Block 1 (Mod Blk 1)
- DLI: Data LAN Infrastructure
- Mod Blk 1 includes:
  - Audio Infrastructure Update (AIU)
  - Senior Leaders Communication System (SLCS)
  - GATM II, E-4B's second phase of implementing Global Air Traffic Management (GATM) modifications



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

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(U) <u>Schedule Profile</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>
(U) Complete Systems Engineering for GATM and AIU portion of Mod Block 1		2Q	
(U) Initiate Purchase Prototype Hardware for GATM and AIU portion of Mod Block 1	1Q		
(U) Start Prototype Install for GATM and AIU portion of Mod Block 1		1Q	
(U) Complete Prototype Install for GATM and AIU portion of Mod Block 1			1Q
(U) Conduct OT&E for Mod Block 1			2Q
(U) Begin DLI Concept Exploration (DLI)	2Q		