

Exhibit R-2, RDT&E Budget Item Justification	DATE February 2008
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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)	PE NUMBER AND TITLE 0604226F B-1B
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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	153.757	152.164	128.871	81.263	4.555	6.631	1.278	Continuing	TBD
4596 Conventional Mission Upgrades	153.757	152.164	128.871	81.263	4.555	6.631	1.278	Continuing	TBD

FY2007 funding total includes \$17.03M in GWOT supplemental.

FY2008 funding totals do not include \$40.0M GWOT requirements still pending Congressional consideration.

(U) A. Mission Description and Budget Item Justification

This program provides RDT&E funding for the B-1B Conventional Mission Upgrade Program (CMUP). The CMUP program provides new and improved capabilities to the B-1B weapon system that require significant hardware and software development and testing. In addition, the CMUP program addresses reliability and diminishing manufacturing sources (DMS) deficiencies to prevent future grounding of aircraft.

B-1 grounding items are addressed in the following efforts: Gyro Stabilization System (GSS), onboard diagnostics Central Integrated Test System (CITS) upgrade, Vertical Situation Display (VSD) to replace unsupportable pilot displays, Radar Modernization Improvement Program (RMIP), and Inertial Navigation System (INS) upgrade.

B-1 improvement efforts include, but are not limited to, the development of the Fully Integrated Data Link (FIDL), ALQ-161A defensive system upgrades, integration of Mode S/Mode 5 Identification, Friend or Foe (IFF), and a laptop controlled targeting pod (LCTP) capability. Also included is the development of an improved Threat Situational Awareness System (TSAS), and a Digital Communications Improvement (DCI) upgrade.

FIDL integrates Link-16 and Beyond Line of Sight (BLOS) data links along with upgraded displays for improved connectivity to command and control authorities and for enhancements to targeting and weapons management. The ALQ-161A defensive system upgrades include the Preprocessor Avionics Control Unit (PACU) software re-host/development. Mode S/Mode 5 Identification, Friend or Foe (IFF) capability is included to bring the B-1B in compliance with air traffic directives and the transition of the military to a secure, reliable IFF system. The LCTP effort provides a limited (Sniper) targeting pod capability to meet emerging warfighter needs and a Digital Data Recorder (DDR) to support Non-Traditional Intelligence, Surveillance and Reconnaissance (NTISR).

Upgrades to the B-1B training systems are included in CMUP to keep the training systems current with the aircraft configuration. Also, program funds cover engineering/planning studies, related engineering efforts, and initiatives for future weapon system enhancements, including efforts to improve weapon system operational capabilities, safety, supportability, maintainability, reliability, and total ownership cost (TOC).

All B-1B development programs support planned requirements for unique identification in their production phases. The B-1B upgrade program is included in Budget Activity 5, System Development and Demonstration.

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

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Previous President's Budget	130.053	159.126	128.892
(U) Current PBR/President's Budget	153.757	152.164	128.871
(U) Total Adjustments	23.704	-6.962	
(U) Congressional Program Reductions		-6.000	
Congressional Rescissions		-0.962	
Congressional Increases	17.030		
Reprogrammings	10.000		
SBIR/STTR Transfer	-3.326		

(U) **Significant Program Changes:**

FY07: funding adjusted for an increase for \$17.03M Global War on Terror (GWOT) plus \$10.0M below threshold reprogramming (BTR) funding added for Laptop Controlled Targeting Pod (LCTP) Urgent Need Request (UNR)

FY08: funding adjusted for a \$9.0M increase for 16-Carry bomb rack and a (\$15.0M) program reduction

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BUDGET ACTIVITY 05 System Development and Demonstration (SDD)							PE NUMBER AND TITLE 0604226F B-1B		PROJECT NUMBER AND TITLE 4596 Conventional Mission Upgrades	
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	
4596 Conventional Mission Upgrades	153.757	152.164	128.871	81.263	4.555	6.631	1.278	Continuing	TBD	
Quantity of RDT&E Articles	0	0	0	0	0	0	0			

(U) A. Mission Description and Budget Item Justification

This program provides RDT&E funding for the B-1B Conventional Mission Upgrade Program (CMUP). The CMUP program provides new and improved capabilities to the B-1B weapon system that require significant hardware and software development and testing. In addition, the CMUP program addresses reliability and diminishing manufacturing sources (DMS) deficiencies to prevent future grounding of aircraft.

B-1 grounding items are addressed in the following efforts: Gyro Stabilization System (GSS), onboard diagnostics Central Integrated Test System (CITS) upgrade, Vertical Situation Display (VSD) to replace unsupported pilot displays, Radar Modernization Improvement Program (RMIP), and Inertial Navigation System (INS) upgrade.

B-1 improvement efforts include, but are not limited to, the development of the Fully Integrated Data Link (FIDL), ALQ-161A defensive system upgrades, integration of Mode S/Mode 5 Identification, Friend or Foe (IFF), and a laptop controlled targeting pod (LCTP) capability. Also included is the development of an improved Threat Situational Awareness System (TSAS), and a Digital Communications Improvement (DCI) upgrade.

FIDL integrates Link-16 and Beyond Line of Sight (BLOS) data links along with upgraded displays for improved connectivity to command and control authorities and for enhancements to targeting and weapons management. The ALQ-161A defensive system upgrades include the Preprocessor Avionics Control Unit (PACU) software re-host/development. Mode S/Mode 5 Identification, Friend or Foe (IFF) capability is included to bring the B-1B in compliance with air traffic directives and the transition of the military to a secure, reliable IFF system. The LCTP effort provides a limited (Sniper) targeting pod capability to meet emerging warfighter needs and a Digital Data Recorder (DDR) to support Non-Traditional Intelligence, Surveillance and Reconnaissance (NTISR).

Upgrades to the B-1B training systems are included in CMUP to keep the training systems current with the aircraft configuration. Also, program funds cover engineering/planning studies, related engineering efforts, and initiatives for future weapon system enhancements, including efforts to improve weapon system operational capabilities, safety, supportability, maintainability, reliability, and total ownership cost (TOC).

All B-1B development programs support planned requirements for unique identification in their production phases. The B-1B upgrade program is included in Budget Activity 5, System Development and Demonstration.

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

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Continued Conventional Mission Upgrade Program (CMUP) contractual efforts	143.241	143.554	118.216
(U) Government Flight Test, Live Fire Test & Evaluation and General Test Support	5.247	3.753	5.262
(U) Continuing Mission Support	4.832	2.919	2.988
(U) Modeling & Simulation / Studies & Analyses	0.437	1.938	2.405
(U) Total Cost	153.757	152.164	128.871

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PROJECT NUMBER AND TITLE

4596 Conventional Mission Upgrades

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

	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP11, Mods	68.812	34.391	71.774	141.201	167.221	108.461	131.778	777.525	1,501.163
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP16, Initial Spares	3.186	7.333	2.515	8.994	9.738	6.351	6.476	58.266	102.859
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP12, Common Support Equipment	2.040	2.431	2.656	2.720	2.756	2.811	2.865	5.734	24.013
(U) Appn 10, PE 0101126F, B-1B, Aircraft Procurement BP13, Post Production Charges	10.279	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.279
(U) Appn 28, PE 0207446F, Bomber TDL Core	0.000	36.309	11.702	0.000	0.000	0.000	0.000	0.000	48.011
Related RDT&E:									
(U) Program Element 0205164F, Global Positioning System (GPS)									
(U) Program Element 0207325F, Joint Air to Surface Standoff Missile (JASSM)									
(U) Program Element 0208006F, Air Force Mission Planning Systems (AFMPS), Joint Mission Planning System (JMPS)									

(U) **D. Acquisition Strategy**

(U) Key elements of the overall CMUP acquisition strategy include: use of a sole source contract with a prime/integrating contractor (Boeing); installed performance responsibility; use of cost plus incentive fee (CPIF) development contracts; and combining developmental upgrades with software sustainment blocks to minimize the number of software releases, aircraft downtime and differences in fielded configurations.

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Exhibit R-3, RDT&E Project Cost Analysis

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT NUMBER AND TITLE
05 System Development and Demonstration (SDD)	0604226F B-1B	4596 Conventional Mission Upgrades

<u>(U) Cost Categories</u> (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	<u>Contract Method & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2007 Cost</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>FY 2008 Cost</u>	<u>FY 2008 Award Date</u>	<u>FY 2009 Cost</u>	<u>FY 2009 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
(U) Gyro Stabilization System (GSS)	SS/CPIF	Boeing, Long Beach, CA	9.700	12.547	Nov-06	2.596	Oct-07				24.843	
(U) Central Integrated Test System (CITS)	SS/CPIF	Boeing, Long Beach, CA	17.900	12.945	Jan-07	5.442	Feb-08	1.550	Oct-08		37.837	
(U) Vertical Situation Display (VSD)	SS/CPIF	Boeing, Long Beach CA	8.400	19.836	Oct-06	24.600	Nov-07	25.067	Nov-08		77.903	
(U) Radar Modernization Improvement Program (RMIP)	SS/CPIF	Boeing, Long Beach, CA	20.400	54.211	Oct-06	47.218	Oct-07	50.306	Oct-08	42.220	214.355	
(U) Inertial Navigation System (INS)	SS/CPIF	Boeing, Long Beach, CA		0.250	May-07	24.954	Jan-08	27.492	Nov-08	16.564	69.260	
(U) Fully Integrated Data Link (FIDL)	SS/CPIF	Boeing, Long Beach, CA	24.000	8.016	Nov-06	10.225	Nov-07	4.653	Nov-08		46.894	
(U) ALQ-161A Preprocessor Avionics Control Unit (PACU)	SS/CPFF	561st, Robins AFB, GA	24.229	6.163	Nov-06	8.816	Oct-07	8.515	Dec-08	8.657	56.380	
(U) ALQ-161A Digital Radio Frequency Memory (DRFM)	SS/CPFF	561st, Robins AFB, GA	22.148	0.870	Nov-06						23.018	
(U) Laptop Controlled Targeting Pod (LCTP)	SS/CPIF	Boeing, Long Beach, CA		25.087	Apr-07						25.087	
(U) Threat Situational Awareness System (TSAS)	SS/CPIF	Boeing, Long Beach, CA	2.100	4.106	Jan-07	8.148	Feb-08				14.354	
(U) Digital Communications Improvement (DCI)	SS/CPIF	Boeing, Long Beach, CA	3.600			0.522	Feb-08				4.122	
(U) 16-Carry	SS/CPIF	Boeing, Long Beach, CA				9.000	Apr-08				9.000	
(U) BRU-56	SS/CPIF	Boeing, Long Beach, CA	0.700								0.700	
(U) Pneumatic Assist Rack (PAR)	SS/CPIF	Boeing, Long Beach, CA	1.800								1.800	
(U) Tech Order Enhancement		OC-ALC, Tinker AFB, OK				1.500	Mar-08				1.500	
(U) JEFX 2008		OC-ALC, Tinker AFB, OK				0.500	Dec-07				0.500	
(U) Mode S/5	SS/CPIF	Boeing, Long Beach, CA								4.720	4.720	
(U) Training Systems (Simulator)	C/FPIF	Rockwell Collins, Sterling VA	4.100	0.080	Nov-06	0.500	Mar-08	2.790	Nov-08	5.115	12.585	

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Subtotal Product Development		139.077	144.111		144.021		120.373		77.276	624.858	0.000
Remarks:											
(U) <u>Support</u>											
(U) A&AS	Various		3.962	Jan-07	3.181	Jan-08	2.988	Jan-09	3.533	13.664	
(U) Studies & Analyses / Modeling & Sim	Various	0.100	0.437	Jan-07	1.209	Jan-08	0.248	Jan-09	7.314	9.308	
Subtotal Support		0.100	4.399		4.390		3.236		10.847	22.972	0.000
Remarks:											
(U) <u>Test & Evaluation</u>											
(U) AFFTC	P.O.	60.700	5.247	Jan-07	3.753	Dec-07	5.262	Dec-08	5.604	80.566	
Subtotal Test & Evaluation		60.700	5.247		3.753		5.262		5.604	80.566	0.000
Remarks:											
(U) <u>Management</u>											
Subtotal Management		0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:											
(U) Total Cost		199.877	153.757		152.164		128.871		93.727	728.396	0.000

Exhibit R-4, RDT&E Schedule Profile

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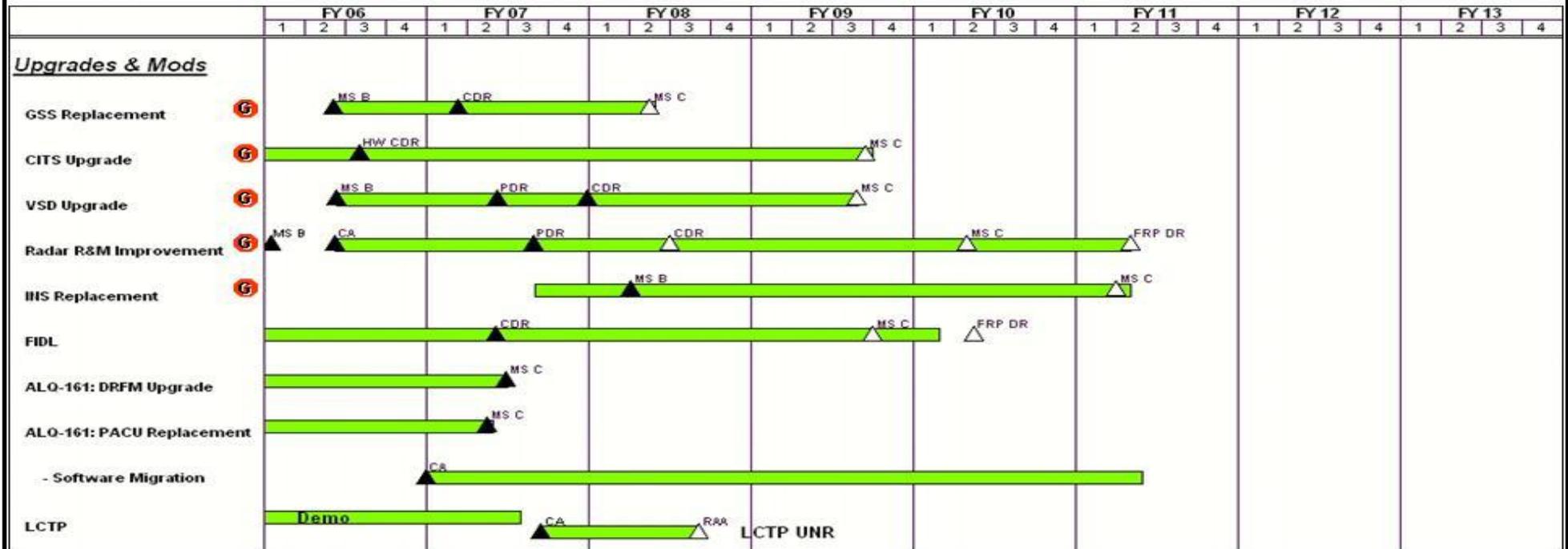
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Development Activity



CA - Contract Award	△ Forecast Activity
MS - Milestone	▲ Completed
PDR - Preliminary Design Review	█ RDT&E Funding
CDR - Critical Design Review	(G) Grounding Item
FRP DR- Full Rate Production Decision Review	
HW - Hardware	
LCTP - Laptop Controlled Targeting Pod	
R.A.A - Required Assets Available	
UNR - Urgent Need Request	

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Exhibit R-4 (PE 0604226F)

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Exhibit R-4a, RDT&E Schedule Detail	DATE February 2008
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	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
(U) Schedule Profile			
(U) Gyro Stab Sys (GSS) -- CDR	1Q		
(U) Gyro Stab Sys (GSS) -- MS C		2Q	
(U) Central Integrated Test System (CITS) -- MS C			3Q
(U) Vertical Situation Displays (VSD) Upgrade -- PDR	2Q		
(U) Vertical Situation Displays (VSD) Upgrade -- CDR	4Q		
(U) Vertical Situation Displays (VSD) Upgrade -- MS C			3Q
(U) RADAR Improvement Upgrade -- PDR	3Q		
(U) RADAR Improvement Upgrade -- CDR		2Q	
(U) Inertial Nav Sys (INS) -- MS B		1Q	
(U) Fully Integrated Data Link (FIDL) -- CDR	2Q		
(U) Fully Integrated Data Link (FIDL) -- DT&E Flight Test		4Q	
(U) Fully Integrated Data Link (FIDL) -- MS C			3Q
(U) ALQ-161A Digital Radio Frequency Memory (DRFM) -- MS C	2Q		
(U) ALQ-161A Preprocessor Avionics Control Unit (PACU) -- MS C	2Q		
(U) ALQ-161A Preprocessor Avionics Control Unit (PACU) Software Migration -- Contract Award	1Q		
(U) Laptop Controlled Targeting Pod (LCTP) -- Contract Award	3Q		
(U) Laptop Controlled Targeting Pod (LCTP) -- RAA		3Q	