Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Navy											Date: May 2017	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603860N *I JT Precision Approach & Ldg Sys*							
COST ($ in Millions)	**Prior Years**	**FY 2016**	**FY 2017**	**FY 2018 Base**	**FY 2018 OCO**	**FY 2018 Total**	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**	**Cost To Complete**	**Total Cost**
Total Program Element	943.438	80.313	104.144	106.391	-	106.391	103.549	52.025	33.816	29.722	Continuing	Continuing
2329: *JPALS*	943.438	80.313	104.144	106.391	-	106.391	103.549	52.025	33.816	29.722	Continuing	Continuing
Program MDAP/MAIS Code: **Project MDAP/MAIS Code(s):** 238												

A. Mission Description and Budget Item Justification

A. Mission Description and Budget Item Justification

The Joint Precision Approach and Landing System (JPALS) is the primary precision approach and landing system for CVN and LHA/D ships to support aircraft without SPN-46 ACLS capability including F-35B, F-35C, MQ-25A and future platforms. JPALS ship systems are required to provide CVN and LHA/D ships a primary precision approach capability during night and instrument flight conditions, including coupled approach capability to a hover transition point for LHA/D ships, and coupled approach to the deck (auto-land) capability aboard CVN ships. JPALS also provides the over-the-air inertial alignment capability for CVN and LHA/D ships to support aircraft platforms without Link-4A capability, including
F-35, MQ-25A and future platforms. JPALS Early Operational Capability is required to support initial F-35 operational deployments in FY18. JPALS Effort includes addressing broadened CyberSecurity requirements to remain compliant with software CyberSecurity directives and Information Assurance mandates.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under ADVANCED COMPONENT DEVELOPMENT AND PROTOTYPES because it includes all efforts necessary to evaluate integrated technologies, representative models or prototype systems in high fidelity and realistic operating environment.

B. Program Change Summary ($ in Millions)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Previous President's Budget	81.466	104.144	104.954	-	104.954
Current President's Budget	80.313	104.144	106.391	-	106.391
Total Adjustments	-1.153	0.000	1.437	-	1.437
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.153	0.000			
• Program Adjustments	0.000	0.000	1.057	-	1.057
• Rate/Misc Adjustments	0.000	0.000	0.380	-	0.380

Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Navy	Date: May 2017
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603860N *I JT Precision Approach & Ldg Sys*

Change Summary Explanation

Technical: N/A

Schedule: Updated the schedule to add JPALS installation and support for USS WASP (LHD-1) operational deployment beginning in FY17. Updated schedule to show JPALS EOC date shift from Q1 to Q4FY18 based on completion of F-35 Block 3F OT periods completing later in FY18. This has no impact on the JPALS program of record as the JPALS program is in a supporting role to F-35 OT periods and these efforts are funded by the F-35 program. All efforts to install JPALS ship systems (EDMs) and be prepared to support F-35 OT periods are either completed or on schedule. Updated schedule to show F-35 Program decision to integrate JPALS 2-way capability in F-35 Block 4.3 vice Block 4.1. JPALS UHF Data Broadcast (UDB) Precision Approach capability remains in F-35 Block 3F for installations and operational deployments beginning in FY17. The F-35 costs for Block 4 integration of JPALS capability are funded by the individual platform program offices and are maintained in their budget. The JPALS Component Cost Position and Acquisition Performance Baseline schedule milestones have already accounted for JPALS 2-way integration in F-35 Block 4.1, 4.2, or 4.3. For IOT&E and OTRR, a more detailed schedule was included in OSD18 compared to PB17. The IOT&E Phase 1 and supporting OTRR for EOC in 2Q FY18 was included in the schedule, aligned with the F-35 Block 3F shipboard OT periods. The IOT&E Phase 2 and supporting OTRR that were depicted in the PB17 in 2Q FY20 has been aligned to match the F-35 Block 4.3 shipboard OT periods which are beyond the FYDP (FY24).

Financial: FY18 increase in JPALS addresses broadened CyberSecurity requirements to remain compliant with software CyberSecurity directives and Information Assurance mandates.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603860N / *JT Precision Approach & Ldg Sys*	Project (Number/Name) 2329 / *JPALS*	

COST ($ in Millions)	Prior Years	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
2329: *JPALS*	943.438	80.313	104.144	106.391	-	106.391	103.549	52.025	33.816	29.722	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 238

A. Mission Description and Budget Item Justification

The restructured Joint Precision Approach and Landing System (JPALS) program (post Nunn-McCurdy certification) completed a successful MS B and entry into the Engineering and Manufacturing Development (EMD) phase in June 2016. The FY 2018 budget reflects the Department of Defense certified Component Cost Position of the restructured JPALS program that funds the developmental, testing, and integration activities to implement and field JPALS ship systems that deliver the primary precision approach, landing, on-deck inertial alignment, surveillance, and auto-land capability for current and future low observable manned and unmanned platforms onboard all CVN and LHA/D ships. JPALS Early Operational Capability (EOC) is required to support initial F-35 operational deployments. JPALS provides for development, integration, installation, and test of Sea-Based JPALS on CVN and LHA/D ships in accordance with the Joint Requirements Oversight Council(JROC) Mar 2016 approved JPALS Capability Development Document (CDD) Update. JPALS Engineering Development Model (EDM) articles have been delivered to support JPALS EMD activities. JPALS EDMs will be installed at shore based test facilities and (temporarily) on CVN and LHA/D ships to support F-35B/C developmental and operational testing and MQ-25A concept refinement, system requirements identification, allocation, surrogate risk reduction, and test. Two JPALS EDMs will be procured and installed to support testing and F-35 shipboard operational deployments that begin in FY18. JPALS will continue to invest in software development in direct support of precision approach and auto-land capabilities for the F-35B/C, MQ-25A, and future air platforms. JPALS effort includes addressing broadened CyberSecurity requirements to remain compliant with software CyberSecurity directives and Information Assurance mandates.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Title: JPALS Ship Systems and Test	75.163	98.749	100.955	0.000	100.955
Articles:	-	2	-	-	-
Description: JPALS provides for development, integration, installation, and test of Sea-Based JPALS on CVN and LHA/D ships.					
FY 2016 Accomplishments: Completed Integrated Logistics Assessment (ILA) in 1st quarter. Completed required acquisition and technical reviews and documentation to support Milestone B decision. Completed System Functional Review (SFR) in 1st quarter and Preliminary Design Review (PDR) in 2nd quarter. Accomplished Milestone B in 3rd quarter. Awarded Engineering					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603860N / *JT Precision Approach & Ldg Sys*	**Project (Number/Name)** 2329 / *JPALS*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Manufacturing and Development (EMD) contract in 4th quarter. Continued Prototype Risk Reduction testing in preparation for Critical Design Review (CDR) in FY17. Completed F-35C DT-2 and DT-3 testing supporting JPALS EOC in 1Q and 4Q respectively. ***FY 2017 Plans:*** Continue JPALS lab and shore based development and test activities in preparation for CDR and JPALS shipboard Integrated Test (IT). Fund procurement of two additional Engineering Development Models (EDM) to support F-35 EOC operational deployments and JPALS Integrated Test (IT) and OT testing requirements. Complete phase 1 development of JPALS Test Bed (JTB) to support shore based and shipboard IT. Perform Initial Baseline Review (IBR) for the JPALS EMD contract in the 2nd quarter. Perform CDR in 3rd quarter. Install cabling, foundations and EDMs on CVN and LHA/D for JPALS Integrated Test (IT) and preparation for F-35 shipboard operational testing. Begin preparations for JPALS IOT&E phase 1 to support EOC. ***FY 2018 Base Plans:*** Continue JPALS development and test activities in preparation for System Verification Review(SVR)and Production Readiness Review(PRR). Perform JPALS IT-B1 in 2nd quarter and IT-B2/3 in 3rd and 4th quarter. Install cabling, foundations and EDMs on additional LHA/Ds to support F-35 operational deployments and EOC. Support F-35B preparation for and operational deployments. Perform M-Demo in 4th quarter. Address broadened cyber-security requirements to remain compliant with software cyber-security directives and information assurance mandates. ***FY 2018 OCO Plans:*** N/A					
Title: Joint Strike Fighter (JSF) F-35B Marine Corp STOVL and F-35C Navy Carrier Variant Support	3.750	3.973	3.999	0.000	3.999
Articles:	-	-	-	-	-
Description: Provide technical development, shore based, and ship based support for F-35B and F-35C JPALS Integration and Developmental Test (DT) and Operational Test (OT) events. Provide JPALS system certification and documentation to certify shipboard all weather precision approach capability for F-35 operational test and deployments.					
FY 2016 Accomplishments:					

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603860N / *JT Precision Approach & Ldg Sys*	**Project (Number/Name)** 2329 / *JPALS*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Supported JPALS capability integration on F-35B/C. Supported shore based lab and developmental flight testing for F-35B/ C. Completed F-35C DT-2 and DT-3 on CVNs. Developed initial procedures and draft documents for JPALS UHF Data Broadcast (UDB) capability certification for F-35B/C to support operational test and operational deployments. ***FY 2017 Plans:*** Support F35-B DT-3 on an LHA. Prepare for shipboard operational testing on CVN and LHA/D of F-35B and F-35C with JPALS. Complete JPALS UHF Data Broadcast (UDB)certification process and documentation to prepare for JPALS Operational Test Readiness Review (OTRR) F-35 operational test and EOC deployments in FY17 and FY18 respectively. ***FY 2018 Base Plans:*** Support F-35B/C shipboard OT results and analysis. Support preparation for and operational F-35 deployments ***FY 2018 OCO Plans:*** N/A					
Title: MQ-25 Support ***Articles:*** ***Description:*** Provide technical support, lab support, requirements identification, allocation and test activities for MQ-25. Support MQ-25 concept refinement, requirements development, integration specifications, and risk reduction activities for JPALS integration. Support MQ-25 concept refinement and JPALS integration and developmental activities. ***FY 2016 Accomplishments:*** Continued development of integration specifications, test requirements and planning in support of MQ-25 concept refinement, risk reduction activities and RFP release. ***FY 2017 Plans:*** Continue development of integration specifications, test documentation and planning in support of MQ-25 concept refinement activities. Support MQ-25 system requirements review for JPALS integration and MQ-25 RFP release. ***FY 2018 Base Plans:*** Support MQ-25 risk reduction activities, MS B efforts, and the beginning of Engineering and Manufacturing	1.400 -	1.422 -	1.437 -	0.000 -	1.437 -

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603860N / *JT Precision Approach & Ldg Sys*	**Project (Number/Name)** 2329 / *JPALS*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total
Development phase activities to integrate and test JPALS capabilities. ***FY 2018 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	80.313	104.144	106.391	0.000	106.391

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2016	FY 2017	FY 2018 Base	FY 2018 OCO	FY 2018 Total	FY 2019	FY 2020	FY 2021	FY 2022	Cost To Complete	Total Cost
• OPN/2867: *JPALS*	0.000	0.000	0.000	-	0.000	38.573	63.065	66.948	10.489	192.977	372.052

Remarks

D. Acquisition Strategy

Technology Development phase was conducted jointly by NAVAIRSYSCOM (PMA-213), USAF Electronic Systems Command (Global Air) and multiple industry partners. This effort provided the concept of operations, performance specifications and technology readiness levels necessary to provide the foundation from which to launch the Increment 1 System Development and Demonstration (SDD) phase development. Joint Precision Approach and Landing System (JPALS) reached MS-B on 14 July 2008 and the SDD phase development contract was awarded on 17 July 2008. Tasking consisted of sea-based 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 deliverable products. The SDD contract was decided after full and open competition. JPALS is being developed by the Navy with an open system architecture in order to facilitate the compatible integration of many different aircraft and avionics architectures. JPALS provides for development, integration, installation, and test of Sea-Based JPALS to meet Initial Operation Capability of CVN and LHA/D ships in accordance with the JPALS Capability Development Document (CDD). Additionally, this requirement provides critical enabling technology for Joint Strike Fighter (JSF) F-35B Marine Corps Short Take-Off and Vertical Landing (STOVL) and F-35C Navy Carrier Variant, ship-based MQ-25A, and future Navy and Marine Corps air platforms.

As a result of the DON Resource and Requirements Review Board approved PALC Roadmap, the JPALS production phase was deferred to include design improvements to provide manned and unmanned aircraft with autoland capabilities. The current Engineering and Manufacturing Development (EMD) contract was modified in FY14 to add detailed requirements and design trade studies to identify specific system design improvements. An extension for pre-Milestone B efforts was awarded in fourth quarter FY15.

A Development RFP Release Decision Point (DRRDP) Defense Acquisition Board (DAB) was completed and the RFP for JPALS EMD 16 was released on 24 November 2015. A Milestone B (MS B) DAB was completed 02 June 2016. The MS B Acquisition Decision Memorandum (ADM) was approved 27 June 2016, which granted entry into the EMD phase for the restructured JPALS program and officially completed all actions required to exit Nunn-McCurdy. JPALS now has an approved Acquisition Program Baseline (APB) and has been designated an Acquisition Category (ACAT) 1C program.Sole Source contract was awarded to Raytheon in fourth quarter FY16.

Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603860N / *JT Precision Approach & Ldg Sys*	**Project (Number/Name)** 2329 / *JPALS*

E. Performance Metrics

Critical Design Review (CDR) scheduled for third quarter FY17. Milestone C scheduled for second quarter FY19.

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy		Date: May 2017
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ship Integration	WR	NAWCAD : Pax River, MD	36.815	9.153	Dec 2015	9.424	Nov 2016	12.482	Nov 2017	-		12.482	Continuing	Continuing	Continuing
Primary Hardware Development - EMD Phase I	C/CPIF	Raytheon : Fullerton, CA	374.057	36.124	Nov 2015	0.000		0.000		-		0.000	0.000	410.181	410.181
Primary Hardware Development - New EMD Contract	C/CPIF	Raytheon : Fullerton, CA	0.000	3.199	Aug 2016	62.697	Nov 2016	60.693	Nov 2017	-		60.693	161.077	287.666	287.666
Risk Reduction for Auto-land - ARC-210	C/CPFF	RCI : Cedar Rapids, IA	3.029	1.743	Dec 2015	0.331	Nov 2016	0.000		-		0.000	1.936	7.039	7.039
Risk Reduction for Auto-land - FFRDC Support	FFRDC	JHU : Laurel, MD	0.493	0.000	Oct 2015	0.000		0.000		-		0.000	0.000	0.493	-
Prior Year Prod Dev no longer funded in the FYDP	TBD	Various : Various	249.870	0.000		0.000		0.000		-		0.000	0.000	249.870	-
		Subtotal	664.264	50.219		72.452		73.175		-		73.175	-	-	-

Remarks

The Primary Hardware Development contract with Raytheon is a CPIF contract. Primary Hardware Development funding increases in FY17 due to contractor commencing new EMD work post MS-B and beginning the production of two additional Engineering Demonstration Models (EDMs) that support testing requirements and EOC operational deployments for F-35. Ship integration increase from FY17 to FY18 is due to greater number of ships that will have integration work done in FY18 than in FY17. Will also address broadened cyber-security requirements in FY18.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering Support	WR	NAWCAD : Pax River, MD	143.688	16.173	Dec 2015	16.551	Nov 2016	16.822	Nov 2017	-		16.822	Continuing	Continuing	Continuing
Integrated Logistics Support	WR	NAWCAD : Pax River, MD	22.792	2.509	Dec 2015	2.617	Nov 2016	2.659	Nov 2017	-		2.659	Continuing	Continuing	Continuing
Prior Year Support Costs non longer funded in FYDP	Various	Various : Various	21.514	0.000		0.000		0.000		-		0.000	0.000	21.514	-
		Subtotal	187.994	18.682		19.168		19.481		-		19.481	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy			Date: May 2017
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603860N / *JT Precision Approach & Ldg Sys*	Project (Number/Name) 2329 / *JPALS*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Developmental Test & Evaluation	WR	NAWCAD : Pax River, MD	54.250	7.373	Dec 2015	8.116	Nov 2016	9.044	Nov 2017	-		9.044	Continuing	Continuing	Continuing
Operational Test & Evaluation	WR	COMOPTEVFOR : Norfolk, VA	3.497	0.402	Dec 2015	0.418	Nov 2016	0.637	Nov 2017	-		0.637	Continuing	Continuing	Continuing
		Subtotal	57.747	7.775		8.534		9.681		-		9.681	-	-	-

Remarks

Increase of Developmental Test and Evaluation(DT&E) funding between FY16 and FY17 due to scheduled start of JPALS IT-B testing. Increase of DT&E funding between FY17 and 18 due to continued JPALS integration testing and performing JPALS IT-B, IT-B1, IT-B2, and IT-B3.

Management Services ($ in Millions)

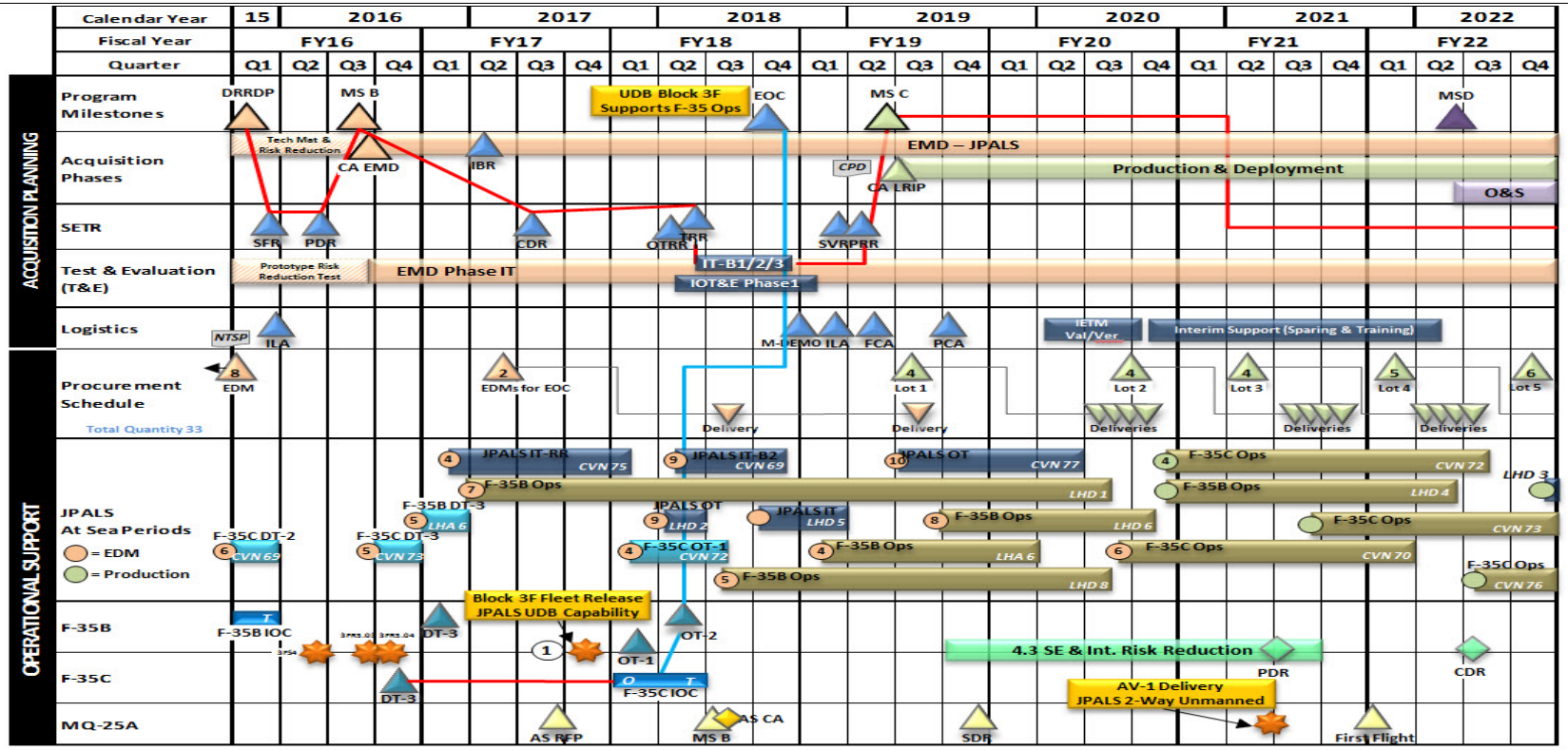
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2016 Cost	FY 2016 Award Date	FY 2017 Cost	FY 2017 Award Date	FY 2018 Base Cost	FY 2018 Base Award Date	FY 2018 OCO Cost	FY 2018 OCO Award Date	FY 2018 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	WR	NAWCAD : Pax River, MD	16.916	2.865	Dec 2015	2.988	Nov 2016	3.035	Nov 2017	-		3.035	Continuing	Continuing	Continuing
PM Support-MSS	C/CPFF	Amelex : Pax River, MD	12.690	0.548	Dec 2015	0.795	Nov 2016	0.808	Nov 2017	-		0.808	1.302	16.143	16.131
PM Support-MSS	C/CPFF	Avian : Pax River, MD	1.592	0.000	Dec 2015	0.000		0.000		-		0.000	0.000	1.592	1.592
PM Support-MSS	C/CPFF	SAIC : Pax River, MD	2.053	0.154	Dec 2015	0.139	Nov 2016	0.141	Nov 2017	-		0.141	0.182	2.669	2.669
Travel	WR	NAVAIR : Pax River, MD	0.182	0.070	Dec 2015	0.068	Nov 2016	0.070	Nov 2017	-		0.070	Continuing	Continuing	Continuing
		Subtotal	33.433	3.637		3.990		4.054		-		4.054	-	-	-

	Prior Years	FY 2016		FY 2017		FY 2018 Base		FY 2018 OCO		FY 2018 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	943.438	80.313		104.144		106.391		-		106.391	-	-	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603860N / *JT Precision Approach & Ldg Sys*	**Project (Number/Name)** 2329 / *JPALS*

JPALS Program
MS C Schedule



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Notes:
(1) F-35B/C Block 3F Software includes JPALS one-way capability (UHF Data Broadcast (UDB))

Legend:
- Critical Path to JPALS IOC
- Critical Path to F-35 JPALS EOC
- O=Objective, T=Threshold

EDM Procurement
Lot Buys

Revision Date: 15 March 17
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Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy		Date: May 2017
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603860N / *JT Precision Approach & Ldg Sys*	**Project (Number/Name)** 2329 / *JPALS*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
JPALS				
Acquisition Milestones: MS B	3	2016	3	2016
Acquisition Milestones: Development RFP Release Decision Point (DRRDP)	1	2016	1	2016
Acquisition Milestones: MS C	2	2019	2	2019
Acquisition Milestones: Early Operating Capability (EOC)	4	2018	4	2018
Systems Development: Engineering and Manufacturing Development	3	2016	4	2022
Systems Development: Tech Maturity and Risk Reduction	1	2016	3	2016
Systems Development: Reviews: Critical Design Review (CDR)	3	2017	3	2017
Systems Development: Reviews: Preliminary Design Review (PDR)	2	2016	2	2016
Systems Development: Contract Awards: LRIP Contract Award	3	2019	3	2019
Systems Development: Contract Awards: New EMD Contract Award	4	2016	4	2016
Test & Evaluation: Operational Test and Evaluation (IOT&E) Phase 1	2	2018	1	2019
Test & Evaluation: JPALS Operational Test Readiness Review (OTRR)	2	2018	2	2018
Production Milestones: Production Readiness Review (PRR)	2	2019	2	2019