PE NUMBER: 0603421F PE TITLE: GLOBAL POSITIONING SYSTEM

	Exhib	oit R-2, RDT	&E Budge	t Item Just	ification			DATE	February	2004
	ET ACTIVITY dvanced Component Development a	and Prototype	s (ACD&P)		E NUMBER AND 603421F GLC			EM		
	Cost ([¢] in Williams)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to	Total
	Cost (\$ in Millions)	Actual	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate	Complete	
	Total Program Element (PE) Cost	46.633	0.000	40.568	180.023	291.035	779.493	794.030	Continuing	TB
4993	GPS BLOCK III	46.633	0.000	40.568	180.023	291.035	779.493	794.030	Continuing	TB
(U)	 A. Mission Description and Budget Iter Navstar Global Positioning System (GPS) Research and Development (R&D) for GI engineering and analysis, satellite systems satellites, control segment development, u Funds will support engineering studies an and mission operations in support of upgr use of GPS. GPS Modernization Stewardship funds eff to PE 0305165F starting in FY04. This program is Budget Activity 4 - Adva and Design Phase Approval). 	is a space-base PS Block III Sp development, t user equipment i d analyses, arch ades and product forts which are o	ace and Contro he study of aug nterfaces, train- itectural engine et improvement	l Segments. Tr gmentation syst ing simulators, cering studies, t s for military a ale, joint civil-	his includes, bu tems with the p Integrated Log trade studies, sy nd civil applica military in natu	ut is not limited potential of host gistics Support of ystems enginee ations necessary ure, and benefit	to, advanced co ing the GPS PN (ILS) products, ring, system dev y to support effor two or more ag	oncept develop IT system on n and developm velopment, tes orts to protect b encies. Stewa	oment, systems nulti-mission s ental test resou t and evaluatio U.S. military an rdship funding	ervice rces. n efforts, nd allies' transfers
(U)	B. Program Change Summary (\$ in Mil	llions)								
(2)	(\ m 1/1	<u> </u>					FY 2003	FY	2004	FY 2005
U)	Previous President's Budget						55.580		0.000	40.674
	Current PBR/President's Budget						46.633		0.000	40.568
	Total Adjustments						-8.947		0.000	
	Congressional Program Reductions									
(-)	Congressional Rescissions									
	Congressional Increases									
	Reprogrammings						-7.132			
	SBIR/STTR Transfer						-1.815			
U)	Significant Program Changes:						1.012			
,	The GPS III program has been restructure	d to focus on su	pporting a FY1	2 first launch.	FY03 funds w	vere used to con	tinue ongoing F	Phase A (conce	ept definition) t	hrough
			R-1 Sh	opping List - Iten	n No. 40-2 of 40-	8			Exhibit R-2 (PE 0603421F)
				489					· · · · · ·	

Exhibit R-2, RDT&E Budget Iten		DATE February 2004
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE 0603421F GLOBAL POSITIONING SYSTEM	
FY04 with two contractors. Plan to award a single contract for development in	FY06.	
R-1 Shopping	List - Item No. 40-3 of 40-8	Exhibit R-2 (PE 0603421F)

BUDGET ACTIVITY PE RUMBER AND TILE PROJECT NUMBER AND TILE PROJECT NUMBER AND TILE 04 Advanced Component Development and Prototypes (ACD&P) E03342F GLOBAL POSITIONING FY 2008 FY 2008 FY 2008 FY 2008 FY 2008 FY 2009 Cost to 4993 GPS BLOCK III 46.633 0.00 40.568 180.023 291.035 779.493 794.403 Continuing TB 4993 GPS BLOCK III 46.633 0.00 0			Exhibit R-2a	a, RDT&E Pro	oject Justif	ication			DATE	February	2004
Cost (s in Millions) Actual Estimate Estimate Estimate Estimate Estimate Complete 4993 GPS BLOCK III 46.633 0.000 40.568 180.023 291.035 779.403 Cominuing TB Quantity of RDT&RE Articles 0			nent and Prototy	vpes (ACD&P)	0	603421F GLC		ONING			
Actual Estimate Estimate Estimate Estimate Estimate Estimate Estimate Complete Quantity of RDT&E Articles 0 <td< th=""><th></th><th>Cost (\$ in Millions)</th><th>FY 2003</th><th>FY 2004</th><th>FY 2005</th><th>FY 2006</th><th>FY 2007</th><th>FY 2008</th><th>FY 2009</th><th>Cost to</th><th>Total</th></td<>		Cost (\$ in Millions)	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	Cost to	Total
Quantity of RDT&E Articles 0 </td <td></td> <td></td> <td>Actual</td> <td>Estimate</td> <td>Estimate</td> <td>Estimate</td> <td>Estimate</td> <td></td> <td></td> <td>Complete</td> <td></td>			Actual	Estimate	Estimate	Estimate	Estimate			Complete	
(U) A. Mission Description and Budget Item Justification Navstar Global Positioning System (GPS) is a space-based radio positioning, navigation, and time (PNT) distribution system. This Program Element (PE) funds the Research and Development (R&D) for GPS Block III Space and Control Segments. This includes, but is not limited to, advanced concept development, systems engineering and analysis, satellite systems development, the study of augmentation systems with the potential of hosting the GPS PNT system on multi-mission service satellites, control segment development, user equipment interfaces, training simulators, Integrated Logistics Support (ILS) products, and development, test and evaluation efforts, and mission operations in support of upgrades and product improvements for military and eluids, systems engineering, system development, test and evaluation efforts, and mission operations in support of upgrades and product improvements for military and eluids, put is possible to support efforts to protect U.S. military and allies' use of GPS. GPS Modernization Stewardship funds efforts which are of a national scale, joint civil-military in nature, and benefit two or more agencies. Stewardship funding transfers to PE 0305165F starting in FY04. This program is Budget Activity 4 - Advanced Component Development and Prototypes because it is a Phase A effort, pre-Key Decision Point (KDP)-B (Risk Reduction and Design Phase Approval). (U) B. Accomplishments/Planned Program (\$ in Millions) EY 2003 EY 2004 EY 2005 (U) Continue GPS Modernization Development Stranget Eximate Eximate Eximate Eximate Eximate Conpule Program (\$ in Millions) Conther Prog	4993		46.6							Continuing	TBD
Navstar Global Positioning System (GPS) is a space-based radio positioning, navigation, and time (PNT) distribution system. This Program Element (PE) funds the Research and Development (R&D) for GPS Block III Space and Control Segments. This includes, but is not limited to, advanced concept development, systems engineering and analysis, statellite systems development, the study of augmentation systems with the potential of housing the GPS PNT system on multi-mission service satellites, control segment development, user equipment interfaces, training simulators, Integrated Logistics Support (ILS) products, and development, test and evaluation efforts, and mission operations in support of upgrades and product improvements for military and civil applications necessary to support efforts to protect U.S. military and allies' use of GPS. GPS Modernization Stewardship funds efforts which are of a national scale, joint civil-military in nature, and benefit two or more agencies. Stewardship funding transfers to PE 0305165F starting in FY04. This program is Budget Activity 4 - Advanced Component Development and Prototypes because it is a Phase A effort, pre-Key Decision Point (KDP)-B (Risk Reduction and Design Phase Approval). (U) Continue GPS Modernization Stewardship (U) Continue GPS Modernization Development (U) Continue GPS Modernization Stewardship (U) Continue GPS Modernization Development (U) Total Cost <td></td> <td>Quantity of RDT&E Articles</td> <td></td> <td>0 0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td></td> <td></td>		Quantity of RDT&E Articles		0 0	0	0	0	0	0		
and Design Phase Approval). (U) B. Accomplishments/Planned Program (\$ in Millions) FY 2003 FY 2004 FY 2005 (U) Continue GPS Modernization Stewardship 4.600 0.000 0.000 (U) Continue GPS Modernization Stewardship 4.600 0.000 0.000 (U) Continue GPS Modernization Stewardship 4.121 0.000 3.533 (U) Continue GPS III/Modernization Development 37.912 0.000 37.035 (U) Total Cost 46.633 0.000 40.568 (U) C. Other Program Funding Summary (\$ in Millions) FY 2005 FY 2006 FY 2007 FY 2008 FY 2009 Cost to (U) AF RDT&E Estimate Estimate Estimate Estimate Estimate Complete (U) AF RDT&E PE 0305165F Navstar GPS 284.036 144.790 148.344 117.813 94.558 43.657 39.758 Continuing TBD (U) Other APPN Other APPN Image: Approximation of the top of the top of the top of top		Navstar Global Positioning System Research and Development (R&D) engineering and analysis, satellite s satellites, control segment developm Funds will support engineering stud and mission operations in support of use of GPS. GPS Modernization Stewardship fut to PE 0305165F starting in FY04.	(GPS) is a space-b for GPS Block III ystems development nent, user equipment lies and analyses, a f upgrades and pro- nds efforts which a	ased radio position Space and Contrant, the study of au nt interfaces, train whether the study of au nt interfaces, train whether the study of au number of a national states of	ol Segments. T agmentation sys ning simulators heering studies, tts for military a cale, joint civil-	This includes, butterns with the p , Integrated Log trade studies, st and civil applica	at is not limited optential of host gistics Support ystems enginee ations necessary ure, and benefit	to, advanced ing the GPS F (ILS) products ring, system of y to support ef two or more a	concept develo PNT system on r s, and developm levelopment, tes fforts to protect agencies. Stewa	pment, systems multi-mission s tental test resou st and evaluatio U.S. military a ardship funding	ervice nrces. on efforts, nd allies'
FY 2003FY 2004FY 2005FY 2006FY 2007FY 2008FY 2009Cost toTotal Cost(U)AF RDT&E(U)PE 0305165F Navstar GPS (Space & Ground), R-187284.036144.790148.344117.81394.55843.65739.758ContinuingTBD(U)Other APPN	(U) (U) (U)	B. Accomplishments/Planned Prog Continue GPS Modernization Stewa Continue Program Support for GPS Continue GPS III/Modernization De	rdship III/Modernization	<u>s)</u>					4.600 4.121 37.912	0.000 0.000 0.000	0.000 3.533 37.035
(U) PE 0305165F Navstar GPS (Space & Ground), R-187 284.036 144.790 148.344 117.813 94.558 43.657 39.758 Continuing TBD (U) Other APPN 0			<u>FY 2003</u>	<u>FY 2004</u>							<u>Total Cost</u>
Project 4993 R-1 Shopping List - Item No. 40-4 of 40-8 Exhibit R-2a (PE 0603421F)	(U)	PE 0305165F Navstar GPS (Space & Ground), R-187	284.036	144.790	148.344	117.813	94.558	43.657	39.758	Continuing	TBD
	Proje	ect 4993		R-1 S	hopping List - Iter	m No. 40-4 of 40-	8			Exhibit R-2a	PE 0603421F)

		Exhibit R-2	2a, RDT&E	Project Jus	stification			DATE	February 2	004
BUDGET ACTIVITY 04 Advanced Component Development and Prototypes (ACD&P)					PE NUMBER AN 0603421F GI SYSTEM	ND TITLE L OBAL POSIT	IONING	PROJECT NUM 4993 GPS B	BER AND TITLE LOCK III	
(U)	C. Other Program Funding Summ	<u>nary (\$ in Millio</u>	<u>ns)</u>							
(U)	Operations and Maintenance (PE 0305165F, BA 1 - Operating Forces, SAG 13D) Missile Procurement (PE	41.663	53.205	65.991	67.497	78.468	81.947	82.354	Continuing	TBD
(U)		249.794	255.758	330.530	341.482	265.975	132.051	82.367	Continuing	TBD
(U)	and Telecommunications Equipment, WSC 6790, P-70 and WSC 6730; BP 86 - Spares & Repair Parts WSC 190A, P-111)	19.926	12.495	7.804	13.547	12.051	10.359	22.889	Continuing	TBD

(U) D. Acquisition Strategy

In Nov 00, GPS III awarded one-year contracts to Boeing and Lockheed Martin for \$16M each. Both companies completed the System Architecture and Requirements Definition (SA/RD) studies to survey GPS user needs, develop feasible concepts to address those needs, and provide lifecycle cost estimates associated with achieving various levels of needs satisfaction. Efforts accomplished prior to FY02 are included in PE 0305165F. During FY01, changes were made in the DoD space acquisition process. As a result, the next phase is termed Concept Definition (Phase A, similar to Component Advanced Development) followed by a Key Decision Point B (KDP-B). After a full and open competition for Phase A continuation contracts, two contracts were awarded in January 2004 to Boeing and Lockheed Martin. The GPS JPO plans to release an RFP following KDP-B (3Q FY05) to conduct a Full and Open Competition for a single contract to complete development. The exact scope and strategy for this competitive award will be determined during 3QFY04 reviews with the Undersecretary of the Air Force.

Ex	chibit R-3, RD	T&E Project Cost	Analysi	S					DATE	Februa	ry 200)4
BUDGET ACTIVITY PE NUMBER AND TITLE PROJECT NUMBER AND TITLE 04 Advanced Component Development and Prototypes (ACD&P) 0603421F GLOBAL POSITIONING 4993 GPS BLOCK III SYSTEM											LĒ	
(U) <u>Cost Categories</u>	Contract Method	Performing Activity &	Total	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	<u>FY</u>	Cost to	<u>Total</u>	Target
(Tailor to WBS, or System/Item	<u>& Type</u>	Location	Prior to FY	<u>2003</u>	<u>2003</u>	<u>2004</u>	<u>2004</u>	<u>2005</u>	<u>2005</u>	<u>Complete</u>	<u>Cost</u>	Value of
Requirements)			<u>2003</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>	<u>Cost</u>	<u>Award</u>			Contrac
(\$ in Millions)			<u>Cost</u>		<u>Date</u>		<u>Date</u>		<u>Date</u>			
(U) Product Development												
Concept Defn and Risk Reduction											0.000	
Boeing	FPLOE	Seal Beach, CA	3.234								3.234	
Lockheed Martin	FPLOE	King of Prussia, PA	3.290								3.290	
Spectrum Astro	FPLOE	Gilbert, AZ	3.234								3.234	
Phase A Continuation Contracts	CDIE			10	T 0.4	0.000		0.040	0	a	0.000	
Boeing	CPIF	Seal Beach, CA		12.774		0.000				Continuing	TBD	20.816
Lockheed Martin	CPIF	King of Prussia, PA		12.774	Jan-04	0.000		8.042	Oct-04	Continuing	TBD	20.816
GPS III/Modernization System	Various	Various	43.347	14.290		0.000		20.951		Continuing	TBD	
Engineering & Technical Support			52 105	20.020		0.000		27.025				41 622
Subtotal Product Development			53.105	39.838		0.000		37.035		Continuing	TBD	41.632
Remarks:												
(U) Support	Various	Various	7 010	2.295		0.000		3.533		Continuina	TBD	
JPO Support for GPS III / Modernization GPS Modernization Stewardship	Various	Various	7.812 4.700	4.500		0.000		0.000		Continuing	TBD	
Subtotal Support	various	various	4.700	4.300 6.795		0.000		3.533		Continuing Continuing	TBD	0.000
Remarks:			12.312	0.793		0.000		5.555		Continuing	тыр	0.000
(U) <u>Test & Evaluation</u>												
(0) <u>rest & Evaluation</u>											0.000	
Subtotal Test & Evaluation			0.000	0.000		0.000		0.000		0.000	0.000	
Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) <u>Management</u>												
(0) <u>Ivianagement</u>											0.000	
Subtotal Management			0.000	0.000		0.000		0.000		0.000	0.000	0.000
Remarks:			0.000	0.000		0.000		0.000		0.000	0.000	0.000
(U) Total Cost			65.617	46.633		0.000		40.568		Continuing	TBD	41.632
										8		
Project 4993		R-1 Shopping List	- Item No. 40-	6 of 40-8						Exhibit R-	-3 (PE 06	03421F)

Ex	hibit R-4, I	RDT&E So	chedule P	rofile				DATE February 2004
ET ACTIVITY Ivanced Component Development and		PE NUMBER AN 0603421F GI SYSTEM			NUMBER AND TITLE PS BLOCK III			
	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
1	1234	1234	1234	1234	1234	1234	1234	1234
GPS III					с	PD update	KDP-C	MDA Buy Approval
Space Increment III-A	SA/RD Studies	_		SRR				
Control Segment					F			
V1 (TT&C Ops) V2 (Nav Ops) V3 (GPSIII Ops)								•
CDD – Capabilities Development MDA – Milestone Decision Autho SDR – System Design Review LL – Long Lead TT&C – Tracking, Telemetry and	ority	ATP - Au PDR - Pr CPD - Ca	ithority to F eliminary D		SRI w CD		Requireme	nts Oversight Council ents Review eview

Exhibit R-4a, RDT&E Sche		ary 2004		
JDGET ACTIVITY 4 Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AN 0603421F GL SYSTEM	d TITLE .0BAL POSITIONING	PROJECT NUMBER AND T 4993 GPS BLOCK III	ITLE
J) Schedule ProfileJ) Phase A		<u>FY 2003</u>	<u>FY 2004</u> 2Q	<u>FY 2005</u>
 J) Joint Requirements Oversight Council Capabilities (JROC) Development Doct J) System Requirements Review (SRR) J) KDP-B 	ument (CDD)		4Q	1Q 3Q
J) Phase B/C development Request for Proposal (RFP) released				3Q