

UNCLASSIFIED

PE NUMBER: 0305165F

PE TITLE: NAVSTAR GPS (Space)

Exhibit R-2, RDT&E Budget Item Justification

DATE

February 2006

BUDGET ACTIVITY

07 Operational System Development

PE NUMBER AND TITLE

0305165F NAVSTAR GPS (Space)

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	128.349	184.756	177.792	106.837	77.123	56.396	35.103	Continuing	TBD
3030 NAVSTAR GPS (Space & Control)	128.349	184.756	177.792	106.837	77.123	56.396	35.103	Continuing	TBD

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

This Program Element (PE) funds Research and Development (R&D) for the Navstar Global Positioning System (GPS) Space and Control segments of the overall GPS program. Includes, but not limited to: satellite development, training simulators, Integrated Logistics Support (ILS) products, ground control segment development, procurement, and operation; sustaining engineering; space and ground segments upgrades; and R&D efforts to support the entire GPS system deployment. This PE funds R&D for modernization and future GPS systems including efforts to provide anti-jam capability through increased M-Code signal power.

GPS Block IIF satellites and IIR satellites will be modified to include a second civil signal (L2C) and new military signal (M-code). Block IIF satellites will also include a third civil signal (L5). A new GPS Block III program (PE 0603421F) was initiated after new start approval in August 2000.

This program is in Budget Activity 7 - Operational Systems Development because it supports operational systems.

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Previous President's Budget	147.037	188.301	131.624
(U) Current PBR/President's Budget	128.349	184.756	177.792
(U) Total Adjustments	-18.688	-3.545	
(U) Congressional Program Reductions		-0.862	
Congressional Rescissions	-0.113	-2.683	
Congressional Increases			
Reprogrammings	-15.000		
SBIR/STTR Transfer	-3.575		

(U) **Significant Program Changes:**

FY05: -\$15.000M in FY2005 for higher Air Force priorities; FY07: +\$46.168M increased funding for interim M-Code and civil capability and GPS Operations Center (GPSOC) connectivity.

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Exhibit R-2a, RDT&E Project Justification

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07 Operational System Development

PE NUMBER AND TITLE

0305165F NAVSTAR GPS (Space)

PROJECT NUMBER AND TITLE

3030 NAVSTAR GPS (Space & Control)

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
3030 NAVSTAR GPS (Space & Control)	128.349	184.756	177.792	106.837	77.123	56.396	35.103	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0		

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

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

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
(U) Continue system engineering, spectrum/frequency management and program operations	6.019	2.800	1.792
(U) Continue IIF satellite development/Parts Obsolescence	25.600	27.000	35.000
(U) Continue GPS Modernization for Space and enhanced anti-jam capabilities	3.222	1.000	0.500
(U) Continue Operational Control Segment (OCS) development/modernization	92.049	153.956	140.500
(U) Completed GPS Stewardship	1.459	0.000	0.000
(U) Total Cost	128.349	184.756	177.792

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

	<u>FY 2005</u> <u>Actual</u>	<u>FY 2006</u> <u>Estimate</u>	<u>FY 2007</u> <u>Estimate</u>	<u>FY 2008</u> <u>Estimate</u>	<u>FY 2009</u> <u>Estimate</u>	<u>FY 2010</u> <u>Estimate</u>	<u>FY 2011</u> <u>Estimate</u>	<u>Cost to</u> <u>Complete</u>	<u>Total Cost</u>
(U) AF RDT&E									
(U) Related RDT&E (PE 0603421F, BA-4/R-41, Project 644993 - GPS Block III)	33.773	85.172	315.314	492.094	781.671	912.128	839.576	Continuing	TBD
(U) Other APPN									
(U) Operations and Maintenance (PE 0305165F, BA 1 - Operating Forces, SAG 13D)	55.569	68.787	77.664	84.376	85.116	93.212	102.326	Continuing	TBD

Project 3030

R-1 Shopping List - Item No. 193-3 of 193-8

Exhibit R-2a (PE 0305165F)

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Exhibit R-2a, RDT&E Project Justification

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

(U) Missile Procurement (PE 0305165F, BA 5 - Space and Other Support, P-22, 23)	327.423	313.089	140.441	267.468	326.219	162.245	520.155	Continuing	TBD
(U) Other Procurement (PE 0305165F, BP 83 - Electronics and Telecommunications Equipment, WSC 836790, P-67, and WSC 836730; BP 86 - Spares & Repair Parts, WSC 86190A, P-62)	7.777	13.454	12.280	5.653	6.234	11.008	69.051	Continuing	TBD

(U) **D. Acquisition Strategy**

GPS OCS upgrade was competitively awarded to a single contractor (Lockheed Martin) in July 1995. Block IIF satellite and IIF ground systems development contract was competitively awarded to a single contractor (Boeing) in April 1996. The Single Prime Initiative (SPI) consolidated these efforts and was added to the Boeing IIF contract (with Lockheed Martin as a subcontractor) on 1 Oct 1999. GPS Modernization efforts for the Block IIR were awarded sole source to Lockheed Martin under a new contract in August 2000. Modernization efforts for Block IIF were added to the existing contract with Boeing as Engineering Change Proposals (ECPs).

The Air Force is unable to deliver full M-Code capability within the operational control segment (OCS) by FY11. This OCS slip created a significant overlap with the planned GPS III modernized control segment (OCX) development causing the potential for duplicative development efforts and near simultaneous fielding of the full M-code capability and new civil signals (L2C and L5) on both the OCX and OCS contracts. Currently the existing OCS contract is being modified to replace the delivery of full M-code capability and new civil signals with the delivery of a simplified early M-code/civil monitoring capability. The delivery of full M-code capability and new civil signals will be implemented in OCX (funded in the GPS III PE 0603421F).

UNCLASSIFIED

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 & Type</u>	<u>Performing Activity & Location</u>	<u>Total Prior to FY 2005 Cost</u>	<u>FY 2005 Cost</u>	<u>FY 2005 Award Date</u>	<u>FY 2006 Cost</u>	<u>FY 2006 Award Date</u>	<u>FY 2007 Cost</u>	<u>FY 2007 Award Date</u>	<u>Cost to Complete</u>	<u>Total Cost</u>	<u>Target Value of Contract</u>
(U) <u>Product Development</u>												
Applied Research Labs	MIPR	Various	3.649	0.000		0.000		0.000		0.000	3.649	
OCS Development & IIF Modernization (F0470196C0025)	FPAF/CPA F/CPFF	Boeing, Seal Beach, CA	934.836	92.049	Oct-04	153.956	Oct-05	140.500	Oct-06	Continuing	TBD	1,944.179
IIF Dev/Parts Obsolescence (F047019C0025)	FPAF/CPA F/CPFF	Boeing, Seal Beach, CA	0.000	25.600	Dec-04	27.000	Oct-05	35.000	Oct-06	0.000	87.600	77.600
IIR Modernization Development (F0470100C0006)	CPIF	Lockheed Martin, King of Prussia, PA	74.786	0.000		0.000		0.000		0.000	74.786	74.786
GPS III Modernization (F0470101C0008)	FFP	Lockheed Martin, King of Prussia, PA	15.767	0.000		0.000		0.000		0.000	15.767	TBD
GPS III Modernization (F0470101C0010)	FFP	Boeing, Seal Beach, CA	16.000	0.000		0.000		0.000		0.000	16.000	
Control Segment Support	MIPR/PO	Various Gov't agencies	4.897	3.222	Dec-04	1.000	Dec-05	0.500	Dec-06	Continuing	TBD	TBD
EELV Mission Unique Svcs & Clock Development	MIPR/Other SPO Contracts	NRL & Contractors	24.402	2.075	Dec-04	0.000		0.000		Continuing	TBD	TBD
Stewardship	MIPR	Various	11.874	1.459	Dec-04	0.000		0.000		Continuing	TBD	TBD
Accuracy Improvement Initiative (AII)	FPA/CPAF/CPFF	Boeing, Seal Beach, CA	10.000	0.000		0.000		0.000		0.000	10.000	
Subtotal Product Development			1,096.211	124.405		181.956		176.000		Continuing	TBD	TBD
Remarks:												
(U) <u>Support</u>												
System Engineering/Support	Various	FFRDC (Aerospace/Mitre), SETA	39.276	1.303	Oct-04	0.400	Oct-05	0.400	Oct-06	Continuing	TBD	TBD
GPS Modernization Tech Spt			43.249	0.000		0.000		0.000		0.000	43.249	
Miscellaneous	Various	Various	3.231	0.000		0.000		0.000		0.000	3.231	
Subtotal Support			85.756	1.303		0.400		0.400		Continuing	TBD	TBD
Remarks:												
(U) <u>Test & Evaluation</u>												
Flex Power Testing (F0470100C0006)	FPAF/CPA F/CPFF	Lockheed Martin, King of Prussia, PA & various gov't activities	3.588	1.000	Feb-05	2.000	Feb-06	1.000	Feb-07	Continuing	TBD	TBD
Subtotal Test & Evaluation			3.588	1.000		2.000		1.000		Continuing	TBD	TBD

Project 3030

R-1 Shopping List - Item No. 193-5 of 193-8

Exhibit R-3 (PE 0305165F)

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis

DATE

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07 Operational System Development

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0305165F NAVSTAR GPS (Space)

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Remarks:

(U) Management

Technical Support

Various

FFRDC

SETA &

(Aerospace) &

FFRDCs

SETA

13.301

1.641

0.400

0.392

Continuing

TBD

TBD

Subtotal Management

13.301

1.641

0.400

0.392

Continuing

TBD

TBD

Remarks:

(U) Total Cost

1,198.856

128.349

184.756

177.792

Continuing

TBD

TBD

Exhibit R-4, RDT&E Schedule Profile

DATE

February 2006

BUDGET ACTIVITY

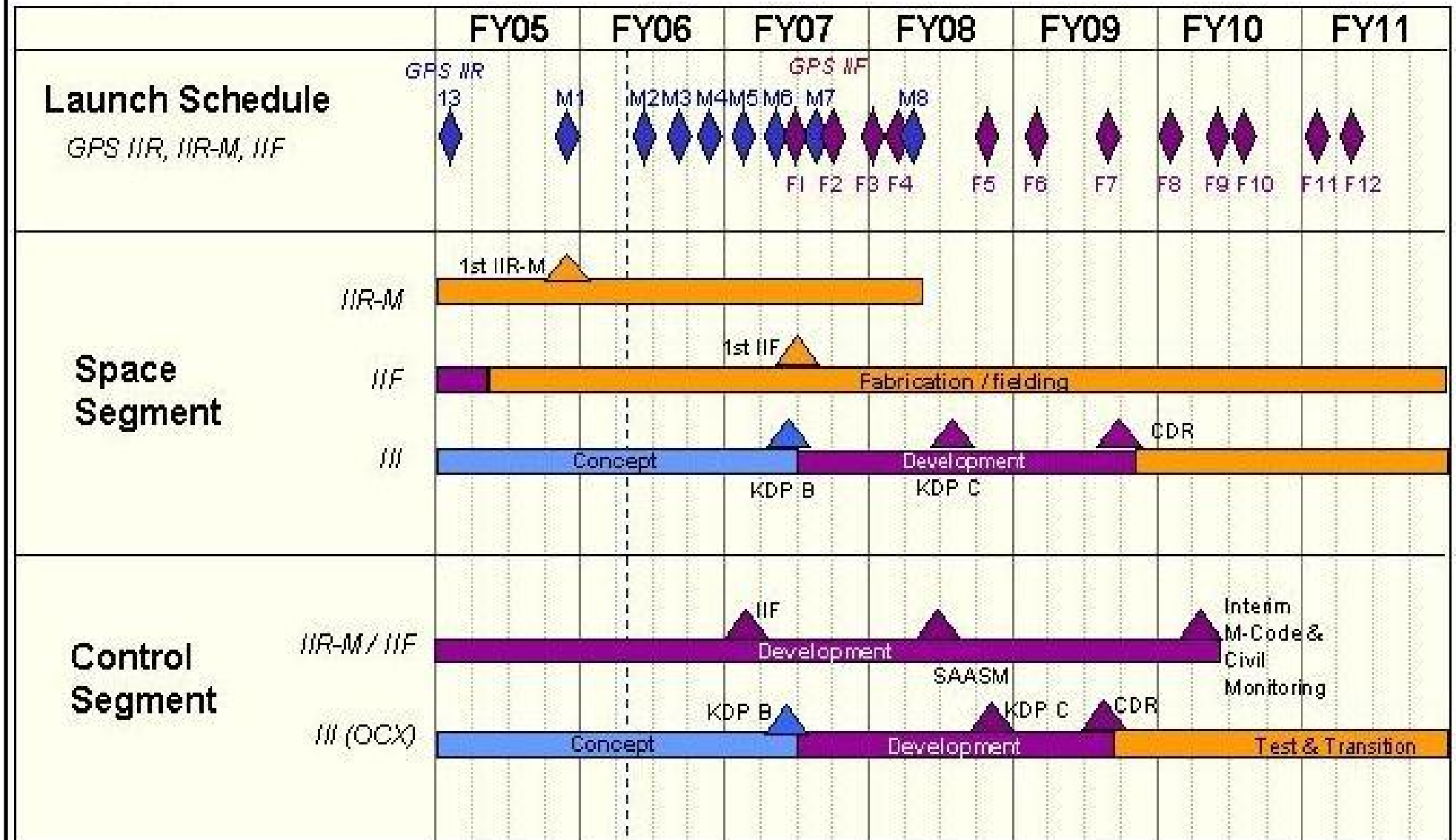
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Exhibit R-4a, RDT&E Schedule Detail

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(U) Schedule ProfileFY 2005FY 2006FY 2007

(U) IIF flight software development delivery to site

3Q

(U) Legacy Accuracy Improvement Initiative (AII) Capability complete

1Q

(U) M-Code development begins

4Q

(U) Launch, Anomaly resolution & Disposal Operations (LADO) Release 1 delivery to site

4Q

(U) IIF flight software development Complete

1Q

(U) SAASM development Formal Qualification Test (FQT)

1Q

(U) GPS Block IIF Development Complete

2Q

(U) LADO Release 2 Complete

2Q

(U) M-code Software Detail Design Complete

3Q