

**CLASSIFICATION:**

**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. 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 in FY 2005, begin System Development and Demonstration in FY 2006 and support developmental and operational testing through FY 2009. Funding supports the JPALS Tier 1 acquisition which includes development of the Shipboard Relative GPS system, reference avionics, and the initial integration aboard CV and LH class ships.

(U) **B. JUSTIFICATION FOR BUDGET ACTIVITY:** This program is funded under TECHNOLOGY DEVELOPMENT (TD) through the end of FY 2005 because it develops and integrates hardware for experimental test related to specific ship or aircraft applications. Beginning in FY 2006 funding is associated primarily with SYSTEM DEVELOPMENT AND DEMONSTRATION (SDD).

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EXHIBIT R-2a, RDT&E Project Justification							DATE: <b>February 2004</b>	
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>		PROGRAM ELEMENT NUMBER AND NAME 0603860N, Joint Precision Approach and Landing System			PROJECT NUMBER AND NAME W2329, Joint Precision Approach and Landing System			
COST (\$ in Millions)		FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009
Project Cost		12.217	24.034	32.391	29.608	25.332	20.869	21.296
RDT&E Articles Qty					4	3	2	3
<p><b>A. MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION:</b> 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. 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 in FY 2005, begin System Development and Demonstration in FY 2006 and support developmental and operational testing through FY 2009. Funding supports the JPALS Tier 1 acquisition which includes development of the Shipboard Relative GPS system, reference avionics, and the initial integration aboard CV and LH class ships.</p> <p>(U) B. JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under TECHNOLOGY DEVELOPMENT through the end of FY 2005 because it develops and integrates hardware for experimental test related to specific ship or aircraft applications. Beginning in FY 2006 funding is associated primarily with SYSTEM DEVELOPMENT AND DEMONSTRATION.</p>								

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<b>B. Accomplishments/Planned Program</b>																			
<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th style="width: 25%;"></th><th style="width: 25%;"></th><th style="width: 20%;">FY 03</th><th style="width: 20%;">FY 04</th><th style="width: 10%;">FY 05</th></tr></thead><tbody><tr><td>Accomplishments/Effort/Subtotal Cost</td><td></td><td style="text-align: center;">12.217</td><td style="text-align: center;">24.034</td><td style="text-align: center;">32.391</td></tr><tr><td>RDT&amp;E Articles Quantity</td><td></td><td style="text-align: center;">0</td><td style="text-align: center;">0</td><td style="text-align: center;">0</td></tr></tbody></table>							FY 03	FY 04	FY 05	Accomplishments/Effort/Subtotal Cost		12.217	24.034	32.391	RDT&E Articles Quantity		0	0	0
		FY 03	FY 04	FY 05															
Accomplishments/Effort/Subtotal Cost		12.217	24.034	32.391															
RDT&E Articles Quantity		0	0	0															
<div style="border: 1px solid black; padding: 5px;"><p>Continued SRGPS architecture development, risk reduction, and avionics technology insertion (under related RDT&amp;EN PE 0603216N in FY 2002) in FY 2002-2003. Demonstrated SRGPS technology integrated into X-47A Pegasus Unmanned Combat Air Vehicle (UCAV) in FY 2003. Developed and updated SRGPS System Requirements Document, Data Link System Segment Specification, Data Link Application Data Specification, Aircraft System Segment Specification, Ship System Segment Specification, System Design Document, and SRGPS Concept of Operations defining preferred system concept (PSC) in FY 2003.</p><p>In FY 2004 - 2005, demonstrate technology readiness of 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). PSC shall be demonstrated through real-time flight test in operationally relevant environment, to include F/A-18 in FY 2004-2005, UK Harrier in FY 2005, and MH-60 in FY 2005.</p></div>																			
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RDT&E Articles Quantity																			

R-1 SHOPPING LIST - Item No.

77

UNCLASSIFIED

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EXHIBIT R-2a, RDT&E Project Justification		DATE: <b>February 2004</b>
APPROPRIATION/BUDGET ACTIVITY <b>RDTE, N / BA-4</b>	PROGRAM ELEMENT NUMBER AND NAME 0603860N, Joint Precision Approach and Landing System	PROJECT NUMBER AND NAME W2329, Joint Precision Approach and Landing System

**C. PROGRAM CHANGE SUMMARY:**

	FY 2003	FY 2004	FY 2005
Funding:			
FY 2004-2005 President's Budget:	11.668	24.304	38.989
FY 2005 President's Budget	12.217	24.034	32.391
Total Adjustments	0.549	-0.270	-6.598
Summary of Adjustments			
Congressional program reductions			
Congressional undistributed reductions		-0.270	
Congressional rescissions			
SBIR/STTR transfer	-0.255		
Economic assumptions			-0.077
Reprogrammings	0.804		
Reprioritization			-6.521
Other Navy/OSD adjustments			
Congressional increases			
Subtotal	0.549	-0.270	-6.598

Schedule: Due to funding constraints in FY 2002, the Navy program schedule has shifted by three quarters since the previous President's budget submission.

Technical:

R-1 SHOPPING LIST - Item No. 77

UNCLASSIFIED

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<b>D. OTHER PROGRAM FUNDING SUMMARY:</b>								
<u>Line Item No. &amp; Name</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>To Complete</u>
Not applicable.								<u>Total Cost</u>
 <b>E. ACQUISITION STRATEGY:</b>								
<p>TD Phase development is being conducted jointly by NAWCAD, Patuxent River, MD and ARINC Engineering Services, California, MD. This effort will provide the concept of operations, specifications and integration guides, which will furnish the foundation from which to launch the SDD phase development.</p> <p>SDD Phase development will consist of SRGPS ship systems and airborne reference systems, end-to-end software algorithms, necessary ship installation hardware, test equipment, system simulation software, and other RDT&amp;E products and tasks. Future Tier procurement of airborne systems will consist of modifications to OEM aircraft integrations and ECP of existing avionics. Navy JPALS will be developed 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. Shore based JPALS units will be developed by the Air Force to meet the requirements of all the Services.</p>								

R-1 SHOPPING LIST - Item No. 77

**UNCLASSIFIED**

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Remarks:

Exhibit R-3 Cost Analysis (page 1)

DATE:

February 2004

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PROGRAM ELEMENT	DESCRIPTION	UNIT	GRADE	SEMESTER	TEACHER
1. Introduction to the Program	Overview of the program and its goals.	1	9	1	Mr. Smith
2. Fundamentals of Chemistry	Basic concepts and principles of chemistry.	2	9	2	Ms. Jones
3. Organic Chemistry	Study of carbon compounds and their reactions.	3	10	1	Mr. Smith
4. Inorganic Chemistry	Study of non-carbon compounds and their properties.	4	10	2	Ms. Jones
5. Physical Chemistry	Study of the physical properties and behavior of matter.	5	11	1	Mr. Smith
6. Biochemistry	Study of chemical processes within living organisms.	6	11	2	Ms. Jones
7. Environmental Chemistry	Study of chemical interactions in the environment.	7	12	1	Mr. Smith
8. Advanced Topics in Chemistry	Specialized areas of chemistry research.	8	12	2	Ms. Jones

PROJECT NUMBER AND NAME
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RDT&amp;E, N / BA-4

0603860N, Joint Precision Approach and Landing System

## W2329. Joint Precision Approach and Landing System

Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Technology Development Phase											0.000	
Primary Hdw - SRGPS	WR	NAWCAD, Pax River, MD	6.281	2.130	11/02	2.519	11/03	1.153	11/04	Continuing	Continuing	
Primary Hdw - SRGPS	SS/CR	EMA Lexington Park, MD				2.800	12/03				2.800	2.800
Primary Hdw - SRGPS	C/CR	ARINC, California, MD		2.376	08/03	9.617	11/03	13.139	12/04		25.132	25.132
Primary Hdw - SRGPS	SS/CR	TISI, Bloomington, IL				0.700	12/03				0.700	0.700
Primary Hdw - Avionics	WR	NAWCAD, Pax River, MD		0.087	12/02			0.513	11/04	Continuing	Continuing	
Primary Hdw - Avionics	SS/CR	Honeywell, Clearwater, FL	0.144	0.150	01/03	1.100	12/03	1.505	12/04		2.899	2.899
Primary Hdw - Common System	WR	NAWCAD, Pax River, MD		2.907	12/02			3.763	11/04	Continuing	Continuing	
Primary Hdw - Anti-jam	C/CR	TBD				3.688	11/03				3.688	3.688
Aircraft Integration	WR	NAWCAD, Pax River, MD		0.340	12/02			1.319	11/04	Continuing	Continuing	
Ship Integration	WR	NAWCAD, Pax River, MD	1.414	0.734	12/02	3.142	11/03	3.670	11/04	Continuing	Continuing	
Systems Engineering	WR	NAWCAD, Pax River, MD		2.104	12/02			2.710	11/04	Continuing	Continuing	
System Demonstration	WR	NAWCAD, Pax River, MD		0.374	12/02			3.410	11/04	Continuing	Continuing	
											0.000	
System Dev & Demonstration Phase											0.000	
Primary Hdw - Various	TBD	TBD								Continuing	Continuing	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Product Development			7.839	11.202		23.566		31.182		Continuing	Continuing	

Remarks:

# UNCLASSIFIED

CLASSIFICATION:

Exhibit R-3 Cost Analysis (page 1)										DATE: <b>February 2004</b>		
APPROPRIATION/BUDGET ACTIVITY <b>RDTE&amp;E, N / BA-4</b>			PROGRAM ELEMENT 0603860N, Joint Precision Approach and Landing System			PROJECT NUMBER AND NAME W2329, Joint Precision Approach and Landing System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Integrated Logistics Support	WR	NAWCAD, Pax River, MD	0.200	0.281	11/02	0.075	11/03	0.543	11/04	Continuing	Continuing	
Cost Analysis/EVM *	WR	NAWCAD, Pax River, MD	0.100	0.570	11/02	0.182	11/03	0.450	11/04	Continuing	Continuing	
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Subtotal Support			0.300	0.851		0.257		0.993		Continuing	Continuing	
Remarks: * Previously shown as "Studies & Analyses".												

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Exhibit R-3 Cost Analysis (page 2)										DATE: <b>February 2004</b>		
APPROPRIATION/BUDGET ACTIVITY <b>RDT&amp;E, N / BA-4</b>			PROGRAM ELEMENT 0603860N, Joint Precision Approach and Landing System			PROJECT NUMBER AND NAME W2329, Joint Precision Approach and Landing System						
Cost Categories	Contract Method & Type	Performing Activity & Location	Total PY s Cost	FY 03 Cost	FY 03 Award Date	FY 04 Cost	FY 04 Award Date	FY 05 Cost	FY 05 Award Date	Cost to Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD, Pax River, MD								Continuing	Continuing	
Operational Test & Evaluation	WR	NAWCAD, Pax River, MD								Continuing	Continuing	
											0.000	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal T&E			0.000	0.000		0.000		0.000		Continuing	Continuing	
Remarks:												
Program Management Support	Various	NAWCAD & NSWC	0.060	0.144	11/02	0.161	11/03	0.141	11/04	Continuing	Continuing	
Travel	N/A	NAVAIR, Pax River, MD	0.010	0.020	11/02	0.050	11/03	0.075	11/04	Continuing	Continuing	
											0.000	
											0.000	
											0.000	
											0.000	
Subtotal Management			0.070	0.164		0.211		0.216		Continuing	Continuing	
Remarks:												
Total Cost			8.209	12.217		24.034		32.391		Continuing	Continuing	
Remarks:												

R-1 SHOPPING LIST - Item No. 77

**UNCLASSIFIED**

**Exhibit R-3, Project Cost Analysis**  
(Exhibit R-3, page 8 of 10)



# UNCLASSIFIED

## CLASSIFICATION:

EXHIBIT R4, Schedule Profile																								DATE:																																
APPROPRIATION/BUDGET ACTIVITY												PROGRAM ELEMENT NUMBER AND NAME												PROJECT NUMBER AND NAME																																
RDT&E, N / BA-4												0603860N, Joint Precision Approach and Landing System												W2329, Joint Precision Approach and Landing System																																
Fiscal Year	2002				2003				2004				2005				2006				2007				2008				2009																											
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4																												
Acquisition Milestones													MS B △		NAVY	SDD △	REVIEW		PDR △										MS C △																											
SRGPS System Development	SRGPS TECHNOLOGY DEVELOPMENT																												SRGPS SYSTEM DEVELOPMENT AND DEMONSTRATION																											
Contract Award/Event				TD △													SDD △																																							
Test & Evaluation Milestones																																																								
Operational Test																																																								
Production Milestones																																																								
LRIP FY 10																																																								
Deliveries (Start in 2011)																																																								

R-1 SHOPPING LIST - Item No. 77

\* Not required for Budget Activities 1, 2, 3, and 6

UNCLASSIFIED

Exhibit R-4, Schedule Profile  
(Exhibit R-4, page 9 of 10)

**UNCLASSIFIED**

**CLASSIFICATION:**

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R-1 SHOPPING LIST - Item No.

77

**UNCLASSIFIED**

**Exhibit R-4a, Schedule Detail**  
(Exhibit R-4a, page 10 of 10)