CLASSIFICATION:

EXHIBIT R-2, RDT&E Budget Item Justification							DATE: **February 2005**	
APPROPRIATION/BUDGET ACTIVITY **RESEARCH DEVELOPMENT TEST & EVALUATION, NAVY / BA-4**					R-1 ITEM NOMENCLATURE 0603860N, Joint Precision Approach and Landing System			
COST ($ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Total PE Cost	**22.934**	**32.077**	**39.260**	**44.341**	**40.779**	**53.922**	**34.603**	**15.467**
2329 JOINT PRECISION APPROACH AND LANDING SYSTEM (JPALS)	**22.934**	**32.077**	**39.260**	**44.341**	**40.779**	**53.922**	**34.603**	**15.467**

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:

This program element provides for the development, integration, and testing of JPALS on Navy, Marine Corps, and Coast Guard aircraft, ships, and ground stations. JPALS will allow equipped aircraft to land on any suitable surface world wide (land and sea), while minimizing impacts to aircraft recovery operations due to low ceiling or visibility. The JPALS program was established in response to the Joint Mission Need Statement (MNS) for Precision Approach and Landing Capability (PALC), which was approved by the Chief of Naval Operations on 28 July 94 and the Chief of Staff of the Air Force on 8 August 94. The PALC MNS was validated by the Joint Requirements Oversight Council on 29 August 95. Army Joint Service participation was included in the 28 May 96 Principal Deputy Under Secretary of Defense (Acquisition and Technology) Milestone 0 Acquisition Decision Memorandum (ADM), which also designated the Air Force as the lead Service. JPALS will provide a rapidly deployable, adverse weather, adverse terrain, day-night, survivable, and mobile precision approach and landing capability. Operating environments include fixed base, tactical, shipboard and special mission. Military and civil interoperability is required. The funds cited above will provide for completion of JPALS Technology Development by mid-FY 2006, support the development of Milestone-B documentation, begin System Development and Demonstration in FY 2006 and support developmental and operational testing through FY 2011. Funding supports the JPALS Tier 1 (CVN-21 and Joint Strike Fighter) acquisition which includes development of the Seabased JPALS system, reference avionics, and the initial integration aboard CV and LH class ships. At Milestone B the Navy will become the lead service for the JPALS program.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification							DATE: **February 2005**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT NUMBER AND NAME 0603860N, Joint Precision Approach and Landing System				PROJECT NUMBER AND NAME 2329, Joint Precision Approach and Landing System			
COST ($ in Millions)	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Cost	**22.934**	**32.077**	**39.260**	**44.341**	**40.779**	**53.922**	**34.603**	**15.467**
RDT&E Articles Qty					**4**	**4**		

A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION: This program element provides for the development, integration, and testing of JPALS on Navy, Marine Corps, and Coast Guard aircraft, ships, and ground stations. JPALS will allow equipped aircraft to land on any suitable surface world wide (land and sea), while minimizing impacts to aircraft recovery operations due to low ceiling or visibility. The JPALS program was established in response to the Joint Mission Need Statement (MNS) for Precision Approach and Landing Capability (PALC), which was approved by the Chief of Naval Operations on 28 July 94 and the Chief of Staff of the Air Force on 8 August 94. The PALC MNS was validated by the Joint Requirements Oversight Council on 29 August 95. Army Joint Service participation was included in the 28 May 96 Principal Deputy Under Secretary of Defense (Acquisition and Technology) Milestone 0 Acquisition Decision Memorandum (ADM), which also designated the Air Force as the lead Service. JPALS will provide a rapidly deployable, adverse weather, adverse terrain, day-night, survivable, and mobile precision approach and landing capability. Operating environments include fixed base, tactical, shipboard and special mission. Military and civil interoperability is required. The funds cited above will provide for completion of JPALS Technology Development by mid-FY 2006, support the development of Milestone-B documentation, begin System Development and Demonstration in FY 2006 and support developmental and operational testing through FY 2011. Funding supports the JPALS Tier 1 (CVN-21 and Joint Strike Fighter) acquisition which includes development of the Seabased JPALS system, reference avionics, and the initial integration aboard CV and LH class ships. At Milestone B the Navy will become the lead service for the JPALS program.

The total of eight test articles will include six Seabased and two Landbased JPALS. The Seabased articles will be deployed in the following manner. Four will be deployed on ships, to be cross-decked between various CVN and LH class ships depending upon individual ship availability for test events. One of the Seabased test articles will be deployed in a mobile test van and one at the Landing Systems Test Facility, Patuxent River, MD. The two Landbased test articles will be deployed at air stations. Each test article is anticipated to consist of a UHF antenna subsystem, datalink hardware, a Global Positioning System (GPS) subsystem, a GPS anti-jam subsystem, an inertial navigation subsystem, a control and display subsystem, an uninterruptible power supply, and an equipment rack and cabling.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603860N, Joint Precision Approach and Landing System	2329, Joint Precision Approach and Landing System

B. Accomplishments/Planned Program

Technology Development Phase	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost	22.934	32.077	16.580	
RDT&E Articles Quantity				

Demonstrate technology readiness of preferred system concept (PSC) to include hardware and software development for critical technologies (including precision GPS/INS, anti-jam antenna electronics, Low Probability of Intercept data link hardware subsystems, and critical software components to include relative navigation integrity, guidance and control, system monitoring and communications functions). Demonstrate PSC through real-time flight test in an operationally relevant environment. Prepare documentation to support Milestone-B. Develop an SDD contract solicitation package for release to industry. Complete TD phase tasking (assessment of technology maturation, evaluation of data link requirements, assessment of JPALS incorporation into Embedded Global Positioning System/Inertial Navigation System) and close out prime contract. Conduct a source selection for the SDD prime contractor.

System Development & Demonstration Phase	FY 04	FY 05	FY 06	FY 07
Accomplishments/Effort/Subtotal Cost			22.680	44.341
RDT&E Articles Quantity				

Conduct JPALS DAB review and obtain approval to enter SDD Phase. Award and start executing the SDD prime contract. Conduct post-award conference, implement systems engineering process, prepare for and conduct an integrated baseline review, and establish joint government/contractor risk management process. Continue non-recurring engineering efforts under the SDD contract, including requirements identification and decomposition, system requirements review, and preliminary and critical design reviews.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603860N, Joint Precision Approach and Landing System	2329, Joint Precision Approach and Landing System

C. PROGRAM CHANGE SUMMARY:

Funding:	FY 2004	FY 2005	FY 2006	FY 2007
Previous President's Budget:	24.034	32.391	29.608	25.332
Current BES/President's Budget:	22.934	32.077	39.260	44.341
Total Adjustments	-1.100	-0.314	9.652	19.009
Summary of Adjustments				
Congressional undistributed reductions		-0.314		
SBIR/STTR Transfer	-1.056			
Programmatic Adjustments			9.254	18.301
Economic Assumptions	-0.022		0.398	0.708
Reprogrammings	-0.022			
Subtotal	-1.100	-0.314	9.652	19.009

Schedule:
During Test and Evaluation Master Plan development, additional test events were included and these are reflected in the revised schedule at exhibit R-4.

Technical:
Not applicable.

CLASSIFICATION:

EXHIBIT R-2a, RDT&E Project Justification		DATE: **February 2005**
APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT NUMBER AND NAME	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603860N, Joint Precision Approach and Landing System	2329, Joint Precision Approach and Landing System

D. OTHER PROGRAM FUNDING SUMMARY:

Line Item No. & Name	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	To Complete	Total Cost
OPN BLI 283100 Shipboard Air Traffic Control	7.791	8.642	7.307	7.537	7.772	7.995	8.228	9.554	Continuing	Continuing

E. ACQUISITION STRATEGY:

TD Phase development is being conducted jointly by NAVAIRSYSCOM (PMA213), USAF Electronic Systems Command (Global Air) and ARINC Engineering Services, California, MD. This effort will provide the concept of operations, performance specifications and integration guides, which will furnish the foundation from which to launch the SDD phase development.

SDD Phase development will consist of Seabased JPALS, related ship and airborne reference systems, end-to-end software algorithms, necessary ship installation hardware, test equipment, system simulation software, and other RDT&E products and tasks. Future procurement of airborne systems will consist of modifications to Original Equipment Manufacture aircraft integration and to existing avionics. Seabased JPALS will be developed by the Navy with government owned or non-proprietary algorithms to an open system architecture in order to facilitate the compatible integration of many different aircraft and avionics architectures. Landbased JPALS units will be developed by the Air Force to meet the requirements of all the Services.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)

DATE: **February 2005**

APPROPRIATION/BUDGET ACTIVITY	PROGRAM ELEMENT	PROJECT NUMBER AND NAME
RDT&E, N / BA-4	0603860N, Joint Precision Approach and Landing System	2329, Joint Precision Approach and Landing System

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Technology Development Phase											0.000	
Primary Hdw - SRGPS	WR	NAWCAD, Pax River, MD	7.742	0.708	11/04	0.531	11/05				8.981	
Primary Hdw - SRGPS	SS/CR	EMA, Lexington Park, MD	2.714	0.475	12/04						3.189	3.189
Primary Hdw - SRGPS	C/CR	ARINC, California, MD	12.195	12.840	12/04	0.976	12/05				26.011	26.011
Primary Hdw - SRGPS	C/CR	Titan, Lexington Park, MD	2.520	1.041	02/05						3.561	3.561
Primary Hdw - SRGPS	Various	Various	3.966	2.699	02/05	2.375	12/05				9.040	9.040
Primary Hdw - Avionics	WR	NAWCAD, Pax River, MD	0.333	0.450	11/04	0.338	11/05				1.121	
Primary Hdw - Avionics	SS/CR	Honeywell, Clearwater, FL	1.194	1.583	12/04						2.777	2.777
Primary Hdw - Technology *	WR	NAWCAD, Pax River, MD	0.424	0.336	11/04	0.243	11/05				1.003	
Primary Hdw - Data Link ***	SS/CR	Rockwell, Cedar Rapids, IA		1.991	12/04	6.336	12/05				8.327	(see below)
Aircraft Integration	WR	NAWCAD, Pax River, MD	0.562	0.449	11/04	0.337	11/05				1.348	
Ship Integration	WR	NAWCAD, Pax River, MD	2.748	1.047	11/04	0.579	11/05				4.374	
Systems Engineering	WR	NAWCAD, Pax River, MD	1.989	1.844	11/04	1.442	11/05				5.275	
Systems Engineering	C/CR	ARINC, California, MD	4.701	1.755	12/04						6.456	6.456
System Demonstration	WR	NAWCAD, Pax River, MD	1.744	1.152	11/04	0.767	11/05				3.663	
System Dev & Demonstration Phase											0.000	
Primary Hdw - Common Ship	C/CR	TBD				6.236	05/06	9.954	12/06	Continuing	Continuing	
Primary Hdw - GPS Recvr/Antenna	C/CR	TBD				2.351	05/06	3.067	12/06	Continuing	Continuing	
Primary Hdw - EGI **	C/CR	TBD				1.233	05/06	1.899	12/06	Continuing	Continuing	
Primary Hdw - Data Link ***	SS/CR	Rockwell, Cedar Rapids, IA						5.370	12/06		5.370	13.697
Systems Engineering/Test	C/CR	TBD				10.264	05/06	13.083	12/06	Continuing	Continuing	
Systems Engineering/Test	WR	NAWCAD, Pax River, MD						2.846	12/06	Continuing	Continuing	
Ship Integration	C/CR	TBD				1.244	11/05	5.621	11/06	Continuing	Continuing	
Subtotal Product Development			42.832	28.370		35.252		41.840		Continuing	Continuing	

Remarks: * Previously shown as "Primary Hdw - Common System".
** **E**mbedded **G**lobal Positioning System/**I**nertial Navigation System.
*** Continuous contractual effort from TD through SDD phase. See total Target Value of Contract under SDD entry.

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)											DATE: **February 2005**		
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603860N, Joint Precision Approach and Landing System				PROJECT NUMBER AND NAME 2329, Joint Precision Approach and Landing System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	NAWCAD, Pax River, MD	0.594	0.964	11/04	0.825	11/05	0.885	11/06	Continuing	Continuing	
Cost Analysis/EVM	WR	NAWCAD, Pax River, MD	0.613	0.502	11/04	0.537	11/05	0.442	11/06	Continuing	Continuing	
Integrated Logistics Support	C/CR	TBD				0.128	05/06			Continuing	Continuing	
Technical Data	C/CR	TBD				0.486	05/06	0.694	12/06	Continuing	Continuing	
Milestone B Documentation	WR	NAWCAD, Pax River, MD		1.910	11/04	0.449	11/05				2.359	
Studies and Analyses	C/IDIQ	IRM Ltd., Lexington Park, MD	0.060	0.180	12/04	0.150	12/05	0.160	12/06	Continuing	Continuing	
Curriculum Development	C/T&M	IDSI, Indian Head, MD	0.070	0.050	12/04	0.050	12/05	0.050	12/06	Continuing	Continuing	
											0.000	
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Subtotal Support			1.337	3.606		2.625		2.231		Continuing	Continuing	

Remarks:

R-1 SHOPPING LIST - Item No. 77

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 2)											DATE: **February 2005**	
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**		PROGRAM ELEMENT 0603860N, Joint Precision Approach and Landing System			PROJECT NUMBER AND NAME 2329, Joint Precision Approach and Landing System							
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 05 Cost	FY 05 Award Date	FY 06 Cost	FY 06 Award Date	FY 07 Cost	FY 07 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD, Pax River, MD									0.000	
Operational Test & Evaluation	WR	OPTEVFOR, Norfolk, VA				0.100	11/05	0.167	11/06	Continuing	Continuing	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.100		0.167		Continuing	Continuing	
Remarks:												
Logistics Management Support	C/IDIQ	NTA, Lexington Park, MD	0.156	0.055	12/04	0.055	12/05	0.055	12/06	Continuing	Continuing	
Travel	N/A	NAVAIR, Pax River, MD	0.075	0.046	11/04	0.047	11/05	0.048	11/06	Continuing	Continuing	
Government Engineering Support *	WR	NAWCAD, Pax River, MD				1.181	12/05				1.181	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.231	0.101		1.283		0.103		Continuing	Continuing	
Remarks: * Engineering support for SDD contract source selection.												
Total Cost			44.400	32.077		39.260		44.341		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 77

CLASSIFICATION:

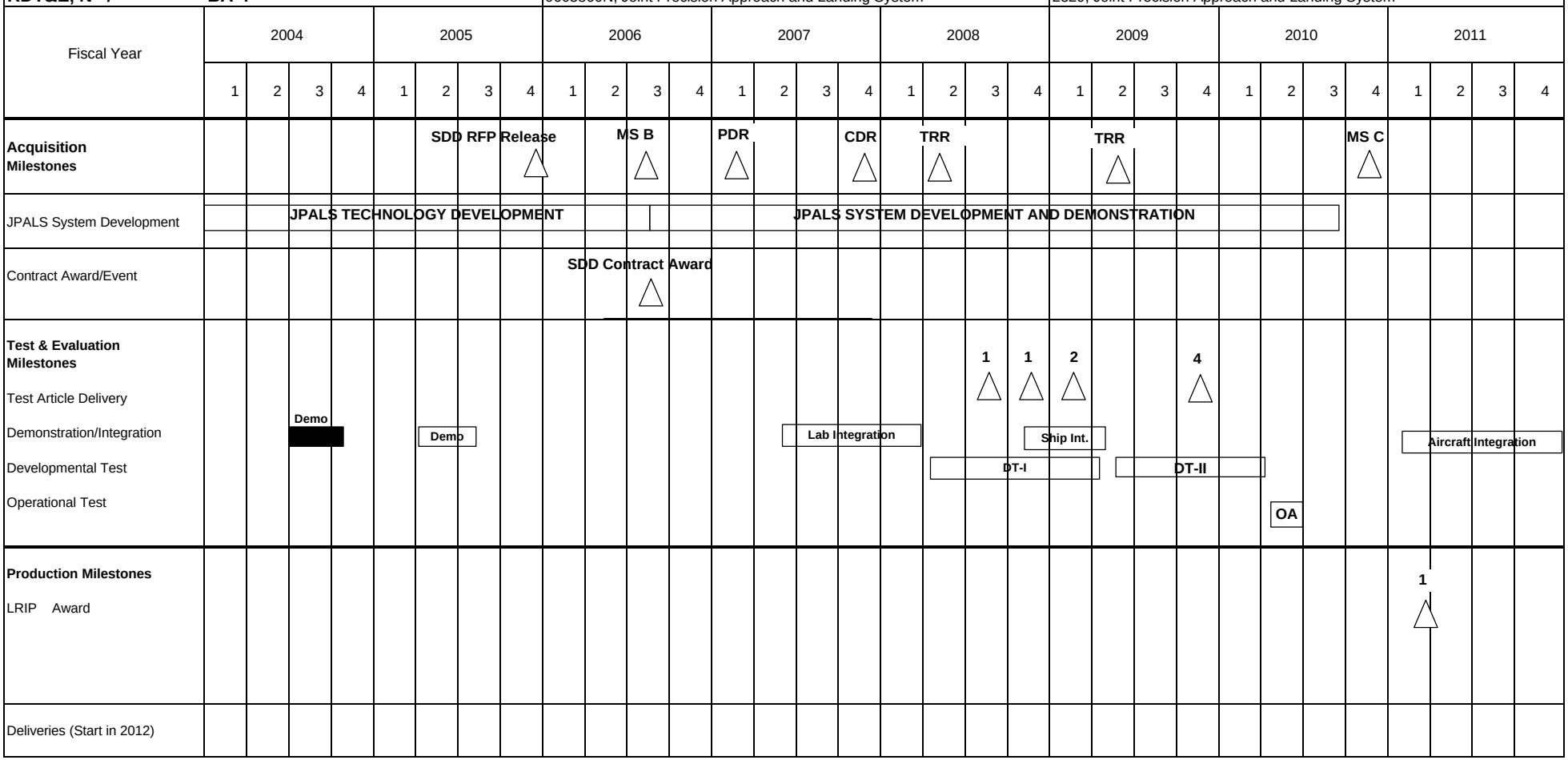
EXHIBIT R4, Schedule Profile

DATE: **February 2005**

APPROPRIATION/BUDGET ACTIVITY: **RDT&E, N / BA-4**

PROGRAM ELEMENT NUMBER AND NAME: 0603860N, Joint Precision Approach and Landing System

PROJECT NUMBER AND NAME: 2329, Joint Precision Approach and Landing System



R-1 SHOPPING LIST - Item No. 77

CLASSIFICATION:

Exhibit R-4a, Schedule Detail					DATE: **February 2005**			
APPROPRIATION/BUDGET ACTIVITY **RDT&E, N / BA-4**	PROGRAM ELEMENT 0603860N, Joint Precision Approach and Landing System				PROJECT NUMBER AND NAME 2329, Joint Precision Approach and Landing System			
Schedule Profile	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Technology Development	1-4Q	1-4Q	1-3Q					
SDD RFP Release		4Q						
Milestone B (MS B)			3Q					
System Development & Demonstration			3-4Q	1-4Q	1-4Q	1-4Q	1-3Q	
Preliminary Design Review (PDR)				1Q				
Demonstration/Integration	3-4Q	2-3Q		2-4Q	1Q, 4Q	1-2Q		1-4Q
Critical Design Review (CDR)				4Q				
Test Articles					3-4Q	1Q,4Q		
Test Readiness Review (TRR)					2Q	2Q		
Developmental Testing (DT-I)					2-4Q	1-2Q		
Developmental Testing (DT-II)						2-4Q	1-2Q	
Operational Assessment (OA)							2Q	
Milestone C (MS C)							4Q	
Production Contract (LRIP Award)								1Q

R-1 SHOPPING LIST - Item No. 77