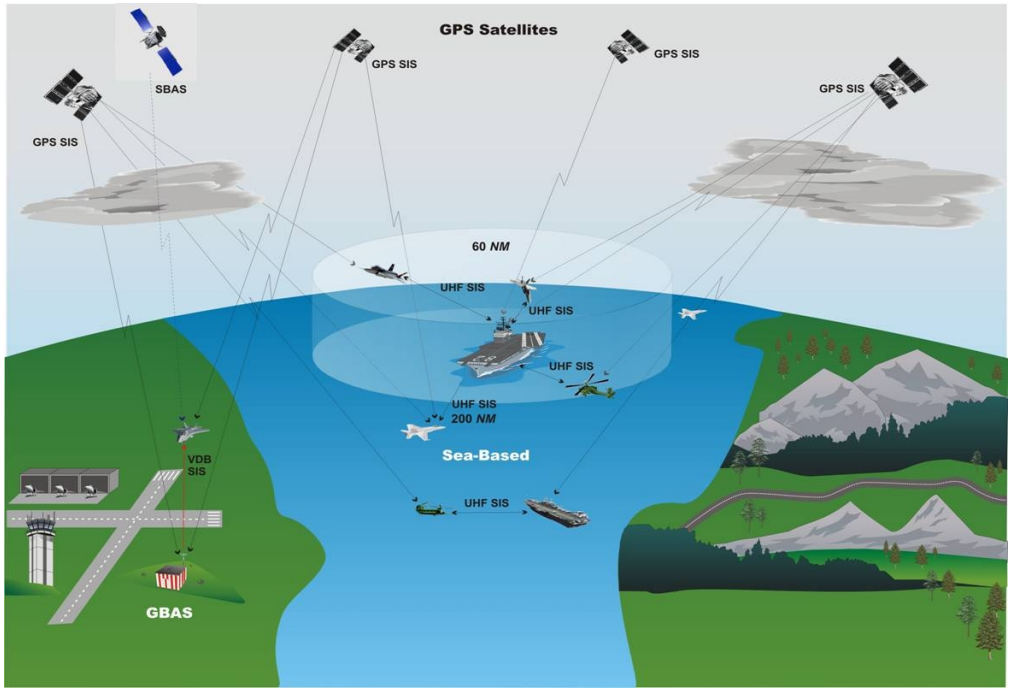
Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-238



Joint Precision Approach and Landing System Increment 1A (JPALS Inc 1A)

As of FY 2015 President's Budget

Defense Acquisition Management
Information Retrieval
(DAMIR)

Table of Contents

Common Acronyms and Abbreviations

Acq O&M - Acquisition-Related Operations and Maintenance
APB - Acquisition Program Baseline
APPN - Appropriation
APUC - Average Procurement Unit Cost
BA - Budget Authority/Budget Activity
BY - Base Year
DAMIR - Defense Acquisition Management Information Retrieval
Dev Est - Development Estimate
DoD - Department of Defense
DSN - Defense Switched Network
Econ - Economic
Eng - Engineering
Est - Estimating
FMS - Foreign Military Sales
FY - Fiscal Year
IOC - Initial Operational Capability
$K - Thousands of Dollars
LRIP - Low Rate Initial Production
$M - Millions of Dollars
MILCON - Military Construction
N/A - Not Applicable
O&S - Operating and Support
Oth - Other
PAUC - Program Acquisition Unit Cost
PB - President's Budget
PE - Program Element
Proc - Procurement
Prod Est - Production Estimate
QR - Quantity Related
Qty - Quantity
RDT&E - Research, Development, Test, and Evaluation
SAR - Selected Acquisition Report
Sch - Schedule
Spt - Support
TBD - To Be Determined
TY - Then Year
UCR - Unit Cost Reporting

Program Information

Program Name

Joint Precision Approach and Landing System Increment 1A (JPALS Inc 1A)

DoD Component

Navy

Responsible Office

Responsible Office

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Date Assigned July 25, 2011

References

SAR Baseline (Development Estimate)

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated December 19, 2008

Approved APB

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated December 19, 2008

Mission and Description

The Joint Precision Approach and Landing System (JPALS) is a joint interest program with the Navy as the DoD lead component. JPALS is a Global Positioning System (GPS)-based precision approach and landing system that will replace several aging and obsolete aircraft landing systems with a family of systems that is more affordable, will function in more operational environments, and support all DoD Land and Sea Based applications. The National Defense Strategy of the United States of America calls for highly mobile forces that can rapidly respond to crises worldwide. Success in meeting this challenge requires the ability to land aviation assets virtually anywhere, at any time. JPALS will provide this capability by being rapidly deployable, survivable, and interoperable among the U.S. Services and with U.S. allies, as well as with civil aircraft and landing facilities. JPALS will eventually support unmanned and highly automated aircraft and will be able to operate during restricted Emission Control conditions.

The approved JPALS Acquisition Strategy defines seven acquisition increments, based on technology maturity and Service needs. Inc 1, Sea Based JPALS, is separated into two phases: Inc 1A ship based systems and Inc 1B aircraft integration.

The JPALS Inc 1 Capability Development Document (CDD) approved by a Joint Requirements Oversight Council (JROC) Memorandum on March 16, 2007, directs the U.S. Navy to be the lead Service for JPALS.

Inc 2 encompasses all Fixed and Mobile Systems that support 200 feet Decision Height (DH) and ½ Statute Mile (SM) visibility for auto-land of properly equipped aircraft. The JPALS Inc 2 CDD was signed on January 19, 2010.

Inc 3 encompasses Fixed and Mobile Systems to support Federal Aviation Administration certification to 100 feet DH and ¼ SM visibility and a Sea Based system for auto-land of properly equipped aircraft.

Inc 4 will provide a Sea Based JPALS capability that supports 100 feet DH and ¼ Nautical Mile visibility, including auto-land and Unmanned Aerial Vehicle support.

Inc 5 will encompass Land Based man-pack systems certified to minimums based on Service needs.

Inc 6 will support Special Operations Forces, mobility missions, and subsequent combat operations with an autonomous approach and landing capability.

Inc 7 is an upgrade to the Sea Based back-up capability, involving reliability, maintainability, and life-cycle improvements to the AN/SPN-41 Instrument Carrier Landing System.

Currently, only Inc 1 and 2 have been approved by the JROC.

Executive Summary

The program initiated at Milestone B and reporting in this SAR reflects JPALS Inc 1A.

JPALS Inc 1A demonstrated auto-land capability in the first Quarter FY 2014. This compressed three-month at-sea effort resulted in over 70 coupled approaches using F/A-18 aircraft flying against a JPALS Inc 1A ship system installed on the USS Theodore Roosevelt (CVN 71). This capability demonstration was one of the culminating phases of the current JPALS Inc 1A ship system Engineering and Manufacturing Development contract and has accrued significant risk reduction benefits. This effort also provided valuable data that demonstrated the potential to provide an objective, certifiable auto-land capability. Additionally, the test program will complete and all test data analysis efforts will close out in early third Quarter FY 2014.

Due to DoD budget constraints and affordability concerns, the Navy performed an internal analysis of the overall Department of Navy Precision Approach and Landing Capability (PALC) requirement. The result of the internal analysis was a PALC roadmap and a Navy proposal to accelerate the incorporation of capabilities planned for future increments into the JPALS Inc 1A program. Under this concept, the JPALS Inc 1A ship system would continue to be developed and procured for use on United States Navy aircraft carriers (CVN-type) and amphibious assault ships (LH-type) in support of the F-35B/C and Unmanned Carrier-Launched Airborne Surveillance and Strike (UCLASS) programs. JPALS would not be integrated into legacy CVN aircraft (JPALS Inc 1B aircraft integration), nor would JPALS be developed and procured for Navy and Marine Corps fixed based air stations or expeditionary airfields (JPALS Inc 2 land-based capability). JPALS would, however, support auto-land for manned and unmanned aircraft (planned future JPALS Inc 3 and Inc 4 capabilities). Separate from JPALS, civil Instrument Landing System capability will be procured and deployed at Navy and Marine Corps fixed based air stations and integrated into legacy aircraft to address joint and civil interoperability gaps. Further, legacy shipboard landing systems will be recapitalized and/or sustained.

These proposed changes to JPALS Inc 1A extend the development program in order to conduct risk reduction activities for manned and unmanned auto-land capability improvements in support of F-35B/C and UCLASS test and deployment schedules, thereby deferring the production decision (Milestone C) by approximtely three years to FY 2017.

A reduction in total planned quantities due to the elimination of previously required shore-based training systems, an extension of the development program to include capability improvements, a lower and longer procurement profile, and increases in material costs have resulted in a critical Nunn-McCurdy unit cost breach to the PAUC and APUC in the current JPALS Inc 1A APB. A program deviation report was signed by the program manager on January 28, 2014, and was endorsed by the Navy Acquisition Executive and forwarded to the Milestone Decision Authority on March 12, 2014. The Secretary of the Navy notified Congress of the breach on March 19, 2014.

There are no significant software-related issues with this program at this time.

Threshold Breaches

APB Breaches		
Schedule		☑
Performance		☐
Cost	RDT&E	☑
	Procurement	☑
	MILCON	☐
	Acq O&M	☐
O&S Cost		☐
Unit Cost	PAUC	☑
	APUC	☑

Nunn-McCurdy Breaches		
Current UCR Baseline		
	PAUC	Critical
	APUC	Critical
Original UCR Baseline		
	PAUC	Critical
	APUC	Critical

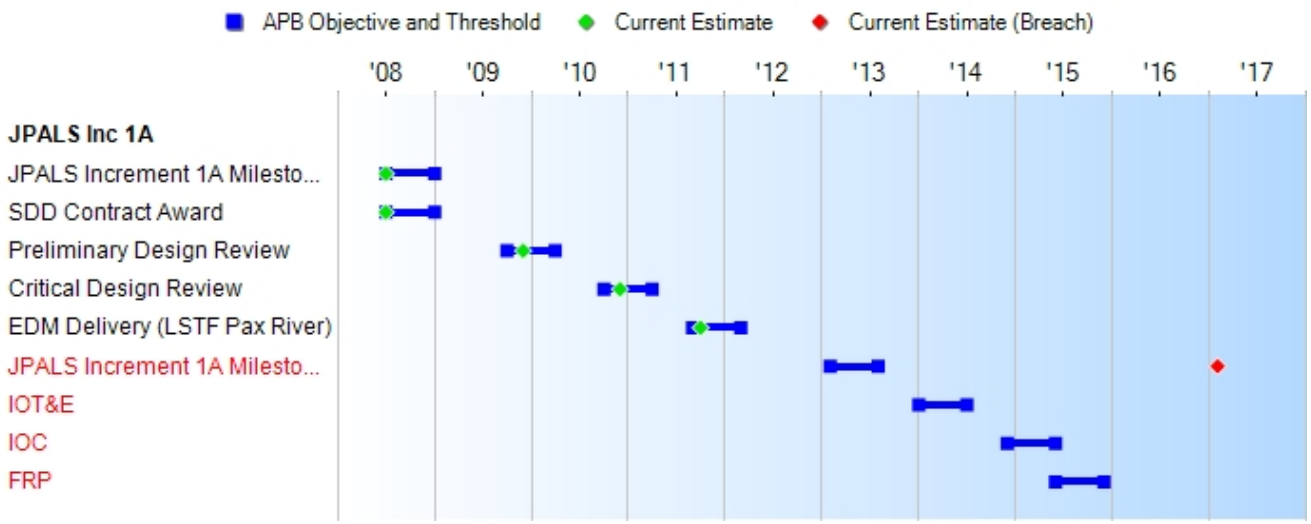
Explanation of Breach

The schedule and procurement cost breaches were previously reported in the June 2012 SAR.

Proposed changes to JPALS Inc 1A extend the development program in order to conduct risk reduction activities for manned and unmanned auto-land capability improvements in support of F-35B/C and UCLASS test and deployment schedules, thereby further delaying the production decision (Milestone C) by approximtely three years to FY 2017.

A reduction in total planned quantities due to the elimination of previously required shore-based training systems, an extension of the development program to include capability improvements, a lower and longer procurement profile, and increases in material costs have resulted in a critical Nunn-McCurdy unit cost breach to the PAUC and APUC in the current JPALS Inc 1A APB. A program deviation report was signed by the program manager on January 28, 2014, and was endorsed by the Navy Acquisition Executive and forwarded to the Milestone Decision Authority on March 12, 2014. The Secretary of the Navy notified Congress of the breach on March 19, 2014.

Schedule



Milestones	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate	
JPALS Increment 1A Milestone B	JUL 2008	JUL 2008	JAN 2009	JUL 2008	
SDD Contract Award	JUL 2008	JUL 2008	JAN 2009	JUL 2008	
Preliminary Design Review	OCT 2009	OCT 2009	APR 2010	DEC 2009	
Critical Design Review	OCT 2010	OCT 2010	APR 2011	DEC 2010	
EDM Delivery (LSTF Pax River)	SEP 2011	SEP 2011	MAR 2012	OCT 2011	
JPALS Increment 1A Milestone C	FEB 2013	FEB 2013	AUG 2013	**FEB 2017** [1]	(Ch-1)
IOT&E	JAN 2014	JAN 2014	JUL 2014	**TBD** [1]	(Ch-2)
IOC	DEC 2014	DEC 2014	JUN 2015	**TBD** [1]	(Ch-2)
FRP	JUN 2015	JUN 2015	DEC 2015	**TBD** [1]	(Ch-2)

[1] *APB Breach*

Change Explanations

(Ch-1) The current estimate for Milestone C has changed from November 2013 to February 2017 due to an extension of the development program in order to conduct risk reduction activities for manned and unmanned auto-land capability improvements in support of F-35B/C and UCLASS test and deployment schedules.

(Ch-2) The current estimates for IOT&E, IOC, and FRP will be established upon certification of the program following completion of the Nunn-McCurdy process.

Acronyms and Abbreviations

EDM - Engineering Development Model
FRP - Full Rate Production
IOT&E - Initial Operational Test and Evaluation
LSTF - Landing Systems Test Facility
Pax - Patuxent
SDD - System Development and Demonstration
UCLASS - Unmanned Carrier-Launched Airborne Surveillance and Strike

Performance

Characteristics	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Demonstrated Performance	Current Estimate
Network Ready: The system must support Net-Centric military operations. The system must be able to enter and be managed in the network, and exchange data in a secure manner to enhance mission effectiveness. The system must continuously provide survivable, interoperable, secure, and operationally effective information exchanges to enable a Net-Centric military capability.	The system must fully support execution of operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services, 4) IA requirements including availability,	The system must fully support execution of operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for Net-Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services, 4) IA requirements including availability,	The system must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services, 4) IA requirements	TBD	The system must fully support execution of joint critical operational activities identified in the applicable joint and system integrated architectures and the system must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) DISR mandated GIG IT standards and profiles identified in the TV-1, 2) DISR mandated GIG KIPs identified in the KIP declaration table, 3) NCOW RM Enterprise Services, 4) IA requirements

	integrity, authenticat-ion, confidential-ity, and nonrepudiat-ion, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; mission critical performance and IA attributes; data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	integrity, authenticat-ion, confidential-ity, and nonrepudiat-ion, and issuance of an ATO by the DAA, and 5) Operationally effective information exchanges; mission critical performance and IA attributes; data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.	including availability, integrity, authenticat-ion, confidential-ity, and nonrepudiat-ion, and issuance of an IATO by the (DAA), and 5) Operationally effective information exchanges; mission critical performance and IA attributes; data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.		including availability, integrity, authentica-tion, confidential-ity, and nonrepudiati-on, and issuance of an IATO by the (DAA), and 5) Operationally effective information exchanges; mission critical performance and IA attributes; data correctness, data availability, and consistent data processing specified in the applicable joint and system integrated architecture views.
Guidance Quality	Certification for operations in 0 ft ceiling and 0 NM visibility conditions.	Certification for operations in 0 ft ceiling and 0 NM visibility conditions.	Sufficient quality to allow the Service to certify the sea-based system for use in 200 ft ceiling and ½ NM visibility weather conditions.	TBD	Meeting Threshold with margin. Sufficient quality to allow the Service to certify the sea-based system for use in 200 ft ceiling and ½ NM

					visibility weather conditions.
Manpower	Should reduce current manning levels when currently fielded systems are phased out. Should require no dedicated personnel. Should be reduced to no more than one qualified air traffic controller.	Should reduce current manning levels when currently fielded systems are phased out. Should require no dedicated personnel. Should be reduced to no more than one qualified air traffic controller.	The total number of dedicated maintenance and/or logistics personnel needed to support Sea-Based JPALS per shift shall be no more than one person. The number of qualified final controller positions per shift on CVN/LH ship classes shall be no more than two air traffic controllers.	TBD	Current manning level
Operational Availability (Ao) in Clear Air	JPALS Ao requirement in clear air for manned aircraft to 200 ft - ½ NM mins should be at least 99.7%.	JPALS Ao requirement in clear air for manned aircraft to 200 ft - ½ NM mins should be at least 99.7%.	JPALS Ao requirement in clear air for manned aircraft to 200 ft - ½ NM mins shall be at least 99.0%.	TBD	99.1%

Requirements Source

Capability Development Document (CDD) dated March 16, 2007

Change Explanations

None

Acronyms and Abbreviations

ATO - Approval to Operate
DAA - Designated Approval Authority
DISR - DOD Information Technology Standards and Profile Registry
ft - feet
GIG - Global Information Grid
IA - Information Assurance
IATO - Interim Approval to Operate
IT - Information Technology
KIP - Key Interface Profile
mins - minimums
NCOW RM - Net Centric Operations and Warfare Reference Model
NM - Nautical Mile
TV - Technical Standards View

Track to Budget

RDT&E

Appn		BA	PE	
Navy	1319	04	0603860N	
	Project		**Name**	
	2329		Joint Precision Approach and Landing System	

Procurement

Appn		BA	PE	
Navy	1810	02	0305014N	
	Line Item		**Name**	
	2867		Joint Precision Approach and Landing System	
Navy	1810	08	0305014N	
	Line Item		**Name**	
	9020		Joint Precision Approach and Landing System	

MILCON

Appn		BA	PE	
Navy	1205	01	0805376N	
	Project		**Name**	
	P977		Facilities Restoration and Modification - RDT&E	(Sunk)

Cost and Funding

Cost Summary

Total Acquisition Cost and Quantity

Appropriation	BY2008 $M			BY2008 $M	TY $M		
	SAR Baseline Dev Est	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Dev Est	Current APB Development Objective	Current Estimate
RDT&E	753.7	753.7	829.1	**1113.3** [1]	781.4	781.4	1191.2
Procurement	202.9	202.9	223.0	**315.9** [1]	243.7	243.7	404.5
Flyaway	--	--	--	254.2	--	--	325.7
Recurring	--	--	--	254.2	--	--	325.7
Non Recurring	--	--	--	0.0	--	--	0.0
Support	--	--	--	61.7	--	--	78.8
Other Support	--	--	--	39.1	--	--	50.0
Initial Spares	--	--	--	22.6	--	--	28.8
MILCON	6.6	6.6	7.3	6.6	6.8	6.8	6.8
Acq O&M	0.0	0.0	--	0.0	0.0	0.0	0.0
Total	963.2	963.2	N/A	1435.8	1031.9	1031.9	1602.5

[1] ***APB Breach***

Quantity	SAR Baseline Dev Est	Current APB Development	Current Estimate
RDT&E	12	12	10
Procurement	25	25	17
Total	37	37	27

Unit of Measure: The physical architecture of a JPALS system consists of multiple equipment racks, processing equipment, sensors, radios, and antennas.

Cost and Funding

Funding Summary

Appropriation and Quantity Summary
FY2015 President's Budget / December 2013 SAR (TY$ M)

Appropriation	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
RDT&E	783.2	156.2	54.9	92.5	76.9	24.9	2.6	0.0	1191.2
Procurement	0.0	0.0	0.0	0.0	0.0	65.2	75.7	263.6	404.5
MILCON	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.8
Acq O&M	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PB 2015 Total	790.0	156.2	54.9	92.5	76.9	90.1	78.3	263.6	1602.5
PB 2014 Total	698.3	42.0	51.4	83.6	75.3	64.4	59.1	28.7	1102.8
Delta	91.7	114.2	3.5	8.9	1.6	25.7	19.2	234.9	499.7

Quantity	Undistributed	Prior	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	To Complete	Total
Development	10	0	0	0	0	0	0	0	0	10
Production	0	0	0	0	0	0	2	2	13	17
PB 2015 Total	10	0	0	0	0	0	2	2	13	27
PB 2014 Total	10	0	0	2	6	6	7	6	0	37
Delta	0	0	0	-2	-6	-6	-5	-4	13	-10

Cost and Funding

Annual Funding By Appropriation

Annual Funding TY$
1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
2001	--	--	--	--	--	--	7.4
2002	--	--	--	--	--	--	13.2
2003	--	--	--	--	--	--	15.3
2004	--	--	--	--	--	--	17.7
2005	--	--	--	--	--	--	25.9
2006	--	--	--	--	--	--	32.4
2007	--	--	--	--	--	--	36.0
2008	--	--	--	--	--	--	66.7
2009	--	--	--	--	--	--	74.1
2010	--	--	--	--	--	--	135.2
2011	--	--	--	--	--	--	154.2
2012	--	--	--	--	--	--	84.6
2013	--	--	--	--	--	--	120.5
2014	--	--	--	--	--	--	156.2
2015	--	--	--	--	--	--	54.9
2016	--	--	--	--	--	--	92.5
2017	--	--	--	--	--	--	76.9
2018	--	--	--	--	--	--	24.9
2019	--	--	--	--	--	--	2.6
Subtotal	**10**	**--**	**--**	**--**	**--**	**--**	**1191.2**

Annual Funding BY$
1319 | RDT&E | Research, Development, Test, and Evaluation, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2008 $M	Non End Item Recurring Flyaway BY 2008 $M	Non Recurring Flyaway BY 2008 $M	Total Flyaway BY 2008 $M	Total Support BY 2008 $M	Total Program BY 2008 $M
2001	--	--	--	--	--	--	8.5
2002	--	--	--	--	--	--	15.0
2003	--	--	--	--	--	--	17.2
2004	--	--	--	--	--	--	19.3
2005	--	--	--	--	--	--	27.6
2006	--	--	--	--	--	--	33.4
2007	--	--	--	--	--	--	36.3
2008	--	--	--	--	--	--	66.0
2009	--	--	--	--	--	--	72.4
2010	--	--	--	--	--	--	130.1
2011	--	--	--	--	--	--	144.9
2012	--	--	--	--	--	--	78.1
2013	--	--	--	--	--	--	109.5
2014	--	--	--	--	--	--	139.6
2015	--	--	--	--	--	--	48.2
2016	--	--	--	--	--	--	79.6
2017	--	--	--	--	--	--	64.9
2018	--	--	--	--	--	--	20.6
2019	--	--	--	--	--	--	2.1
Subtotal	**10**	**--**	**--**	**--**	**--**	**--**	**1113.3**

Annual Funding TY$
1810 | Procurement | Other Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway TY $M	Non End Item Recurring Flyaway TY $M	Non Recurring Flyaway TY $M	Total Flyaway TY $M	Total Support TY $M	Total Program TY $M
2018	2	52.1	--	--	52.1	13.1	65.2
2019	2	60.8	--	--	60.8	14.9	75.7
2020	2	38.9	--	--	38.9	6.5	45.4
2021	5	58.4	--	--	58.4	17.7	76.1
2022	3	46.4	--	--	46.4	12.2	58.6
2023	3	51.2	--	--	51.2	12.5	63.7
2024	--	17.9	--	--	17.9	1.9	19.8
Subtotal	**17**	**325.7**	**--**	**--**	**325.7**	**78.8**	**404.5**

Annual Funding BY$
1810 | Procurement | Other Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway BY 2008 $M	Non End Item Recurring Flyaway BY 2008 $M	Non Recurring Flyaway BY 2008 $M	Total Flyaway BY 2008 $M	Total Support BY 2008 $M	Total Program BY 2008 $M
2018	2	42.8	--	--	42.8	10.8	53.6
2019	2	49.0	--	--	49.0	12.0	61.0
2020	2	30.7	--	--	30.7	5.2	35.9
2021	5	45.3	--	--	45.3	13.7	59.0
2022	3	35.2	--	--	35.2	9.3	44.5
2023	3	38.1	--	--	38.1	9.3	47.4
2024	--	13.1	--	--	13.1	1.4	14.5
Subtotal	**17**	**254.2**	**--**	**--**	**254.2**	**61.7**	**315.9**

Cost Quantity Information
1810 | Procurement | Other Procurement, Navy

Fiscal Year	Quantity	End Item Recurring Flyaway (Aligned with Quantity) BY 2008 $M
2018	2	46.7
2019	2	52.8
2020	2	28.0
2021	5	51.3
2022	3	31.0
2023	3	44.4
2024	--	--
Subtotal	**17**	**254.2**

Annual Funding TY$
1205 | MILCON | Military Construction, Navy and Marine Corps

Fiscal Year	Total Program TY $M
2008	6.8
Subtotal	**6.8**

Annual Funding BY$
1205 | MILCON | Military Construction, Navy and Marine Corps

Fiscal Year	Total Program BY 2008 $M
2008	6.6
Subtotal	**6.6**

Low Rate Initial Production

There are currently no LRIP quantities for the JPALS Inc 1A program.

Foreign Military Sales

Country	Date of Sale	Quantity	Total Cost $M	Memo
United Kingdom	6/1/2012	1	3.9	This is a technical services case.

There is a technical services case with the United Kingdom (UK) which allows for the exchange of technical information and services for both the AN/SPN-41 instrument carrier landing system and the JPALS ship system. There are no Technology Security/Foreign Disclosure issues related to the technical services case with the UK.

Nuclear Costs

None

Unit Cost

Unit Cost Report

Unit Cost	BY2008 $M Current UCR Baseline (DEC 2008 APB)	BY2008 $M Current Estimate (DEC 2013 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	963.2	1435.8	
Quantity	37	27	
Unit Cost	26.032	53.178	**+104.28** [1]
Average Procurement Unit Cost (APUC)			
Cost	202.9	315.9	
Quantity	25	17	
Unit Cost	8.116	18.582	**+128.96** [1]

Unit Cost	BY2008 $M Original UCR Baseline (DEC 2008 APB)	BY2008 $M Current Estimate (DEC 2013 SAR)	BY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	963.2	1435.8	
Quantity	37	27	
Unit Cost	26.032	53.178	**+104.28** [1]
Average Procurement Unit Cost (APUC)			
Cost	202.9	315.9	
Quantity	25	17	
Unit Cost	8.116	18.582	**+128.96** [1]

Unit Cost	TY $M Current UCR Baseline (DEC 2008 APB)	TY $M Current Estimate (DEC 2013 SAR)	TY % Change
Program Acquisition Unit Cost (PAUC)			
Cost	1031.9	1602.5	
Unit Cost	27.889	59.352	+112.82
Average Procurement Unit Cost (APUC)			
Cost	243.7	404.5	
Unit Cost	9.748	23.794	+144.09

	TY $M		
Unit Cost	**Original UCR Baseline (DEC 2008 APB)**	**Current Estimate (DEC 2013 SAR)**	**TY % Change**
Program Acquisition Unit Cost (PAUC)			
Cost	1031.9	1602.5	
Unit Cost	27.889	59.352	+112.82
Average Procurement Unit Cost (APUC)			
Cost	243.7	404.5	
Unit Cost	9.748	23.794	+144.09

[1] **Nunn-McCurdy Breach**

Unit Cost Breach Data

Changes from Previous SAR	$M/Qty.	Percent
PAUC (BY $M)	25.689	+93.45
APUC (BY $M)	9.949	+115.24
PAUC Quantity	-10	0.00
PAUC (TY $M)	29.547	+99.13
APUC (TY $M)	13.331	+127.41

Initial SAR Information	BY $M	TY $M
Program Acquisition Cost	963.2	1031.9

Unit Cost PAUC Changes

PAUC increased due to a reduction in total planned quantities, an extension of the development program to include capability improvements, and increases in material costs.

Unit Cost APUC Changes

APUC increased due to increases in material costs, a lower and longer procurement profile, and a reduction in total planned quantities.

Impact of Performance or Schedule Changes

An extension of the development program to include capability improvements has resulted in a delay in production. The production schedule is closely tied to CVN and LH type ship availability schedules. Lower production quantities spread over a longer number of years than previously planned has increased cost.

Program Management or Control

Pending the outcome of the Nunn-McCurdy process, the Navy will work closely with OSD to manage and control cost growth.

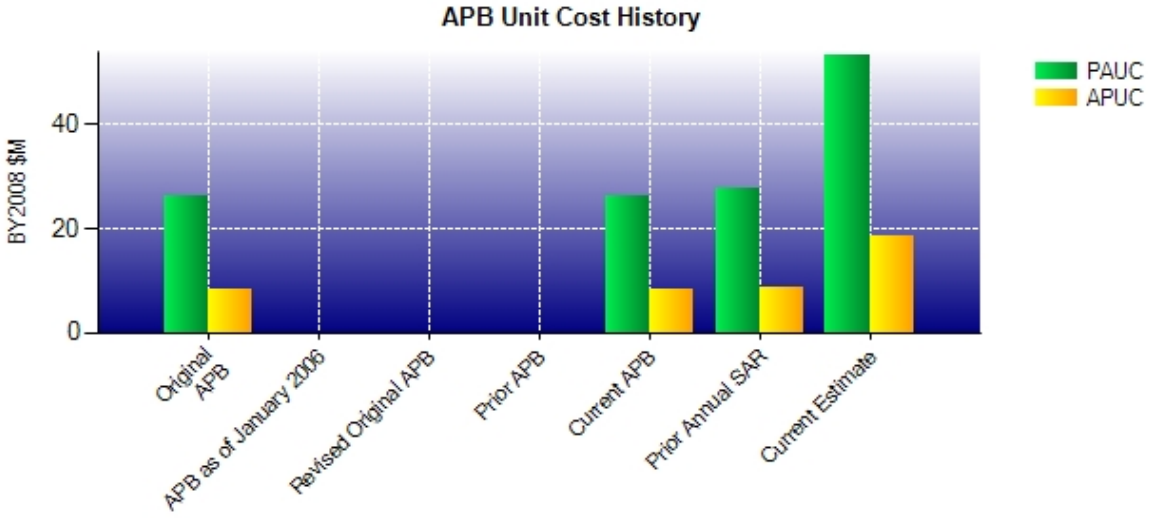
Cost Control Actions

Pending the outcome of the Nunn-McCurdy process, the Navy will work closely with OSD to manage and control cost growth.

Nunn-McCurdy Comments

A reduction in total planned quantities due to the elimination of previously required shore-based training systems, an extension of the development program to include capability improvements, a lower and longer procurement profile, and increases in material costs have resulted in a critical Nunn-McCurdy unit cost breach to the PAUC and APUC in the current JPALS Inc 1A APB.

Unit Cost History



		BY2008 $M		TY $M	
	Date	PAUC	APUC	PAUC	APUC
Original APB	DEC 2008	26.032	8.116	27.889	9.748
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	N/A	N/A	N/A	N/A	N/A
Current APB	DEC 2008	26.032	8.116	27.889	9.748
Prior Annual SAR	DEC 2012	27.489	8.633	29.805	10.463
Current Estimate	DEC 2013	53.178	18.582	59.352	23.794

SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY $M)

Initial PAUC Dev Est	Changes								PAUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
27.889	-0.107	7.878	9.885	8.148	4.881	0.000	0.778	31.463	59.352

Current SAR Baseline to Current Estimate (TY $M)

Initial APUC Dev Est	Changes								APUC Current Est
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
9.748	-0.394	1.016	1.418	0.000	10.771	0.000	1.235	14.046	23.794

SAR Baseline History

Item/Event	SAR Planning Estimate (PE)	SAR Development Estimate (DE)	SAR Production Estimate (PdE)	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	JUL 2008	N/A	JUL 2008
Milestone C	N/A	FEB 2013	N/A	FEB 2017
IOC	N/A	DEC 2014	N/A	TBD
Total Cost (TY $M)	N/A	1031.9	N/A	1602.5
Total Quantity	N/A	37	N/A	27
Prog. Acq. Unit Cost (PAUC)	N/A	27.889	N/A	59.352

Cost Variance

Summary Then Year $M				
	RDT&E	Proc	MILCON	Total
SAR Baseline (Dev Est)	781.4	243.7	6.8	1031.9
Previous Changes				
Economic	+5.9	-4.4	--	+1.5
Quantity	-5.5	+14.5	--	+9.0
Schedule	--	+14.7	--	+14.7
Engineering	+84.5	--	--	+84.5
Estimating	-52.8	-26.3	--	-79.1
Other	--	--	--	--
Support	--	+40.3	--	+40.3
Subtotal	+32.1	+38.8	--	+70.9
Current Changes				
Economic	-2.1	-2.3	--	-4.4
Quantity	--	-75.2	--	-75.2
Schedule	+242.8	+9.4	--	+252.2
Engineering	+135.5	--	--	+135.5
Estimating	+1.5	+209.4	--	+210.9
Other	--	--	--	--
Support	--	-19.3	--	-19.3
Subtotal	+377.7	+122.0	--	+499.7
Total Changes	+409.8	+160.8	--	+570.6
CE - Cost Variance	1191.2	404.5	6.8	1602.5
CE - Cost & Funding	1191.2	404.5	6.8	1602.5

Summary Base Year 2008 $M				
	RDT&E	**Proc**	**MILCON**	**Total**
SAR Baseline (Dev Est)	753.7	202.9	6.6	963.2
Previous Changes				
Economic	--	--	--	--
Quantity	-5.1	+12.0	--	+6.9
Schedule	--	+7.8	--	+7.8
Engineering	+71.6	--	--	+71.6
Estimating	-42.8	-23.4	--	-66.2
Other	--	--	--	--
Support	--	+33.8	--	+33.8
Subtotal	+23.7	+30.2	--	+53.9
Current Changes				
Economic	--	--	--	--
Quantity	--	-61.1	--	-61.1
Schedule	+214.5	--	--	+214.5
Engineering	+120.0	--	--	+120.0
Estimating	+1.4	+165.0	--	+166.4
Other	--	--	--	--
Support	--	-21.1	--	-21.1
Subtotal	+335.9	+82.8	--	+418.7
Total Changes	+359.6	+113.0	--	+472.6
CE - Cost Variance	1113.3	315.9	6.6	1435.8
CE - Cost & Funding	1113.3	315.9	6.6	1435.8

Previous Estimate: December 2012

RDT&E	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-2.1
Adjustment for current and prior escalation. (Estimating)	+1.4	+1.5
Extension of development effort due to delay in production decision from FY 2013 to FY 2017. (Schedule)	+214.5	+242.8
Change in program scope to add manned and unmanned auto-land capabilities. (Engineering)	+120.0	+135.5
RDT&E Subtotal	+335.9	+377.7

Procurement	$M	
Current Change Explanations	**Base Year**	**Then Year**
Revised escalation indices. (Economic)	N/A	-2.3
Quantity variance resulting from a reduction of 10 shore-based training systems from 27 to 17. (Quantity)	-61.1	-75.2
Stretch-out of procurement buy profile from FY 2014 to FY 2018 due to addition of manned and unmanned auto-land capabilities. (Schedule)	0.0	+9.4
Revised estimate due to merging of multiple staff teams into a single team, which led to increases in government in-house systems engineering and program management. (Estimating)	+156.0	+198.0
Revised estimate of hardware costs due to acceleration of capability upgrades, changes in estimating assumptions, and software changes for addition of unmanned capability. (Estimating)	+9.0	+11.4
Decrease in Other Support due to addition of onboard replenishment spares not previously included. (Support)	-9.8	-8.3
Decrease in Initial Spares due to quantity reduction. (Support) (QR)	-11.3	-11.0
Procurement Subtotal	+82.8	+122.0

(QR) Quantity Related

Contracts

Appropriation: RDT&E	
Contract Name	**JPALS Development Contract**
Contractor	Raytheon Company
Contractor Location	1801 Hughes Drive Fullerton, CA 92833-2200
Contract Number, Type	N00019-08-C-0034, CPAF/CPIF
Award Date	September 15, 2008
Definitization Date	September 15, 2008

Initial Contract Price ($M)			Current Contract Price ($M)			Estimated Price at Completion ($M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
232.8	N/A	12	368.0	N/A	10	291.7	292.3

Target Price Change Explanation

The difference between the Initial Contract Price Target and the Current Contract Price Target is due to Engineering and Manufacturing Development (EMD) contract completion and the Phase I 19-month JPALS Inc 1A EMD contract extension being awarded for risk reduction activities in support of manned and unmanned auto-land capability improvements.

Variance	Cost Variance	Schedule Variance
Cumulative Variances To Date (11/22/2013)	-21.0	-1.0
Previous Cumulative Variances	-23.4	-1.4
Net Change	+2.4	+0.4
Percent Variance	-8.19%	-0.39%
Percent Complete	+97.68%	

Cost and Schedule Variance Explanations

The favorable net change in the cost variance is due to a decrease in labor hours (especially related to level of effort) across several Work Breakdown Structure elements. Other areas attributing to the favorable variance include experienced personnel and leveraging lessons learned from prior ship trips during system test.

The favorable net change in the schedule variance is due to prior delinquent activities that have been worked and/or completed as well as the contract nearing completion. As the contract nears completion, the schedule variance will naturally trend towards $0, as all the work scheduled to complete will be completed. As of November 2013, the Integrated Master Schedule (IMS) was 98% complete, with approximately 100 discrete tasks still remaining.

General Contract Variance Explanation

The Naval Air Systems Command granted Raytheon a waiver of delivery for the Earned Value Management (EVM) Contract Data Requirements Lists A106 and A109 (Contract Performance Report and IMS). In doing so, the last EVM deliverable was the submission reporting the November 2013 month end data. At that point, the contract was approximately 98% performed and 106% spent, resulting in a Cost Performance Index of 0.92 and Schedule Performance Index of 1.00 with approximately $6.1M of remaining work.

Contract Comments

This contract is more than 90% complete; therefore, this is the final report for this contract.

Deliveries and Expenditures

Delivered to Date	Plan to Date	Actual to Date	Total Quantity	Percent Delivered
Development	8	8	10	80.00%
Production	0	0	17	0.00%
Total Program Quantity Delivered	8	8	27	29.63%

Expended and Appropriated (TY $M)			
Total Acquisition Cost	1602.5	Years Appropriated	14
Expended to Date	607.1	Percent Years Appropriated	58.33%
Percent Expended	37.88%	Appropriated to Date	946.2
Total Funding Years	24	Percent Appropriated	59.05%

The above data is current as of 2/26/2014.

Operating and Support Cost

JPALS Inc 1A

Assumptions and Ground Rules

Cost Estimate Reference:
This section has not been updated from the previous SAR. The O&S cost estimate will be updated as part of the Nunn-McCurdy certification process and will be revised to reflect significant program quantity, schedule, and scope changes.

The Office of the Secretary of Defense Cost Assessment and Program Evaluation organization conducted an estimate in support of the Milestone B decision on July 14, 2008. Since then the Base Year values have decreased and time phasing has been adjusted resulting in lower Then Year values. Updated reliability projections resulted in a reduction from the 2008 estimate including the addition of a 3% Cost Growth Above Inflation factor to the Depot Level Repairables. In-Service Engineering Activity (ISEA) has been added as part of the Supply Chain Management under Sustaining Support due to its current cost benefit to legacy landing systems. Hardware modifications and software maintenance have been refined resulting in a reduction from the 2008 estimate. The hardware modifications and software maintenance have been removed from the Sustaining Support section in the initial estimate and placed in the Continuing System Improvements section in the new estimate. The estimate was updated in December 2011 based on the revised JPALS Cost Analysis Requirements Description.

Sustainment Strategy:
This section has not been updated from the previous SAR. The O&S cost estimate will be updated as part of the Nunn-McCurdy certification process and will be revised to reflect significant program quantity, schedule, and scope changes.

The sustainment strategy is still being analyzed, which includes using Performance Based Logistics. There will be a total of 29 retrofit ship and sea-based ashore units; this is not including the O&S costs for the seven Shipbuilding and Conversion (SCN) funded ships. Each SCN funded ship accounts for its own O&S cost. The system is planned to have a 20-year life after introduction to the fleet with an operational tempo of 4,000 hours per year per ship and 3,500 hours per year per sea-based-ashore.

Antecedent Information:
This section has not been updated from the previous SAR. The O&S cost estimate will be updated as part of the Nunn-McCurdy certification process and will be revised to reflect significant program quantity, schedule, and scope changes.

The antecedent system associated with this estimate is the AN/SPN-46(V)3. Legacy systems continue to experience service life adjustments and system modifications that make Total O&S Costs compilation in a static service life (e.g., 25 years) to be not credible. In addition, the capture of O&S data in available reporting systems has changed significantly over time. The Visibility and Management of Operating and Support Costs database, the Navy's official system for collecting and reporting O&S costs, provides costs from 1997-present. The cost data for platforms in existence prior to 1997 is either unavailable or incomplete. Sufficient historical data and resources do not exist to create comparable, credible Total O&S Costs.

Unitized O&S Costs BY2008 $K		
Cost Element	**JPALS Inc 1A Average Annual Cost Per System**	**AN/SPN-46(V)3 (Antecedent) Average Annual Cost Per System**
Unit-Level Manpower	0.005	0.716
Unit Operations	0.000	0.000
Maintenance	0.310	0.051
Sustaining Support	0.210	0.027
Continuing System Improvements	0.100	0.408
Indirect Support	0.000	0.000
Other	0.000	0.000
Total	0.625	1.202

Unitized Cost Comments:

This section has not been updated from the previous SAR. The O&S cost estimate will be updated as part of the Nunn-McCurdy process and will be revised to reflect significant program quantity, schedule, and scope changes.

The unitized costs are based on 29 retrofit ship and sea-based-ashore units with a 20-year life. $362.5 = $0.625 * 29 units * 20 year life cycle. The small delta between this calculated value and the total O&S cost shown is due to rounding. The unitized costs do not include the O&S for seven SCN funded ships.

	Total O&S Cost $M			
	Current Development APB Objective/Threshold		Current Estimate	
	JPALS Inc 1A		JPALS Inc 1A	AN/SPN-46(V)3 (Antecedent)
Base Year	338.6	372.5	362.6	N/A
Then Year	520.6	N/A	480.3	N/A

Total O&S Costs Comments:

None

Disposal Costs:

Disposal costs have not been identified at this time.