| Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy | | | | | | | | | | | Date: February 2018 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)* | | | | | R-1 Program Element (Number/Name)<br>PE 0603860N *I JT Precision Approach & Ldg Sys* | | | | | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2017** | **FY 2018** | **FY 2019 Base** | **FY 2019 OCO** | **FY 2019 Total** | **FY 2020** | **FY 2021** | **FY 2022** | **FY 2023** | **Cost To Complete** | **Total Cost** |
| Total Program Element | 1,026.776 | 102.195 | 106.391 | 101.566 | - | 101.566 | 52.553 | 32.960 | 28.871 | 31.135 | Continuing | Continuing |
| 2329: *JPALS* | 1,026.776 | 102.195 | 106.391 | 101.566 | - | 101.566 | 52.553 | 32.960 | 28.871 | 31.135 | Continuing | Continuing |

**Program MDAP/MAIS Code:**
**Project MDAP/MAIS Code(s):** 238

**A. Mission Description and Budget Item Justification**

The FY 2019 funding request was reduced by $.743 million to reflect the Department of Navy's effort to support the Office of Management and Budget directed reforms for Efficiency and Effectiveness that include a lean, accountable, more efficient government.

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 efforts include 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 environments.

| Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Navy | | | | | Date: February 2018 |
|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)* | | | R-1 Program Element (Number/Name)<br>PE 0603860N *I JT Precision Approach & Ldg Sys* | | |
| **B. Program Change Summary ($ in Millions)** | **FY 2017** | **FY 2018** | **FY 2019 Base** | **FY 2019 OCO** | **FY 2019 Total** |
| Previous President's Budget | 104.144 | 106.391 | 103.549 | - | 103.549 |
| Current President's Budget | 102.195 | 106.391 | 101.566 | - | 101.566 |
| Total Adjustments | -1.949 | 0.000 | -1.983 | - | -1.983 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | 1.761 | 0.000 | | | |
| • SBIR/STTR Transfer | -2.288 | 0.000 | | | |
| • Program Adjustments | 0.000 | 0.000 | -0.743 | - | -0.743 |
| • Rate/Misc Adjustments | 0.000 | 0.000 | -1.240 | - | -1.240 |
| • Congressional Directed Reductions Adjustments | -1.422 | - | - | - | - |

**Change Summary Explanation**

Technical: N/A

Schedule: N/A

Financial: Added additional funds in FY17 to properly price the JPALS Engineering Development Models.

| Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy | | | Date: February 2018 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 4 | R-1 Program Element (Number/Name)<br>PE 0603860N / *JT Precision Approach & Ldg Sys* | Project (Number/Name)<br>2329 / *JPALS* | |

| COST ($ in Millions) | Prior Years | FY 2017 | FY 2018 | FY 2019 Base | FY 2019 OCO | FY 2019 Total | FY 2020 | FY 2021 | FY 2022 | FY 2023 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2329: *JPALS* | 1,026.776 | 102.195 | 106.391 | 101.566 | - | 101.566 | 52.553 | 32.960 | 28.871 | 31.135 | Continuing | Continuing |
| Quantity of RDT&E Articles | | 2 | - | - | - | - | - | - | - | - | | |

**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. This 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 JPALS on CVN and LHA/D ships in accordance with the Joint Requirements Oversight Council (JROC) March 2016 approved JPALS Capability Development Document (CDD). 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 2017 | FY 2018 | FY 2019 Base | FY 2019 OCO | FY 2019 Total |
|---|---|---|---|---|---|
| ***Title:*** JPALS Ship Systems and Test | 96.800 | 100.955 | 95.980 | 0.000 | 95.980 |
| ***Articles:*** | 2 | - | - | - | - |
| ***Description:*** JPALS provides for development, integration, installation, and test of Sea-Based JPALS on CVN and LHA/D ships. | | | | | |
| ***FY 2018 Plans:***<br>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-35B operational deployments and EOC. Support F-35B preparation for and operational deployments. Perform Maintenance Demonstrations (M- | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy | | Date: February 2018 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603860N / *JT Precision Approach & Ldg Sys* | **Project (Number/Name)**<br>2329 / *JPALS* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2017 | FY 2018 | FY 2019 Base | FY 2019 OCO | FY 2019 Total |
|---|---|---|---|---|---|
| Demo) in 4th quarter. Address broadened cyber-security requirements to remain compliant with software cyber-security directives and information assurance mandates.<br>***FY 2019 Base Plans:***<br>Attain MS C in 2nd quarter. Perform System Verification Review (SVR) and Integrated Logistics Assessment (ILA) in 1st quarter and Production Readiness Review (PRR) in 2nd quarter. Award LRIP contract in 3rd quarter. Begin Operational Test (OT) in 3rd quarter. Support F-35 operational deployments.<br>***FY 2019 OCO Plans:***<br>N/A<br>***FY 2018 to FY 2019 Increase/Decrease Statement:***<br>Decrease of $4.975M from FY 2018 to FY 2019 is due to the reduction in developmental test support as the program prepares for Milestone C. | | | | | |
| ***Title:*** Joint Strike Fighter (JSF) F-35B Marine Corp STOVL and F-35C Navy Carrier Variant Support | 3.973 | 3.999 | 4.020 | 0.000 | 4.020 |
| ***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<br>documentation to certify shipboard all weather precision approach capability for F-35 operational test and deployments.<br>***FY 2018 Plans:***<br>Support F-35B/C shipboard OT results and analysis. Support preparation for F-35 operational deployments.<br>***FY 2019 Base Plans:***<br>Continue support of F-35 operational deployments including delivery, installation, and ship rider support of the JPALS Early Operational Capability (EOC) units onto ships to support the deployment of the JPALS UDB capable F-35 3F fleet aircraft.<br>***FY 2019 OCO Plans:***<br>N/A<br>***FY 2018 to FY 2019 Increase/Decrease Statement:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy | | Date: February 2018 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603860N / *JT Precision Approach & Ldg Sys* | **Project (Number/Name)**<br>2329 / *JPALS* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2017 | FY 2018 | FY 2019 Base | FY 2019 OCO | FY 2019 Total |
|---|---|---|---|---|---|
| Increase of $0.021M from FY 2018 to FY 2019 is due to inflation. | | | | | |
| ***Title:*** MQ-25 Support | 1.422 | 1.437 | 1.566 | 0.000 | 1.566 |
| ***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.<br><br>***FY 2018 Plans:***<br>Support MQ-25 risk reduction activities, MS B efforts, and continue Engineering and Manufacturing Development phase activities to integrate and test JPALS capabilities.<br><br>***FY 2019 Base Plans:***<br>Provide MQ-25 support to including JPALS algorithm integration support to Aircraft OEM, validation and verification activities supporting the aircraft software development, supporting development of the Patuxent River MQ-25 Systems Integration Lab, and preparation for future testing.<br><br>***FY 2019 OCO Plans:***<br>N/A<br><br>***FY 2018 to FY 2019 Increase/Decrease Statement:***<br>Increase of $0.129M from FY 2018 to FY 2019 is for increased engineering efforts required for JPALS algorithm integration support to the MQ-25 system. | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 102.195 | 106.391 | 101.566 | 0.000 | 101.566 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2017 | FY 2018 | FY 2019 Base | FY 2019 OCO | FY 2019 Total | FY 2020 | FY 2021 | FY 2022 | FY 2023 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • OPN/2867: *JPALS* | 0.000 | 0.000 | 38.094 | - | 38.094 | 62.391 | 66.226 | 10.277 | 10.496 | 183.207 | 370.691 |

**Remarks**

| Exhibit R-2A, RDT&E Project Justification: PB 2019 Navy | | Date: February 2018 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603860N / *JT Precision Approach & Ldg Sys* | **Project (Number/Name)**<br>2329 / *JPALS* |

**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.

**E. Performance Metrics**

Milestone C scheduled for second quarter FY19.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy | | Date: February 2018 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603860N / *JT Precision Approach & Ldg Sys* | **Project (Number/Name)**<br>2329 / *JPALS* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2017 Cost | FY 2017 Award Date | FY 2018 Cost | FY 2018 Award Date | FY 2019 Base Cost | FY 2019 Base Award Date | FY 2019 OCO Cost | FY 2019 OCO Award Date | FY 2019 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ship Integration | WR | NAWCAD : Pax River, MD | 45.968 | 9.422 | Nov 2016 | 12.482 | Nov 2017 | 12.296 | Nov 2018 | - | | 12.296 | Continuing | Continuing | Continuing |
| Primary Hardware Development - EMD Phase I | C/CPIF | Raytheon : Fullerton, CA | 410.181 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 410.181 | 410.181 |
| Primary Hardware Development - New EMD Contract | C/CPIF | Raytheon : Fullerton, CA | 6.224 | 61.966 | Nov 2016 | 60.693 | Nov 2017 | 60.860 | Nov 2018 | - | | 60.860 | 160.728 | 350.471 | 350.471 |
| JPALS Modifications for ARC-210 | C/CPFF | RCI : Cedar Rapids, IA | 4.772 | 0.332 | Nov 2016 | 0.000 | | 1.849 | Nov 2018 | - | | 1.849 | 1.936 | 8.889 | 8.889 |
| Risk Reduction for Auto-land - FFRDC Support | FFRDC | JHU : Laurel, MD | 0.493 | 0.000 | | 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** | 717.508 | 71.720 | | 73.175 | | 75.005 | | - | | 75.005 | Continuing | Continuing | N/A |

**Remarks**

The Primary Hardware Development contract with Raytheon is a CPIF contract. FY17 funding for the ARC210 RCI contract was the completion of previous EMD work. FY19 commences the next phase of ARC-210 modifications required to support JPALS.

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2017 Cost | FY 2017 Award Date | FY 2018 Cost | FY 2018 Award Date | FY 2019 Base Cost | FY 2019 Base Award Date | FY 2019 OCO Cost | FY 2019 OCO Award Date | FY 2019 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Systems Engineering Support | WR | NAWCAD : Pax River, MD | 159.861 | 15.520 | Nov 2016 | 16.822 | Nov 2017 | 16.375 | Nov 2018 | - | | 16.375 | Continuing | Continuing | Continuing |
| Integrated Logistics Support | WR | NAWCAD : Pax River, MD | 25.301 | 2.582 | Nov 2016 | 2.659 | Nov 2017 | 2.682 | Nov 2018 | - | | 2.682 | 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** | 206.676 | 18.102 | | 19.481 | | 19.057 | | - | | 19.057 | Continuing | Continuing | N/A |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Navy | | Date: February 2018 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603860N / *JT Precision Approach & Ldg Sys* | **Project (Number/Name)**<br>2329 / *JPALS* |

**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2017 Cost | FY 2017 Award Date | FY 2018 Cost | FY 2018 Award Date | FY 2019 Base Cost | FY 2019 Base Award Date | FY 2019 OCO Cost | FY 2019 OCO Award Date | FY 2019 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Developmental Test & Evaluation | WR | NAWCAD : Pax River, MD | 61.623 | 8.023 | Nov 2016 | 9.044 | Nov 2017 | 2.772 | Nov 2018 | - | | 2.772 | Continuing | Continuing | Continuing |
| Operational Test & Evaluation | WR | COMOPTEVFOR : Norfolk, VA | 3.899 | 0.409 | Nov 2016 | 0.637 | Nov 2017 | 0.638 | Nov 2018 | - | | 0.638 | Continuing | Continuing | Continuing |
| | | **Subtotal** | 65.522 | 8.432 | | 9.681 | | 3.410 | | - | | 3.410 | Continuing | Continuing | N/A |

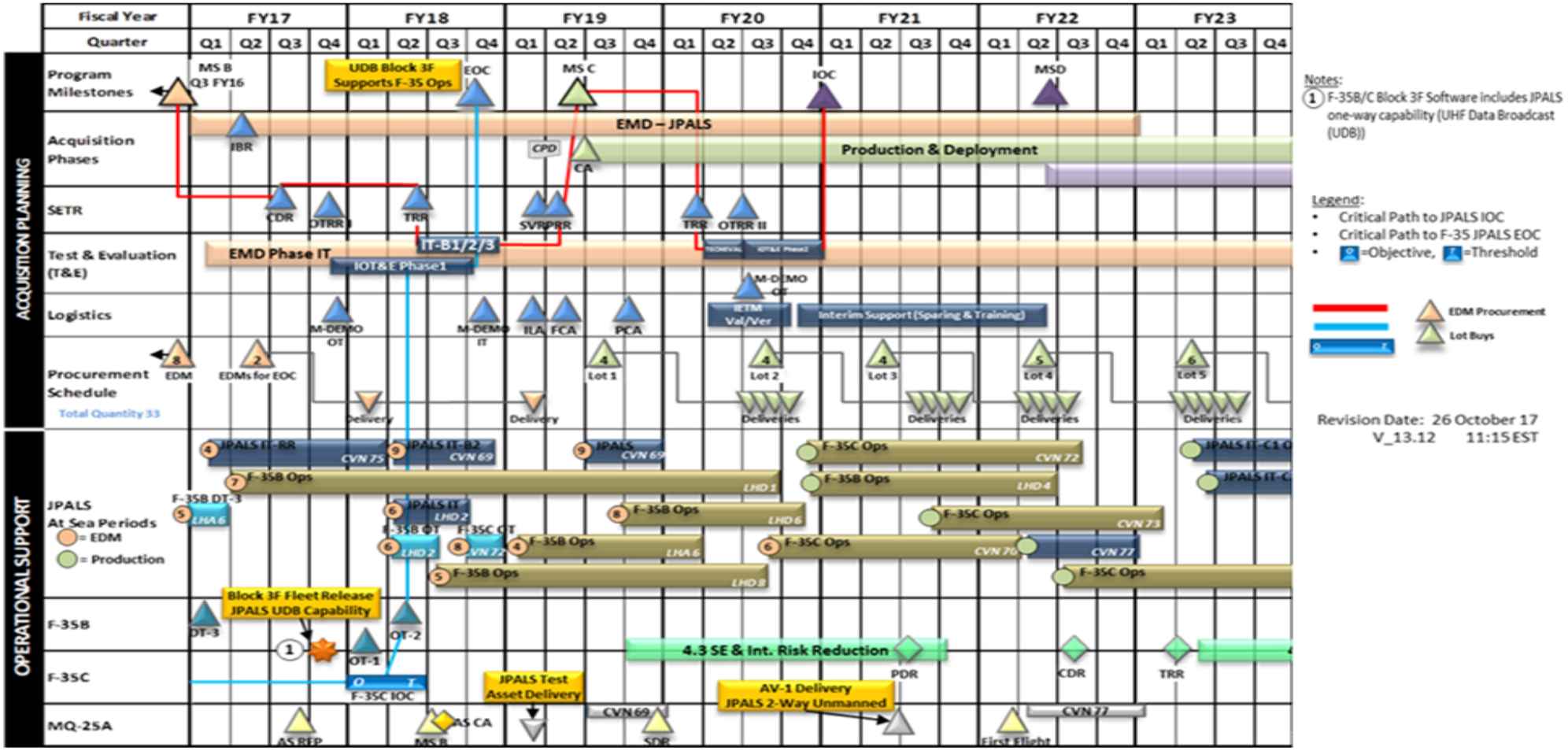
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2017 Cost | FY 2017 Award Date | FY 2018 Cost | FY 2018 Award Date | FY 2019 Base Cost | FY 2019 Base Award Date | FY 2019 OCO Cost | FY 2019 OCO Award Date | FY 2019 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Program Management Support | WR | NAWCAD : Pax River, MD | 19.781 | 2.936 | Nov 2016 | 3.035 | Nov 2017 | 3.050 | Nov 2018 | - | | 3.050 | Continuing | Continuing | Continuing |
| PM Support-MSS | C/CPFF | Amelex : Pax River, MD | 13.238 | 0.798 | Nov 2016 | 0.808 | Nov 2017 | 0.829 | Nov 2018 | - | | 0.829 | 1.302 | 16.975 | 16.975 |
| PM Support-MSS | C/CPFF | Avian : Pax River, MD | 1.592 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 1.592 | 1.592 |
| PM Support-MSS | C/CPFF | SAIC : Pax River, MD | 2.207 | 0.139 | Nov 2016 | 0.141 | Nov 2017 | 0.142 | Nov 2018 | - | | 0.142 | 0.182 | 2.811 | 2.811 |
| Travel | WR | NAVAIR : Pax River, MD | 0.252 | 0.068 | Nov 2016 | 0.070 | Nov 2017 | 0.073 | Nov 2018 | - | | 0.073 | Continuing | Continuing | Continuing |
| | | **Subtotal** | 37.070 | 3.941 | | 4.054 | | 4.094 | | - | | 4.094 | Continuing | Continuing | N/A |

| | Prior Years | FY 2017 | | FY 2018 | | FY 2019 Base | | FY 2019 OCO | | FY 2019 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 1,026.776 | 102.195 | | 106.391 | | 101.566 | | - | | 101.566 | Continuing | Continuing | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2019 Navy | | Date: February 2018 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603860N / *JT Precision Approach & Ldg Sys* | **Project (Number/Name)**<br>2329 / *JPALS* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2019 Navy | | Date: February 2018 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603860N / *JT Precision Approach & Ldg Sys* | **Project (Number/Name)**<br>2329 / *JPALS* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***JPALS*** | | | | |
| Acquisition Milestones: MS C | 2 | 2019 | 2 | 2019 |
| Acquisition Milestones: Early Operating Capability (EOC) | 4 | 2018 | 4 | 2018 |
| Systems Development: Engineering and Manufacturing Development | 1 | 2017 | 4 | 2022 |
| Systems Development: Reviews: Critical Design Review (CDR) | 3 | 2017 | 3 | 2017 |
| Systems Development: Reviews: System Verification Review (SVR) | 1 | 2019 | 1 | 2019 |
| Systems Development: Reviews: Integrated Logistics Assessment (ILA) | 1 | 2019 | 1 | 2019 |
| Systems Development: Contract Awards: LRIP Contract Award | 3 | 2019 | 3 | 2019 |
| 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 |