

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

February 2003

BUDGET ACTIVITY

07 - Operational System Development

PE NUMBER AND TITLE

0305165F NAVSTAR GPS (Space)

PROJECT

3030

COST (\$ in Thousands)	FY 2002 Actual	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	Cost to Complete	Total Cost
3030 NAVSTAR GPS (Space & Control)	183,569	285,415	146,468	129,933	107,134	84,752	43,677	39,696	Continuing	TBD
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) **A. Mission Description**

This program element funds Research and Development for the NAVSTAR Global Positioning System (GPS) Space and Control segments of the overall GPS program. This includes, but is not limited to: satellite development, training simulators, development of an Integrated Mission Operation Support Center (IMOSC), Integrated Logistics Support (ILS) products, and 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 Program Element (PE) funds the Research and Development (R&D) for modernization and future GPS systems including efforts to provide anti-jam capability through increased M-Code signal power, as soon as practical.

GPS Block IIF satellites and IIR satellites will be modified to include a second civil signal and new military signal. 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 to incorporate a higher power military signal to provide enhanced anti-jam capability, the second and third civil signals, and the new military signal. A revised GPS III program strategy will reduce the cycle time and defer the start of the pre-acquisition phase. As a result, GPS III funding is zeroed in FY04.

GPS Modernization Stewardship funds efforts which are of a national scale, joint civil-military in nature, and benefit two or more agencies.

(U) **FY 2002 (\$ in Thousands)**

(U) \$0	Accomplishments/Planned Program
(U) \$8,000	Continued system engineering, spectrum/frequency management and program operations
(U) \$5,036	Continued IIF satellite development
(U) \$68,192	Continued GPS Modernization for Space (for IIR and IIF satellites)
(U) \$102,341	Continued Operational Control Segment (OCS) development/modernization
(U) \$183,569	Total

Project 3030

Page 1 of 7 Pages

Exhibit R-2 (PE 0305165F)

1637

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

07 - Operational System Development**0305165F NAVSTAR GPS (Space)****3030**(U) **A. Mission Description Continued**(U) FY 2003 (\$ in Thousands)

(U)	\$0	Accomplishments/Planned Program
(U)	\$8,864	Continue system engineering, spectrum/frequency management and program operations
(U)	\$4,173	Continue IIF satellite development
(U)	\$128,557	Continue GPS Modernization for Space (for IIR and IIF satellites) and enhanced anti-jam capabilities
(U)	\$143,821	Continue OCS development/modernization
(U)	\$285,415	Total

(U) FY 2004 (\$ in Thousands)

(U)	\$0	Accomplishments/Planned Program
(U)	\$8,900	Continue system engineering, spectrum/frequency management and program operations
(U)	\$2,116	Continue IIF satellite development
(U)	\$1,100	Continue GPS Modernization for Space (for IIR and IIF satellites) and enhanced anti-jam capabilities
(U)	\$129,752	Continue OCS development/modernization
(U)	\$4,600	GPS Stewardship (FY03 funded in PE 0603421F)
(U)	\$146,468	Total

(U) **B. Budget Activity Justification**

This program is in Budget Activity 7 - Operational Systems Development because it is a post-Milestone III program.

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Total Cost</u>
(U) Previous President's Budget	178,655	324,098	174,163	TBD
(U) Appropriated Value	180,459	296,098		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-2,694	-5,606		
b. Small Business Innovative Research				
c. Omnibus or Other Above Threshold Reprogram		-5,077		
d. Below Threshold Reprogram	5,804			
e. Rescissions				

Project 3030

Page 2 of 7 Pages

Exhibit R-2 (PE 0305165F)

1638

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 2003			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
07 - Operational System Development				0305165F NAVSTAR GPS (Space)				3030		
(U) <u>C. Program Change Summary (\$ in Thousands) Continued</u>										
				<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>		<u>Total Cost</u>		
(U)	Adjustments to Budget Years Since FY 2003 PBR					-27,695				
(U)	Current Budget Submit/FY 2004 PBR			183,569	285,415	146,468		TBD		
(U) <u>Significant Program Changes:</u> \$5,804K increase in FY02 for GPS Modernization efforts; reductions in FY03 and FY04 for inflation adjustment and higher Air Force priorities.										
(U) <u>D. Other Program Funding Summary (\$ in Thousands)</u>										
	<u>FY 2002</u>	<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>Estimate</u>	<u>Complete</u>	
(U)	AF RDT&E									
(U)	62,970	55,580	0	40,674	180,513	291,634	779,847	792,797	Continuing	TBD
	0603421F, BA-4/R-42, Project 644993 - GPS Block III)									
(U)	Other APPN									
(U)	44,312	57,956	53,263	63,702	66,406	77,121	80,301	83,961	Continuing	TBD
	Operations and Maintenance (PE 0305165F, BA 1 - Operating Forces, SAG 13D)									
(U)	161,948	226,336	258,852	334,878	342,189	266,243	131,960	82,145	Continuing	TBD
	Missile Procurement (PE 0305165F, BA 5 - Space and Other Support, P-19, 20)									
(U)	10,345	13,403	12,589	13,344	13,583	12,046	10,316	22,715	Continuing	TBD
	Other Procurement (PE 0305165F, BP 83 - Electronics and Telecommunications Equipment, WSC 6790, P-62, and WSC 6730; BP 86 - Spares & Repair Parts, WSC 190A, P-101)									
Project 3030										

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

February 2003

BUDGET ACTIVITY

07 - Operational System Development

PE NUMBER AND TITLE

0305165F NAVSTAR GPS (Space)

PROJECT

3030

(U) **D. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 2002</u>	<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>Estimate</u>	<u>Complete</u>	

Related RDT&E

PE 0305164F, GPS User Equipment

PE 0305913F, Nuclear Detonation Detection System (NDS)

PE 0603421F, GPS III

(U) **E. 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 99. 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).

(U) **F. Schedule Profile**

	<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) Enhanced IIA IMOSC Development complete							X					
(U) IIF IMOSC Development Begins		*										
(U) IIF IMOSC Development Complete												X
(U) Develop Launch, Anomaly & Disposal Ops (LADO) System												
(U) Release 1 SW Design begins				*								
(U) Release 1 CDR							X					
(U) Release 1 delivery to site											X	
(U) Continue OCS Architectural Implementation												
(U) Phase 3/4 Installed in GPS Support Facility (GSF)		*										
(U) Version 5.0 (COTS upgrade) delivery to site						X						
(U) M-MSRE development begins							X					
(U) Version 5.2 (IIF baseline) delivery to site									X			
(U) Version 6 Development Begins							X					
(U) GPS IIR Modernization Studies				*								

Project 3030

Page 4 of 7 Pages

Exhibit R-2 (PE 0305165F)

1640

UNCLASSIFIED

UNCLASSIFIED

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

February 2003

BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

07 - Operational System Development

0305165F NAVSTAR GPS (Space)

3030

(U) F. Schedule Profile Continued

	<u>FY 2002</u>				<u>FY 2003</u>				<u>FY 2004</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) GPS Block IIF PDR	*											
(U) GPS Defense Acquisition Executive Program Review		*										
(U) GPS Block IIF Development Complete									X			
(U) GPS Modernization Long Lead Production Block IIF begins		*										
(U) GPS IIF Production Start					*							

* = Completed, X = Scheduled

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2003				
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT	
07 - Operational System Development					0305165F NAVSTAR GPS (Space)					3030	
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>											
					<u>FY 2002</u>		<u>FY 2003</u>		<u>FY 2004</u>		
(U) System Engineering and spectrum frequency management					8,000		8,864		8,900		
(U) GPS Block IIF satellite development					5,036		4,173		2,116		
(U) GPS Modernization for Space					68,192		128,557		1,100		
(U) OCS development/modernization					102,341		143,821		129,752		
(U) GPS Stewardship					0		0		4,600		
(U) Total					183,569		285,415		146,468		
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>											
(U) <u>Performing Organizations:</u>											
<u>Contractor or</u>		<u>Contract</u>									
<u>Government</u>		<u>Method/Type</u>									
<u>Performing</u>		<u>or Funding</u>		<u>Award or</u>		<u>Performing</u>		<u>Project</u>			
<u>Activity</u>		<u>Vehicle</u>		<u>Obligation</u>		<u>Activity</u>		<u>Office</u>			
				<u>Date</u>		<u>EAC</u>		<u>EAC</u>			
						<u>Total Prior</u>		<u>Budget</u>			
						<u>to FY 2002</u>		<u>FY 2002</u>			
								<u>FY 2003</u>			
								<u>FY 2004</u>			
								<u>Budget to</u>			
								<u>Complete</u>			
								<u>Total</u>			
								<u>Program</u>			
<u>Product Development Organizations</u>											
Applied Research Labs		MIPR		Mar 97		3,349		300			
Boeing (C0025)		FPAF/CPAF/CPFF		Apr 96		407,317		166,219			
Lockheed-Martin Missiles and Space (C0006)		CPIF		Aug 00		57,000		8,050			
GPS III Modernization Lockheed-Martin (C0008)		FFP		Dec 00		15,767		15,767			
GPS III Modernization Boeing (C0010)		FFP		Dec 00		16,000		16,000			
NRL		MIPR		Various		13,430		1,500			
GPS Modernization Stewardship		Various		Various		7,274		0			
								1,000			
								4,600			
								Continuing			
								Continuing			
								TBD			
								TBD			
Project 3030											
Page 6 of 7 Pages											
Exhibit R-3 (PE 0305165F)											

UNCLASSIFIED

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE
										February 2003
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT
07 - Operational System Development					0305165F NAVSTAR GPS (Space)					3030
(U) <u>Performing Organizations Continued:</u>										
<u>Support and Management Organizations</u>										
System Engineering/Support	Various	Various	N/A	N/A	29,501	935	960	975	Continuing	TBD
GPS Modernization Tech Spt		Various			36,684	6,565	7,947	8,500	Continuing	TBD
Miscellaneous	Various	Various	N/A	N/A	3,231	0	0	0	0	3,231
<u>Test and Evaluation Organizations</u>										
Boeing (96C0025)	FPAF/CPAF/CPFF	Apr 96	N/A	N/A	0	0	0	2,000	Continuing	TBD
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 2002</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					520,137	176,069	276,508	134,993	TBD	TBD
Subtotal Support and Management					69,416	7,500	8,907	9,475	TBD	TBD
Subtotal Test and Evaluation					0	0	0	2,000	TBD	TBD
Total Project					589,553	183,569	285,415	146,468	TBD	TBD

Project 3030

Page 7 of 7 Pages

Exhibit R-3 (PE 0305165F)