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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)									DATE June 2001			
BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603860F Joint Precision Approach and Landing Systems - Dem/Val				PROJECT 4652			
COST (\$ in Thousands)			FY 2000 Actual	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	FY 2006 Estimate	FY 2007 Estimate	Cost to Complete	Total Cost
4652	Precision Landing Systems		15,461	17,926	9,554	13,032	9,971	9,271	9,434	9,637	Continuing	TBD
Quantity of RDT&E Articles			0	0	0	0	0	0	0	0	0	0
FY03-FY07 budget numbers do not reflect the DoD strategic review results.												
(U) A. Mission Description												
<p>Joint Precision Approach and Landing System (JPALS) is a joint effort among the United States (U.S.) Air Force (AF), and Army. The AF is designated as the lead service. JPALS will define the future precision approach and landing system for the Department of Defense (DoD) to provide a joint operational capability for U.S. forces to perform assigned conventional and special operational missions from fixed-base, tactical, shipboard, and special mission environments under a wide range of meteorological conditions. Also, JPALS will ensure DoD maintains civil interoperability with current and projected Federal Aviation Administration (FAA) and North Atlantic Treaty Organization (NATO) member country landing systems. When complete, this effort will replace aging ship-board and ground-based precision landing systems (Instrument Landing System, Precision Approach Radar, Microwave Landing System, and Instrument Carrier Landing Systems). JPALS will facilitate DoD missions and training by enabling US forces to land on any airfield worldwide (land and sea) under peacetime and hostile conditions. JPALS also decreases the time required for deploying forces to a theater by providing an assured landing capability. JPALS provides increased inter- and intra-theater logistics throughput and the ability to fight at night and in inclement weather. Furthermore, JPALS will provide a precision landing capability where none currently exist. It will enhance interoperability for naval aircraft landing at shore-based fields operated by other services and ensure interoperability for the Civil Reserve Air Fleet at DoD airfields, especially in the expeditionary environment. The 1997, JPALS Analysis of Alternatives (AOA) reflected Local Area Differential Global Positioning System (LDGPS) as the most promising technology to meet the mission need. Development activities are initially focused on reducing technical risks. First, JPALS will employ quality guidance in the presence of GPS jamming. Second, it's architecture will be developed to integrate and synchronize with related Global Air Traffic Management (GATM) and GPS modernization initiatives. Third, JPALS will develop and integrate encrypted data links and antenna sets. And finally, JPALS will harmonize with U.S. and international civil satellite navigation and ground navigation systems development. This effort will result in avionics modifications to over 15,000 DoD aircraft. Because JPALS will result in a family of systems, other technologies will be monitored and evaluated such as an Autonomous Landing Capability (ALC) and the FAA local and wide area differential GPS alternatives.</p>												
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04 - Demonstration and Validation	0603860F Joint Precision Approach and Landing Systems - Dem/Val	4652
(U) <u>A. Mission Description Continued</u>		
(U) <u>FY 2000 (\$ in Thousands)</u>		
(U) \$721	Continued Architecture Definition	
(U) \$978	Continued aircraft risk (anti-jam) reduction studies and integration analyses	
(U) \$7,198	Continued shipboard risk reduction prototypes, studies and integration analyses	
(U) \$6,564	Continued development of LDGPS test bed (prototype)	
(U) \$15,461	Total	
(U) <u>FY 2001 (\$ in Thousands)</u>		
(U) \$587	Complete Architecture Definition	
(U) \$997	Continue aircraft risk (anti-jam) reduction studies and integration analyses	
(U) \$8,901	Complete shipboard risk reduction prototypes, studies and integration analyses	
(U) \$7,229	Continue development of LDGPS test bed (prototype)	
(U) \$212	Begin LDGPS flight test and evaluation and modeling and simulation activities	
(U) \$17,926	Total	
(U) <u>FY 2002 (\$ in Thousands)</u>		
(U) \$1,414	Continue aircraft risk (anti-jam) reduction studies and integration analyses	
(U) \$840	Complete development of LDGPS test bed (prototype)	
(U) \$1,511	Complete LDGPS flight test and evaluation and modeling and simulation activities	
(U) \$1,214	Begin system engineering studies to refine local LDGPS architecture	
(U) \$2,394	Begin LDGPS test bed upgrade (prototype)	
(U) \$1,183	Begin ALC studies and deployable ground station miniaturization	
(U) \$998	Begin GPS modernization compatibility analyses and military tactical data link studies	
(U) \$9,554	Total	
(U) <u>B. Budget Activity Justification</u>		
This program is in budget activity 4, Demonstration and Validation, Research Category 6.4B, because supportability and manufacturing process design considerations must be identified and integrated into the precision landing architecture.		
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BUDGET ACTIVITY 04 - Demonstration and Validation					PE NUMBER AND TITLE 0603860F Joint Precision Approach and Landing Systems - Dem/Val					PROJECT 4652						
(U) C. Program Change Summary (\$ in Thousands)																
					<u>FY 2000</u>					<u>FY 2001</u>		<u>FY 2002</u>	<u>Total Cost</u>			
(U)	Previous President's Budget (FY 2001 PBR)				16,290					18,092		9,717	TBD			
(U)	Appropriated Value				16,488					18,092						
(U)	Adjustments to Appropriated Value															
	a. Congressional/General Reductions				-66											
	b. Small Business Innovative Research				-494											
	c. Omnibus or Other Above Threshold Reprogram															
	d. Below Threshold Reprogram				-403											
	e. Rescissions				-64				-166							
(U)	Adjustments to Budget Years Since FY 2001 PBR											-163				
(U)	Current Budget Submit/FY 2002 PBR				15,461				17,926			9,554	TBD			
(U)	<u>Significant Program Changes:</u>															
(U) D. Other Program Funding Summary (\$ in Thousands)																
		<u>FY 2000</u>	<u>FY 2001</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>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)	Other APPN															
(U) E. Acquisition Strategy																
Demonstration and Validation, multiple contracts, Fixed Price Incentive Fee (FPIF), Firm Fixed Priced contracts (FFP); no Non-Developmental Items (NDI)																
(U) F. Schedule Profile																
					<u>FY 2000</u>					<u>FY 2001</u>			<u>FY 2002</u>			
					1	2	3	4	1	2	3	4	1	2	3	4
(U)	Complete Architecture and Requirements Definition															
(U)	LDGPS demonstration system flight test															
(U)	LDGPS test bed delivery (prototype)															
(U)	SRGPS demonstration system flight test															
(U)	SRGPS test bed delivery (prototype)															
										*						
													X			
														X		
									*							
										*						

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(U) F. Schedule Profile Continued												
		<u>FY 2000</u>				<u>FY 2001</u>				<u>FY 2002</u>		
	1	2	3	4	1	2	3	4	1	2	3	4
(U)	Modeling/Simulation evaluations								X			
(U)	LDGPS test bed upgrade								X			
(U)	Development of ALC								X			
(U)	Ground Station Miniaturization									X		

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE June 2001			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
04 - Demonstration and Validation				0603860F Joint Precision Approach and Landing Systems - Dem/Val				4652		
(U) A. Project Cost Breakdown (\$ in Thousands)										
						<u>FY 2000</u>		<u>FY 2001</u>		<u>FY 2002</u>
(U)	Prototype Developments - LDGPS test bed and SRGPS					8,268		9,196		3,534
(U)	Integration studies and analyses to support completion of prototype development and follow-on risk reduction activities					5,957		7,256		2,755
(U)	LDGPS test bed upgrade (prototype)									2,394
(U)	Systems Engineering/Technical Support for architecture refinement					663		603		616
(U)	Responsible Test Organization activities to support prototype lab, van and flight testing					341		600		
(U)	Program Management Support					205		228		200
(U)	Travel					27		43		55
(U)	Total					15,461		17,926		9,554
(U) B. Budget Acquisition History and Planning Information (\$ in Thousands)										
(U) Performing Organizations:										
<u>Contractor or Government Performing Activity</u>	<u>Contract Method/Type or Funding Vehicle</u>	<u>Award or Obligation Date</u>	<u>Performing Activity EAC</u>	<u>Project Office EAC</u>	<u>Total Prior to FY 2000</u>	<u>Budget FY 2000</u>	<u>Budget FY 2001</u>	<u>Budget FY 2002</u>	<u>Budget to Complete</u>	<u>Total Program</u>
<u>Product Development Organizations</u>										
Raytheon Systems (LDGPS)	CPAF	May 99	N/A	N/A	4,055	3,340	5,612	840	Continuing	TBD
Raytheon Systems (SRGPS)	CPFF	June 99	N/A	N/A	2,436	904	0	0	0	3,340
ARINC Inc.	FFP	Jan 99	N/A	N/A	1,051	706	0	0	0	1,757
Horizons Technology Inc	IDIQ	Feb 99	N/A	N/A	2,405	1,941	857	1,429	Continuing	TBD
Rockwell Collins Inc.	FFP	Apr 99	N/A	N/A	300	800	700	0	0	1,800
Navy PMA21381	Reimbursable	Nov 99	N/A	N/A	3,419	5,668	7,249	0	0	16,336
MITRE Corporation	CPAF	Oct 99	N/A	N/A	534	663	752	616	Continuing	TBD
PRC Corporation	FFP	Jan 99	N/A	N/A	451	0	0	0	0	451
Pacer Infotech Inc.	FPFF	May 99	N/A	N/A	512	0	0	0	0	512
MCR	IDIQ	Apr 99	N/A	N/A	212	135	107	112	Continuing	TBD
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BUDGET ACTIVITY										June 2001
04 - Demonstration and Validation					PE NUMBER AND TITLE					PROJECT
					0603860F Joint Precision Approach and Landing					4652
					Systems - Dem/Val					
(U) Performing Organizations Continued:										
<u>Product Development Organizations</u>										
Sierra Nevada Corp	CPFF	Mar 99	N/A	N/A	276	0	700	0	0	976
Lockheed Martin Services	FFP	Mar 99	N/A	N/A	243	0	0	0	0	243
Litton Corp	FFP	May 01	N/A	N/A	0	0	180	0	0	180
Various	Various	Various	N/A	N/A	2,965	731	898	0	0	4,594
TBD Contracts										
Modeling/Simulation	FFP	1Qtr FY02	N/A	N/A	0	0	0	1,511	Continuing	TBD
LDGPS Test Bed Upgrade	FPIF	1Qtr FY02	N/A	N/A	0	0	0	3,608	Continuing	TBD
Ground Station	FFP	1Qtr FY02	N/A	N/A	0	0	0	1,183	Continuing	TBD
Miniaturization										
<u>Support and Management Organizations</u>										
MITRE Corp	FFP	Various	N/A	N/A	218	205	228	200	Continuing	TBD
Various	FFP	Various	N/A	N/A	232	27	43	55	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
Navy - NAWCAD	Reimbursable	Nov 99	N/A	N/A	250	341	450	0	0	1,041
48TG/XPRF	Reimbursable	May 01	N/A	N/A	0	0	150	0	0	150
(U) Government Furnished Property:										
<u>Contract</u>										
<u>Method/Type</u>										
<u>Item</u>	<u>or Funding</u>	<u>Award or</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Description</u>	<u>Vehicle</u>	<u>Obligation</u>	<u>Date</u>		<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Product Development Property</u>										
N/A										
<u>Support and Management Property</u>										
N/A										
<u>Test and Evaluation Property</u>										
N/A										
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	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
	<u>to FY 2000</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>Complete</u>	<u>Program</u>
<u>Subtotals</u>						
Subtotal Product Development	18,859	14,888	17,055	9,299	TBD	TBD
Subtotal Support and Management	450	232	271	255	TBD	TBD
Subtotal Test and Evaluation	250	341	600	0	0	1,191
Total Project	19,559	15,461	17,926	9,554	TBD	TBD