

UNCLASSIFIED

PE NUMBER: 0604800F
PE TITLE: Joint Strike Fighter EMD

Exhibit R-2, RDT&E Budget Item Justification									DATE February 2005																																														
BUDGET ACTIVITY 05 System Development and Demonstration (SDD)					PE NUMBER AND TITLE 0604800F Joint Strike Fighter EMD																																																		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	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	2,021.034	2,181.272	2,474.763	2,192.584	1,914.385	1,578.312	1,282.774	839.995	Continuing	TBD																																													
3831 Joint Strike Fighter	2,021.034	2,181.272	2,474.763	2,192.584	1,914.385	1,578.312	1,282.774	839.995	Continuing	TBD																																													
<p>The FY03 National Defense Authorization Act (NDAA) language directed T&E centers to charge only direct costs beginning in FY06; this resulted in a zero-balance transfer (ZBT) of funding over the FYDP from the customer accounts (for indirect test cost) to T&E Support, PE 65807F.</p> <p>(U) <u>A. Mission Description and Budget Item Justification</u></p> <p>The Joint Strike Fighter (JSF) program will develop and field a family of aircraft that meets the need of the USN, USAF, USMC and allies with maximum commonality among the variants, consistent with National Disclosure Policy (NDP), to minimize life cycle costs. This is a joint program with no executive service. Service Acquisition Executive (SAE) authority alternates between the Department of the Navy and the Department of the Air Force and currently resides with the Air Force. Navy and Air Force each provide approximately equal shares of annual funding to the program. The United Kingdom and 7 other International countries are participants in the JSF program.</p> <p>This program is funded under System Development and Demonstration (SDD) because it encompasses system development and demonstration of new end items prior to a production approval decision.</p> <p>Quantity of 15 AF and DoN RDT&E articles (1 in FY 2006, 1 in FY 2007, 6 in FY 2008, and 7 in FY 2009) reflects flight test articles; 8 ground test articles are also budgeted in SDD.</p> <p>(U) <u>B. Program Change Summary (\$ in Millions)</u></p> <table style="width: 100%; margin-top: 10px;"> <thead> <tr> <th></th> <th style="text-align: right;"><u>FY 2004</u></th> <th style="text-align: right;"><u>FY 2005</u></th> <th style="text-align: right;"><u>FY 2006</u></th> <th style="text-align: right;"><u>FY 2007</u></th> </tr> </thead> <tbody> <tr> <td>(U) Previous President's Budget</td> <td style="text-align: right;">2,092.547</td> <td style="text-align: right;">2,307.420</td> <td style="text-align: right;">2,489.848</td> <td style="text-align: right;">2,203.446</td> </tr> <tr> <td>(U) Current PBR/President's Budget</td> <td style="text-align: right;">2,021.034</td> <td style="text-align: right;">2,181.272</td> <td style="text-align: right;">2,474.763</td> <td style="text-align: right;">2,192.584</td> </tr> <tr> <td>(U) Total Adjustments</td> <td style="text-align: right;">-71.513</td> <td style="text-align: right;">-126.148</td> <td></td> <td></td> </tr> <tr> <td>(U) Congressional Program Reductions</td> <td></td> <td style="text-align: right;">-126.148</td> <td></td> <td></td> </tr> <tr> <td> Congressional Rescissions</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Congressional Increases</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td> Reprogrammings</td> <td style="text-align: right;">-7.428</td> <td></td> <td></td> <td></td> </tr> <tr> <td> SBIR/STTR Transfer</td> <td style="text-align: right;">-64.085</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>(U) <u>Significant Program Changes:</u></p> <p>NOTE: This submission reflects JSF Program Replan. Additional design work and scope was required to achieve weight reductions in the STOVL variant, resulting in an increase in cost and schedule. See R-4a Schedule Exhibit for detailed schedule changes.</p>												<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	(U) Previous President's Budget	2,092.547	2,307.420	2,489.848	2,203.446	(U) Current PBR/President's Budget	2,021.034	2,181.272	2,474.763	2,192.584	(U) Total Adjustments	-71.513	-126.148			(U) Congressional Program Reductions		-126.148			Congressional Rescissions					Congressional Increases					Reprogrammings	-7.428				SBIR/STTR Transfer	-64.085			
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Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY					PE NUMBER AND TITLE			PROJECT NUMBER AND TITLE		
05 System Development and Demonstration (SDD)					0604800F Joint Strike Fighter EMD			3831 Joint Strike Fighter		
Cost (\$ in Millions)	FY 2004 Actual	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	Cost to Complete	Total
3831 Joint Strike Fighter	2,021.034	2,181.272	2,474.763	2,192.584	1,914.385	1,578.312	1,282.774	839.995	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0		

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

The Joint Strike Fighter (JSF) program will develop and field a family of aircraft that meets the need of the USN, USAF, USMC and allies with maximum commonality among the variants, consistent with National Disclosure Policy (NDP), to minimize life cycle costs. This is a joint program with no executive service. Service Acquisition Executive (SAE) authority alternates between the Department of the Navy and the Department of the Air Force and currently resides with the Air Force. Navy and Air Force each provide approximately equal shares of annual funding to the program. The United Kingdom and 7 other International countries are participants in the JSF program.

This program is funded under System Development and Demonstration (SDD) because it encompasses system development and demonstration of new end items prior to a production approval decision.

Quantity of 15 AF and DoN RDT&E articles (1 in FY 2006, 1 in FY 2007, 6 in FY 2008, and 7 in FY 2009) reflects flight test articles; 8 ground test articles are also budgeted in SDD.

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

	<u>FY 2004</u>	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) System Development and Demonstration (SDD) for Air System with Lockheed Martin including International Commonality Effort (ICE) commenced execution in FY02. FY04, FY05, FY06 and FY07 continue SDD execution of the Air System, including airframe, vehicle systems, mission systems, autonomic logistics, systems engineering and integrated test efforts	3,348.068	3,757.000	4,409.000	3,911.000
(U) System Development and Demonstration (SDD) for F135 Propulsion System with Pratt & Whitney including International Commonality Effort (ICE) commenced in FY02. FY04, FY05, FY06 and FY07 continue SDD execution of the F135 Propulsion System, including engine testing, autonomic logistics, integration and performing technology maturation efforts.	868.969	797.000	711.000	421.000
(U) FY04, FY05, FY06 and FY07 continue the Fighter Engineer Team (General Electric/Rolls Royce) F136 development for a second, interchangeable, JSF engine for competition in production (previously begun in associated Program Elements 0603800N and 0603800F). Efforts include technology maturation, engine testing, autonomic logistics and integration.	141.578	231.000	236.000	370.000
(U) SDD Systems Engineering (SE) and mission support activities, including Modeling, Simulation and Analysis (MS&A) efforts, risk reduction activities and program office functions commenced in FY02. FY04, FY05, FY06 and FY07 continue SE and Mission Support activities, including MS&A, risk reduction, Government verification and test, non-test systems engineering and technical support and program office functions.	262.158	291.811	313.276	482.779
(U) Total Cost	4,620.773	5,076.811	5,669.276	5,184.779

Project 3831

R-1 Shopping List - Item No. 90-2 of 90-8

Exhibit R-2a (PE 0604800F)

Exhibit R-2a, RDT&E Project Justification

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604800F Joint Strike Fighter EMD

PROJECT NUMBER AND TITLE

3831 Joint Strike Fighter

Note: Total cost includes USN and International partner contributions in addition to USAF funding. Exhibit R-2 data reflects USAF funding only.

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

	<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>FY 2010</u>	<u>FY 2011</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>Estimate</u>	<u>Complete</u>	
(U) USN RDT&E	2081.930	2145.239	2393.013	2287.055	1944.629	1518.126	1207.520	751.608	Continuing	TBD
(U) Int'l Partner Funding	517.809	750.300	801.500	705.140	480.670	228.260	166.670	137.010	Continuing	TBD
(U) USN PROCUREMENT				247.238	2042.931	4636.719	4518.458	3733.098	Continuing	TBD
(U) USAF PROCUREMENT			152.377	1095.027	1386.200	2126.635	2531.230	3574.468	Continuing	TBD
(U) USN Initial Spares and Repair Parts					85.322	153.089	167.744	148.682	Continuing	TBD
(U) USAF Initial Spares and Repair Parts				96.477	100.771	183.708	284.572	528.404	Continuing	TBD
(U) USN MILCON	24.370									
(U) USAF MILCON 0207142F	19.060	9.965	0.000	0.000	85.402	79.998	0.000	0.000	Continuing	TBD
(U) USAF MILCON 91211F	1.000	0.900								

This is a joint program with no executive service. Service Acquisition Executive (SAE) authority alternates between the Department of the Navy and the Department of the Air Force and currently resides with the Air Force. Program Element 0604800N continues USN development efforts budgeted in 0603800N prior to FY2002. The United Kingdom and other International countries are participants in the SDD phase of JSF.

Note: The USAF PROCUREMENT line includes all JSF funding in Budget Activities 01 and 06. USAF Initial Spares and Repair Parts is a subset of USAF PROCUREMENT. USN Initial Spares and Repair Parts is a subset of USN PROCUREMENT. International Partner Funding includes funds provided under the Italy and Netherlands Bilateral agreements. Special Memorandum of Understanding provisions exist for those two countries to pursue country unique requirements.

RELATED RDT&E: Funding prior to JSF SDD (FY94-FY01): USN PE 0603800N \$1,950,617; USAF PE 0603800F \$1,907,352; DARPA PE 0603800E \$118,0056. UK \$201,221; Multi-Lateral \$32,100; Canada \$10,600; and Italy \$10,000 for a total of \$4,229,896.

(U) **D. Acquisition Strategy**

Activities in the prior phase of JSF centered around three distinct objectives to provide a sound foundation for the start of System Development & Demonstration (SDD) in Fall 2001:

- (1) facilitated the Services' development of fully validated, affordable operational requirements;
- (2) lowered risk by investing in and demonstrating key leveraging technologies that lowered the cost of development, production and ownership; and
- (3) demonstrated operational concepts.

Early warfighter and technologist interaction was an essential aspect of the requirements definition process and achieved JSF affordability goals. To an unprecedented

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<p>degree, the JSF Program used cost-performance trades early, as an integral part of the weapon system development process. The Services defined requirements through an iterative process, balancing weapon system capability against life cycle cost (LCC) at every stage. Each iteration of the requirements was provided to industry. They evolved their designs and provided cost data back to the warfighters. The warfighters evaluated trades and made decisions for the next iteration. This iterative process produced iterations of the Services' Joint Interim Requirements Documents in 1995, 1997, 1998 and culminated in the approved joint Operational Requirements Document (ORD) in FY2000.</p> <p>A sizable technology maturation effort was conducted to reduce risk and LCC through technology maturation and demonstrations. The primary emphasis was on technologies identified as high-payoff contributors to affordability, supportability, survivability and lethality. Numerous demonstrations were accomplished to validate performance and LCC impact to component, subsystem and the total system.</p> <p>In November 1996, contracts were awarded to Boeing and Lockheed Martin for Concept Demonstration Programs. These competing contractors built and flew concept demonstrator aircraft, conducted concept unique ground demonstrations, and refined their respective weapon system concepts. Specifically, Boeing and Lockheed Martin demonstrated commonality and modularity, Short Take Off Vertical Landing (STOVL) hover and transition, and low speed handling qualities of their respective weapon system concepts. Pratt and Whitney provided propulsion hardware and engineering support. General Electric continued development of a second, interchangeable engine for competition in production.</p> <p>Following evaluation of proposals and a favorable Milestone B decision, the JSF Program entered SDD on 26 October 2001 with SDD contract awards to Lockheed Martin and Pratt & Whitney. The SDD plan reflects a block approach, based on open systems architecture, for accomplishing aircraft and weapons integration. General Electric continues propulsion development efforts.</p> <p>The 14 October 2004 Defense Acquisition Board (DAB) reiterated the JSF Acquisition Strategy and updated the program schedule.</p> <p>USAF procurement is planned to begin in FY 2007 with advance procurement in FY 2006. DoN procurement is planned to begin in FY 2008 with advance procurement in FY 2007.</p>		

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Exhibit R-3, RDT&E Project Cost Analysis												DATE February 2005		
BUDGET ACTIVITY						PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)						0604800F Joint Strike Fighter EMD					3831 Joint Strike Fighter			
(U) Cost Categories (Tailor to WBS, or System/Item Requirements) (\$ in Millions)	Contract Method & Type	Performing Activity & Location	Total Prior to FY 2004 Cost	FY 2004 Cost	FY 2004 Award Date	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														
Lockheed Martin	C/CPAF	Ft. Worth, TX	3,456.051	3,341.568	Oct-03	3,757.000	Oct-04	4,409.000	Oct-05	3,911.000	Oct-06	Continuing	TBD	19.670
Lockheed Martin	SS/BOA	Ft. Worth, TX	0.000	5.500	Dec-03	0.000		0.000		0.000			5.500	
Lockheed Martin	SS/IDIQ	Ft. Worth, TX	0.000	1.000	Dec-03	0.000		0.000		0.000			1.000	
Pratt & Whitney	SS/CPAF	Hartford, CT	1,528.762	844.168	Oct-03	786.000	Oct-04	709.000	Oct-05	421.000	Oct-06	Continuing	TBD	4.851
Pratt & Whitney	SS/BOA	Hartford, CT	10.220	24.801	Dec-03	11.000	Oct-04	2.000	Oct-05	0.000		Continuing	TBD	13.000
General Electric	SS/CPAF	Cincinnati, OH	230.883	137.026	Oct-03	23.000	Oct-04	0.000		0.000		Continuing	TBD	468.444
General Electric	SS/BOA	Cincinnati, OH	0.409	1.552	Dec-03	1.000	Oct-04	9.000	Oct-05	8.000	Oct-06	Continuing	TBD	18.000
General Electric	SS/IDIQ	Cincinnati, OH	0.000	3.000	Dec-03	0.000	Oct-04	0.000	Oct-05	0.000		Continuing	TBD	3.000
General Electric	SS/CPAF	Cincinnati, OH	0.000	0.000		207.000	Oct-04	227.000	Oct-05	362.000	Oct-06	Continuing	TBD	703.312
Subtotal Product Development			5,226.325	4,358.615		4,785.000		5,356.000		4,702.000		Continuing	TBD	1,230.277
Remarks:														
(U) Support														
NAWC Lakehurst	Various	NAWC Lakehurst	1.342	1.441	Dec-03	0.600	Oct-04	0.700	Oct-05	0.700	Oct-06	Continuing	TBD	TBD
NAWC Patuxent River	Various	Patuxent River, VA	76.118	59.165	Dec-03	64.000	Oct-04	68.000	Oct-05	105.000	Oct-06	Continuing	TBD	TBD
NAWC China Lake	Various	Various	24.772	13.770	Dec-03	36.000	Oct-04	38.000	Oct-05	51.000	Oct-06	Continuing	TBD	TBD
ASC	Various	Wright Patterson AFB	13.617	6.556	Dec-03	7.605	Oct-04	8.822	Oct-05	16.410	Oct-06	Continuing	TBD	TBD
AFFTC	Various	Various	21.380	16.528	Dec-03	26.915	Oct-04	31.222	Oct-05	45.527	Oct-06	Continuing	TBD	
ESC	Various	Hanscom AFB	5.790	1.435	Dec-03	1.633	Oct-04	1.894	Oct-05	10.235	Oct-06	Continuing	TBD	
Other	Various	Various	38.773	123.726	Dec-03	121.731	Oct-04	129.250	Oct-05	195.101	Oct-06	Continuing	TBD	
Miscellaneous	Various	Various	2.068	14.162	Oct-03	5.400	Dec-04	5.500	Dec-05	14.355	Dec-06	Continuing	TBD	
Sverdrup/Anteon	C/CPAF	Arlington, VA	8.899	4.450	Dec-03	5.278	Dec-04	5.433	Dec-05	14.515	Dec-06	Continuing	TBD	
AI-ES, Arlington, VA	SS/CPFF	Arlington, VA	12.747	6.373	Dec-03	7.127	Dec-04	8.300	Dec-05	13.135	Dec-06	Continuing	TBD	
Subtotal Support			205.506	247.606		276.289		297.121		465.978		Continuing	TBD	TBD
Remarks:														
(U) Test & Evaluation														
													0.000	
Project 3831														
R-1 Shopping List - Item No. 90-5 of 90-8														
Exhibit R-3 (PE 0604800F)														

R-1 Shopping List - Item No. 90-5 of 90-8

Exhibit R-3 (PE 0604800F)

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Exhibit R-3, RDT&E Project Cost Analysis											DATE February 2005			
BUDGET ACTIVITY						PE NUMBER AND TITLE					PROJECT NUMBER AND TITLE			
05 System Development and Demonstration (SDD)						0604800F Joint Strike Fighter EMD					3831 Joint Strike Fighter			
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000		0.000	0.000	0.000
Remarks:														
(U) <u>Management</u>														
Stanley	SS/CPFF	Arlington, VA	12.839	12.161	Oct-03	12.211	Oct-04	12.797	Oct-05	13.309	Oct-06	Continuing	TBD	TBD
Aegis	SS/CPFF	Arlington, VA	4.781	2.391	Dec-03	3.311	Dec-04	3.358	Dec-05	3.492	Dec-06	Continuing	TBD	TBD
Subtotal Management			17.620	14.552		15.522		16.155		16.801		Continuing	TBD	TBD
Remarks:														
(U) Total Cost			5,449.451	4,620.773		5,076.811		5,669.276		5,184.779		Continuing	TBD	TBD
Remarks: Prior Years reflect \$4,379.834 USAF/\$4,466.337 USN/\$1,249.969 International/Total \$10,070.224														
FY 2005 reflects \$2,181.272 USAF/\$2,145.239 USN/\$750.350 International/Total \$5,076.811														
FY 2006 reflects \$2,474.763 USAF/\$2,393.013 USN/\$801.500 International/Total \$5,669.276														
FY 2007 reflects \$2,192.584 USAF/\$2,287.055 USN/\$705.140 International/Total \$5,184.779														

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2005

BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

PE NUMBER AND TITLE

0604800F Joint Strike Fighter EMD

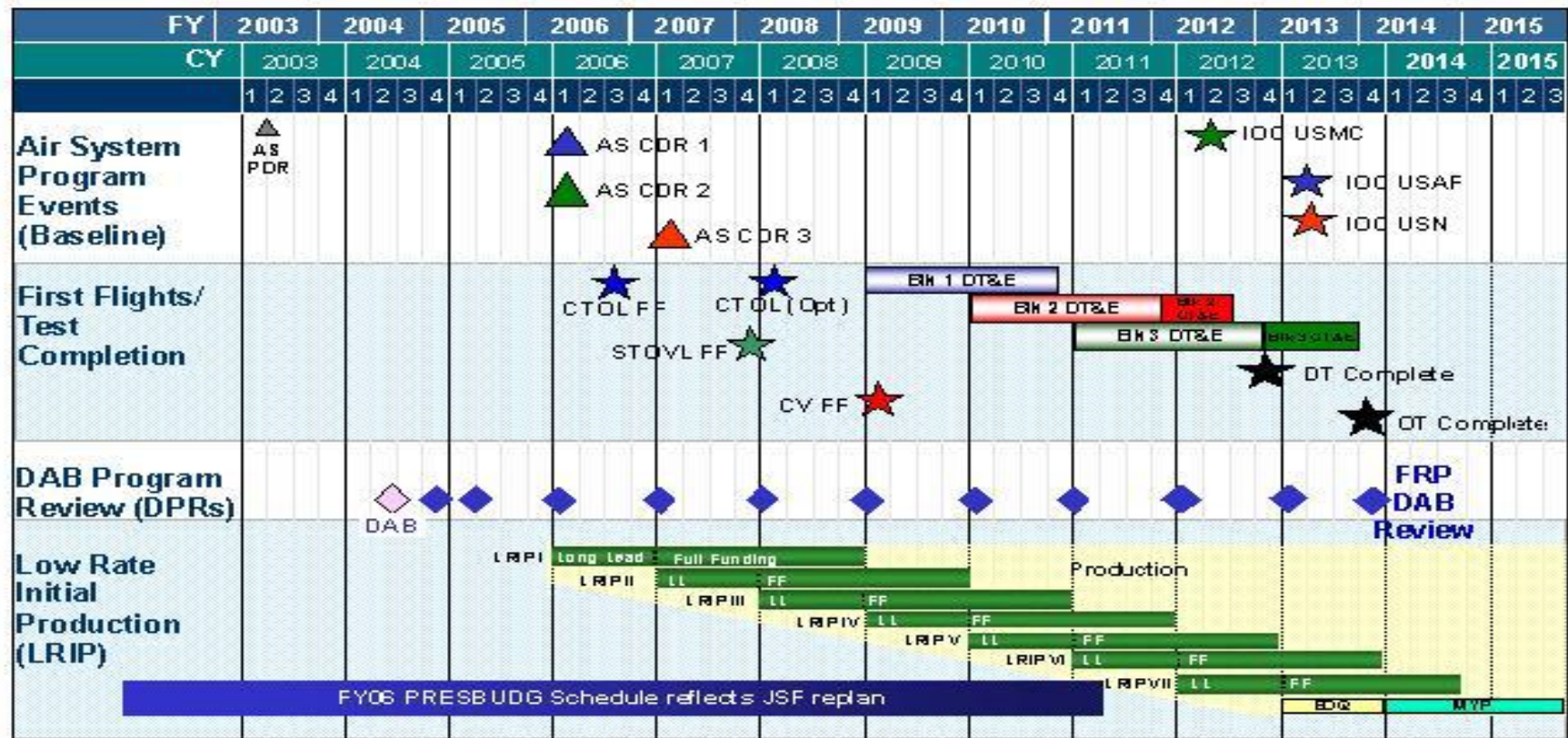
PROJECT NUMBER AND TITLE

3831 Joint Strike Fighter



Replan

JSF Top Level Schedule



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Exhibit R-4a, RDT&E Schedule Detail

DATE

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BUDGET ACTIVITY

05 System Development and Demonstration (SDD)

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3831 Joint Strike Fighter

(U) Schedule ProfileFY 2004FY 2005FY 2006FY 2007

(U) Defense Acquisition Board (DAB)

3Q

(U) DAB Program Review (DPR)

1-2Q

2Q

2Q

(U) Critical Design Reviews (CDR 1&2 FY06, CDR 3 FY07)

2Q

2Q

(U) F-35A Conventional Takeoff and Landing (CTOL) First Flight

4Q