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

DATE: February 2003

BUDGET ACTIVITY: 04 - Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE: 0603860F Joint Precision Approach and Landing Systems - Dem/Val

PROJECT: 4652

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
4652	Precision Landing Systems	8,804	10,987	13,847	18,798	26,549	21,918	22,234	22,532	Continuing	TBD
	Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0	0

(U) A. Mission Description

Joint Precision Approach and Landing System (JPALS) is a joint effort among the United States (U.S.) Air Force (AF), Navy, 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 operations 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 shipboard 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 exists. 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 Global Positioning System (GPS) jamming. Second, its 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. 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.

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(U) A. Mission Description Continued

(U) FY 2002 ($ in Thousands)

(U)	$0	Accomplishments/Planned Programs
(U)	$3,058	Continue aircraft risk (anti-jam) and integration analyses
(U)	$1,183	Begin and complete ALC studies and deployable ground stations miniaturization
(U)	$3,234	Continue development of LDGPS test bed
(U)	$1,329	Begin studies and analyses to refine local LDGPS architecture
(U)	$8,804	Total

(U) FY 2003 ($ in Thousands)

(U)	$0	Accomplishments/Planned Programs
(U)	$2,965	Continue aircraft risk (anti-jam) and integration analyses
(U)	$2,786	Continue development of LDGPS test bed
(U)	$2,000	Continue studies and analyses to refine local LDGPS architecture
(U)	$3,236	Begin modeling & simulation
(U)	$10,987	Total

(U) FY 2004 ($ in Thousands)

(U)	$0	Accomplishments/Planned Programs
(U)	$3,558	Complete aircraft risk (anti-jam) and integration analyses
(U)	$3,596	Complete development of LDGPS test bed
(U)	$4,314	Complete studies and analyses to refine local LDGPS architecture
(U)	$2,379	Complete modeling & simulation
(U)	$13,847	Total

(U) B. Budget Activity Justification

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

		FY 2002	FY 2003	FY 2004	Total Cost
(U)	Previous President's Budget	9,342	13,267	14,164	TBD
(U)	Appropriated Value	9,554	11,267		
(U)	Adjustments to Appropriated Value				
	a. Congressional/General Reductions	-212	-50		
	b. Small Business Innovative Research	-261			
	c. Omnibus or Other Above Threshold Reprogram		-111		
	d. Below Threshold Reprogram	-234			
	e. Rescissions		-119		
(U)	Adjustments to Budget Years Since FY 2003 PBR	-43		-317	
(U)	Current Budget Submit/FY 2004 PBR	8,804	10,987	13,847	TBD

(U) Significant Program Changes:

(U) D. Other Program Funding Summary ($ 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
(U) Other APPN										

(U) E. Acquisition Strategy

Demonstration and Validation, multiple contracts (Firm Fixed Price (FFP), Indefinite Delivery/Indefinite Quantity (IDIQ), Cost Plus Fixed Fee (CPFF), Time and Materials (T&M), Cost Plus Award Fee (CPAF); no Non-Developmental Items (NDI)

(U) F. Schedule Profile

		FY 2002				FY 2003				FY 2004			
		1	2	3	4	1	2	3	4	1	2	3	4
(U)	Begin ALC studies and deployable ground station miniaturization		*										
(U)	Complete ALC studies and deployable ground station miniaturization				*								
(U)	Complete development of LDGPS test bed											X	
(U)	Complete aircraft risk (anti-jam) and integration analyzes												X

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BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
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(U) F. Schedule Profile Continued

		FY 2002				FY 2003				FY 2004			
		1	2	3	4	1	2	3	4	1	2	3	4
(U)	Begin studies and analyses to refine local LDGPS architecture		*										
(U)	Comple studies and analyses to refine local LDGPS architecture												X
(U)	Begin modeling and simulation					*							
(U)	Complete modeling and simulation effort												X

X Denotes a planned event

* Denotes a completed event

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: February 2003

BUDGET ACTIVITY: 04 - Advanced Component Development and Prototypes (ACD&P)

PE NUMBER AND TITLE: 0603860F Joint Precision Approach and Landing Systems - Dem/Val

PROJECT: 4652

(U) A. Project Cost Breakdown ($ in Thousands)

		FY 2002	FY 2003	FY 2004
(U)	Prototype Developments - LDGPS test bed and Shipboard Relative GPS (SRGPS)	3,234	2,786	3,596
(U)	Prototype studies and analyses, ant-jam studies and analyses, LDGPS architecture definitions	3,075	3,812	6,349
(U)	ALC studies and deployable ground station miniaturizations	1,183		
(U)	Modeling, simulation and flight test of LDGPS test bed upgrades		3,236	2,379
(U)	Systems Engineering/Technical Support for architecture refinement	616	634	672
(U)	Responsible Test Organization activities to support prototype lab, van and flight testing	356	150	450
(U)	Program Management Support	285	294	322
(U)	Travel	55	75	79
(U)	Total	8,804	10,987	13,847

(U) B. Budget Acquisition History and Planning Information ($ in Thousands)

(U) Performing Organizations:

Contractor or Government Performing Activity	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Performing Activity EAC	Project Office EAC	Total Prior to FY 2002	Budget FY 2002	Budget FY 2003	Budget FY 2004	Budget to Complete	Total Program
Product Development Organizations										
Raytheon Systems (LDGPS)	CPAF	May 99	N/A	N/A	13,007	840	0	0	0	13,847
Raytheon Systems (SRGPS)	CPFF	June 99	N/A	N/A	3,340	0	0	0	0	3,340
ARINC Inc.	FFP	Jan 99	N/A	N/A	1,757	0	0	0	0	1,757
Horizons Technology Inc	IDIQ	Feb 99	N/A	N/A	5,203	673	0	0	0	5,876
ACS Defense Inc.	IDIQ	May 02	N/A	N/A	0	400	1,496	1,586	Continuing	TBD
Rockwell Collins Inc.	FFP	Apr 99	N/A	N/A	1,800	0	0	0	0	1,800
Lockheed	FFP	TBD	N/A	N/A	0	0	300	0	0	300
Navy PMA21381	Reimbursable	Nov 99	N/A	N/A	16,336	0	0	0	0	16,336
MITRE Corporation	CPAF	Oct 99	N/A	N/A	1,949	1,100	1,133	1,167	Continuing	TBD
PRC Corporation	FFP	Jan 99	N/A	N/A	451	0	0	0	0	451

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)		DATE: February 2003
BUDGET ACTIVITY: 04 - Advanced Component Development and Prototypes (ACD&P)	PE NUMBER AND TITLE: 0603860F Joint Precision Approach and Landing Systems - Dem/Val	PROJECT: 4652

(U) Performing Organizations Continued:

Product Development Organizations										
Pacer Infotech Inc.	FPFF	May 99	N/A	N/A	512	0	0	0	0	512
MCR	IDIQ	Apr 99	N/A	N/A	454	125	131	135	Continuing	TBD
Sierra Nevada Corp	CPFF	Mar 99	N/A	N/A	976	0	0	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	0	0	0	0
Various	Various	Various	N/A	N/A	4,832	289	808	856	0	6,785
ARINC Eng Services, LLC	T&M	Jun 02	N/A	N/A	0	4,681	6,600	9,252	0	20,533
Support and Management Organizations										
MITRE Corp	FFP	Various	N/A	N/A	651	235	250	273	Continuing	TBD
Various	FFP	Various	N/A	N/A	302	105	119	128	Continuing	TBD
Test and Evaluation Organizations										
Navy - NAWCAD	Reimbursable	Nov 99	N/A	N/A	1,041	0	0	0	0	1,041
48TG/XPRF	Reimbursable	May 01	N/A	N/A	150	356	150	450	0	1,106

(U) Government Furnished Property:

Item Description	Contract Method/Type or Funding Vehicle	Award or Obligation Date	Delivery Date	Total Prior to FY 2002	Budget FY 2002	Budget FY 2003	Budget FY 2004	Budget to Complete	Total Program
Product Development Property									
N/A									
Support and Management Property									
N/A									
Test and Evaluation Property									
N/A									

RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)

DATE: **February 2003**

BUDGET ACTIVITY: **04 - Advanced Component Development and Prototypes (ACD&P)**

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PROJECT: **4652**

Subtotals	Total Prior to FY 2002	Budget FY 2002	Budget FY 2003	Budget FY 2004	Budget to Complete	Total Program
Subtotal Product Development	50,860	8,108	10,468	12,996	TBD	TBD
Subtotal Support and Management	953	340	369	401	TBD	TBD
Subtotal Test and Evaluation	1,191	356	150	450	0	2,147
Total Project	53,004	8,804	10,987	13,847	TBD	TBD