| Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy | | | | | | | | | | | | Date: March 2014 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development* | | | | | R-1 Program Element (Number/Name)<br>PE 0205633N *I Aviation Improvements* | | | | | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2013** | **FY 2014** | **FY 2015 Base** | **FY 2015 OCO #** | **FY 2015 Total** | **FY 2016** | **FY 2017** | **FY 2018** | **FY 2019** | **Cost To Complete** | **Total Cost** |
| Total Program Element | 1,005.839 | 71.945 | 78.608 | 106.936 | - | 106.936 | 120.820 | 120.927 | 123.075 | 125.478 | Continuing | Continuing |
| 0601: *Acft Handling & Service Equip* | 27.134 | 0.194 | 2.278 | 2.626 | - | 2.626 | 2.626 | 2.690 | 2.721 | 2.784 | Continuing | Continuing |
| 0852: *Consolidated Auto Support System* | 126.886 | 12.984 | 6.496 | 6.533 | - | 6.533 | 6.633 | 6.775 | 6.881 | 7.020 | Continuing | Continuing |
| 1041: *Acft Equip Repl/Maint Prog* | 37.246 | 2.930 | 3.273 | 3.243 | - | 3.243 | 3.338 | 3.395 | 3.434 | 3.503 | Continuing | Continuing |
| 1355: *Propulsion and Power Component Improvement Program* | 810.574 | 51.589 | 61.393 | 87.150 | - | 87.150 | 93.750 | 95.612 | 110.039 | 112.171 | Continuing | Continuing |
| 2269: *EAF Matting* | 3.999 | 4.248 | 5.168 | 7.384 | - | 7.384 | 14.473 | 12.455 | - | - | - | 47.727 |

# The FY 2015 OCO Request will be submitted at a later date.

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

Project 0601 - Common Ground Equipment is a Naval Aviation Project to apply new technology to common support equipment necessary to support multiple aircraft.

Project 0852 - Consolidated Automated Support System is a standardized Automated Test Equipment with computer assisted, multi-function capabilities to support the maintenance of aircraft subsystems and missiles.

Project 1041 - Aircraft Equipment Reliability/Maintainability Improvement Program is the only Navy program that provides engineering support for in-service out-of-production aircraft equipment, and provides increased readiness at reduced operational and support cost.

Project 1355 - Aircraft Engine Component Improvement Program develops reliability and maintainability and safety enhancements for in-service Navy aircraft engines, transmissions, propellers, starters, auxiliary power units, electrical generating systems, fuel systems, fuels, and lubricants.

Project 2269 - The Expeditionary Airfields (EAF) program designs, develops, tests and fields a sustainment lighting system to replace existing obsolete legacy EAF lighting system.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under OPERATIONAL SYSTEMS DEVELOPMENT because it includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate funding in the current or subsequent fiscal year.

| Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy | | | | | Date: March 2014 |
|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development* | | | R-1 Program Element (Number/Name)<br>PE 0205633N *I Aviation Improvements* | | |
| **B. Program Change Summary ($ in Millions)** | **FY 2013** | **FY 2014** | **FY 2015 Base** | **FY 2015 OCO** | **FY 2015 Total** |
| Previous President's Budget | 89.157 | 88.607 | 113.421 | - | 113.421 |
| Current President's Budget | 71.945 | 78.608 | 106.936 | - | 106.936 |
| Total Adjustments | -17.212 | -9.999 | -6.485 | - | -6.485 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | -9.999 | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | -7.400 | - | | | |
| • SBIR/STTR Transfer | -1.952 | - | | | |
| • Program Adjustments | - | - | -2.071 | - | -2.071 |
| • Rate/Misc Adjustments | 0.001 | - | -4.414 | - | -4.414 |
| • Congressional General Reductions Adjustments | -7.861 | - | - | - | - |

**Change Summary Explanation**

Cost:

Project 2269: Due to higher program and Navy priorities, Expeditionary Airfields (EAF) budget was reduced by $6.7M. in FY13.

Schedule:

Project 0601: Aircraft Spotting Dolly and Carrier/Amphibious Assault Ship Crash Crane schedule delayed as a result of the majority of FY13 funding being re-directed to a higher priority program within Project 0852. Milestone C moved to 4Q FY16.

Project 0852: eCASS Milestone C moved to 1Q FY14 due to the delayed completion of test analysis of DT-B1 results. Milestone C delay has caused multiple schedule changes within the program, all of which have been approved by the Milestone Decision Authority.

Project 1355: Systems Engineering Propulsion & Power Component Improvement and System Engineering to Correct Flight Safety Deficiencies added.

Project 2269: Due to higher program and Navy priorities, EAF scheduled events and milestones were adjusted accordingly.

| Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Navy | Date: March 2014 |
|---|---|
| **Appropriation/Budget Activity**<br>1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development* | **R-1 Program Element (Number/Name)**<br>PE 0205633N *I Aviation Improvements* |

Technical: Not Applicable.

| Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy | | | | | | | | | | | Date: March 2014 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | | | | | R-1 Program Element (Number/Name)<br>PE 0205633N / *Aviation Improvements* | | | | Project (Number/Name)<br>0601 / *Acft Handling & Service Equip* | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2013** | **FY 2014** | **FY 2015 Base** | **FY 2015 OCO #** | **FY 2015 Total** | **FY 2016** | **FY 2017** | **FY 2018** | **FY 2019** | **Cost To Complete** | **Total Cost** |
| 0601: *Acft Handling & Service Equip* | 27.134 | 0.194 | 2.278 | 2.626 | - | 2.626 | 2.626 | 2.690 | 2.721 | 2.784 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0.000 | - | 1.000 | 1.000 | - | 1.000 | - | - | - | - | | |

# The FY 2015 OCO Request will be submitted at a later date.

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

Common Ground Equipment is a Naval Aviation project to apply new technology to common support equipment necessary to support multiple systems/aircraft within the Navy. The common support equipment items developed with this budget are briefed to the Air Force, Army and Coast Guard for possible use in joint procurement in the production phase.

New Programs are Aircraft Spotting Dolly (ASD) and Carrier/Amphibious Assault Ship Crash Crane (CV/AACC) in FY14. ASD is an R&D program to develop next generation ASD. New ASD requires low profile and alternative power to allow safe spotting of all aircraft aboard carrier/amphibious class ships. CV/AACC is required to remove damaged aircraft from the flight line. R&D resources are needed to identify not only replacements, but new technologies, which can increase the reliability and maintainability of this flight ops critical piece of equipment.

PEMA funding supports the evaluation, testing and integration to develop Portable Electronic Maintenance Aids (PEMA) Commercial Off the Shelf solution for portable device deployments across the Naval Aviation Enterprise. PEMA is a portable device utilized by maintainers with the implementation of digital maintenance capabilities (digital publications, Interactive Electronic Technical Manuals, Internet Protocol based data uploads, Binary digit data downloads, automated diagnostics, and planeside Naval Aviation Logistics Command/Management Information System. PEMAs are a mandatory display device supporting modern day Automated Maintenance Environment implemented for weapon systems.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2013 | FY 2014 | FY 2015 |
|---|---|---|---|
| ***Title:*** Aircraft Spotting Dolly (ASD) | - | 0.938 | 0.616 |
| ***Articles:*** | - | - | 1.000 |
| ***Description:*** There are no commercially available towing vehicles that could even be modified to replace the capabilities of the present SD-2. An R & D effort will be required to design its replacement. Advances in batteries and alternating current motor drive systems in the past decade have made it feasible to design an electrically powered vehicle for the CV, CVN, and L-Class hanger deck spotting missions. Such a vehicle will be inherently more reliable, reduce maintenance, and eliminate the fumes and noise generated by a diesel engine. An electrically driven vehicle will provide much greater motion control for slow speeds to aid in the engagement to the aircraft nose gear. Proximity sensors will be incorporated to automatically stop the spotting dolly prior to accidental impact with the aircraft, other support equipment or bulkheads, increasing the safety of the spotting operations. The legacy ASD is close to thirty years old and experiencing parts obsolescence issues and general efficiency degradation. | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>0601 / *Acft Handling & Service Equip* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2013 | FY 2014 | FY 2015 |
|---|---|---|---|
| ***FY 2013 Accomplishments:***<br>N/A<br>***FY 2014 Plans:***<br>Initiate prototype phase and begin contractor and government run test.<br>***FY 2015 Plans:***<br>Continue contractor and government run test. | | | |
| ***Title:*** Carrier/Amphibious Assault Ship Crash Crane (CV/AACC) | - | 0.895 | 1.565 |
| ***Articles:*** | - | 1.000 | - |
| ***Description:*** CV/AACC are required to remove damaged aircraft from the flight line. In 2004, a solicitation for a commerical off the shelf replacement for the existing shipboard crash crane was issued. Two bids were received, and after a complete evaluation with many rounds of discussions with the companies bidding, both proposals were found to be technically inadequate and the procurement effort was discontinued. As a result, the crash cranes have continued operation unchanged. Designed in the late 1980's, major systems are beginning to experience the obsolescence of spare parts and are in need of updating. R&D resources are needed to identify not only replacements, but new technologies, which can increase the reliability and maintainability of this flight ops critical piece of equipment. Systems updates would include the engine/generator and electrical updates to the motor drive/control system. An exploration of power sources other than diesel engines would be considered and a corrosion resistant boom.<br>***FY 2013 Accomplishments:***<br>N/A<br>***FY 2014 Plans:***<br>Initiate ECP development and begin contractor and government run test.<br>***FY 2015 Plans:***<br>Continue ECP development and contractor and government run test. | | | |
| ***Title:*** Portable Electronic Maintenance Aid (PEMA) | 0.194 | 0.445 | 0.445 |
| ***Articles:*** | - | - | - |
| ***Description:*** Portable Electronic Maintenance Aid (PEMA) funding supports the evaluation, testing and integration to develop PEMA Commercial Off-the-Shelf (COTS) solution for portable device deployments across the Naval Aviation Enterprise. PEMA is a portable device utilized by maintainers with the implementation of digital maintenance capabilities (digital publications, Interactive Electronic Technical Manuals, Internet Protocol based data uploads, Binary digit data downloads, automated | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>0601 / *Acft Handling & Service Equip* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2013 | FY 2014 | FY 2015 |
|---|---|---|---|
| diagnostics, and planeside Naval Aviation Logistic Command Management Information System. PEMAs are a mandatory display device supporting modern day Automated Maintenance Environment implemented for weapon systems.<br><br>***FY 2013 Accomplishments:***<br>Evaluate, test and integrate evolving COTS solutions. Conduct test & evaluation of Type/Model/Series peculiar software/hardware requirements and network connectivity compliance across the Global Information Grid prior to deployment to the fleet by a yearly release cycle.<br><br>***FY 2014 Plans:***<br>Evaluate, test and integrate evolving COTS solutions. Conduct test & evaluation of Type/Model/Series (T/M/S) peculiar software/ hardware requirements and network connectivity compliance across the Global Information Grid (GIG) prior to deployment to the fleet by a yearly release cycle.<br><br>***FY 2015 Plans:***<br>Evaluate, test and integrate evolving COTS solutions. Conduct test & evaluation of T/M/S peculiar software/hardware requirements and network connectivity compliance across the GIG prior to deployment to the fleet by a yearly release cycle. | | | |
| **Accomplishments/Planned Programs Subtotals** | 0.194 | 2.278 | 2.626 |

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

| Line Item | FY 2013 | FY 2014 | FY 2015 Base | FY 2015 OCO | FY 2015 Total | FY 2016 | FY 2017 | FY 2018 | FY 2019 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • APN/0705: *Ground Support Equipment* | 111.505 | 102.599 | 127.717 | - | 127.717 | 122.741 | 126.983 | 128.266 | 131.056 | Continuing | Continuing |
| • OPN/4264: *Portable Electronic Maintenance Aids* | 7.303 | 7.969 | - | - | - | - | - | - | - | - | 39.499 |
| • OPN/4268: *Other Aviation Support Equipment* | - | - | 7.746 | - | 7.746 | 7.862 | 7.990 | 8.126 | 8.285 | Continuing | Continuing |

**Remarks**

**D. Acquisition Strategy**

Common Ground Equipment: This is a non ACAT program. Field activities propose tentative projects. Internal panel merits and selects projects. Field activities develop projects and submit results. Operational Advisory Group process selects projects to transition to procurement.

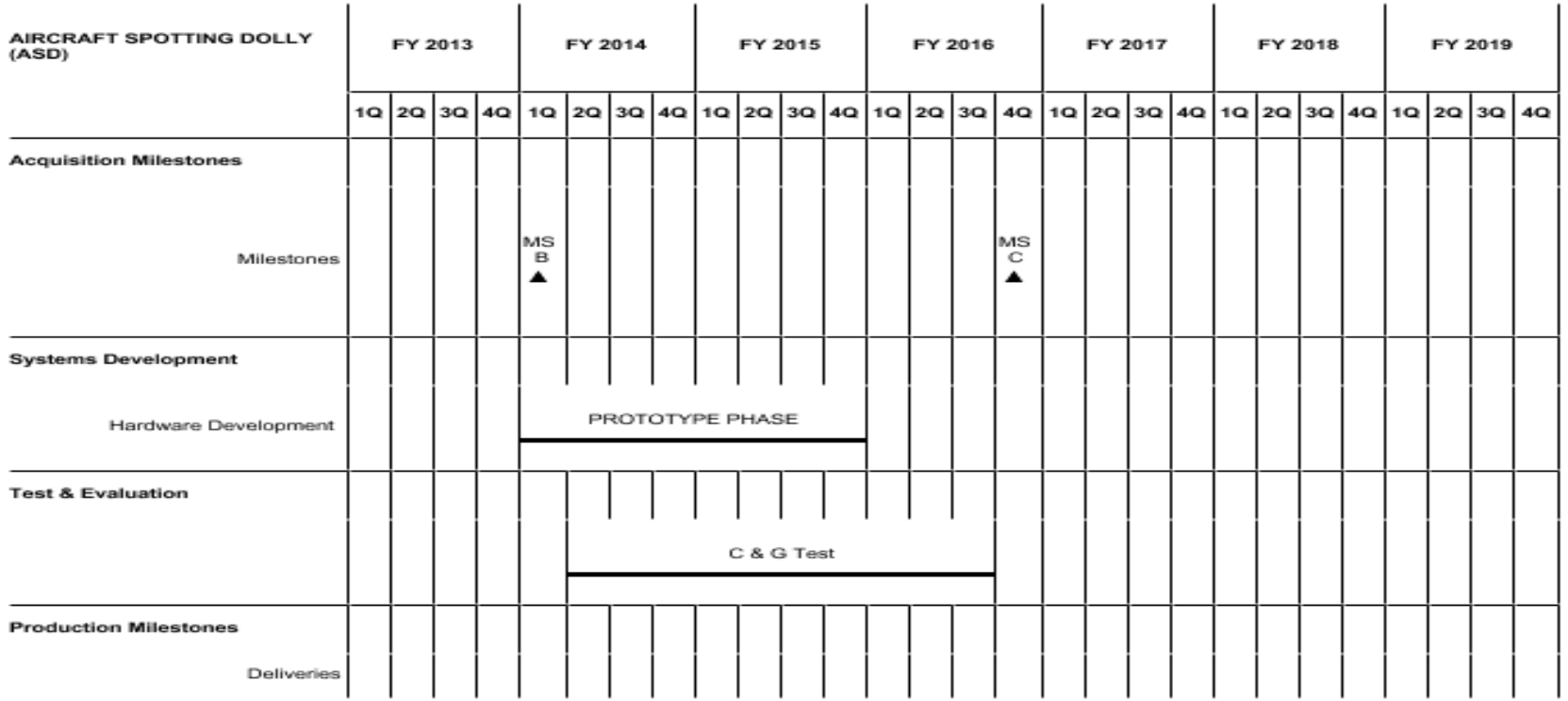
Portable Electronic Maintenance Aids: The management approach includes the Program Management Office residing at NAVAIR with Milestone Decision Authority delegated to the NAVAIR CIO. The evolutionary development approach will be used to execute requirements. Contracting for the prime integrator will be via competitively awarded Indefinite Delivery/Indefinite Quantity contracts.

| Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>0601 / *Acft Handling & Service Equip* |

**E. Performance Metrics**

Milestone Reviews

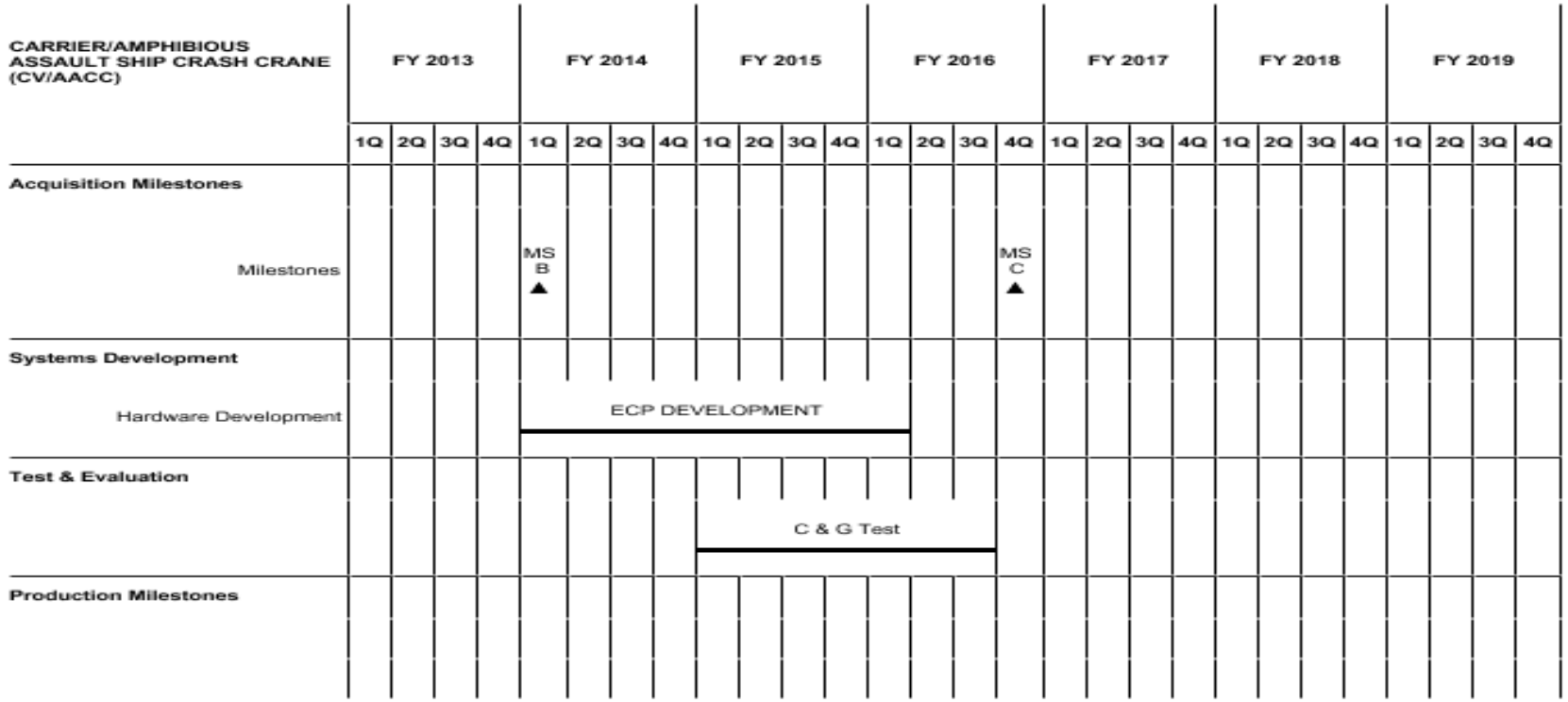
| Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>0601 / *Acft Handling & Service Equip* |




*2015DON - 0205633N - 0601*

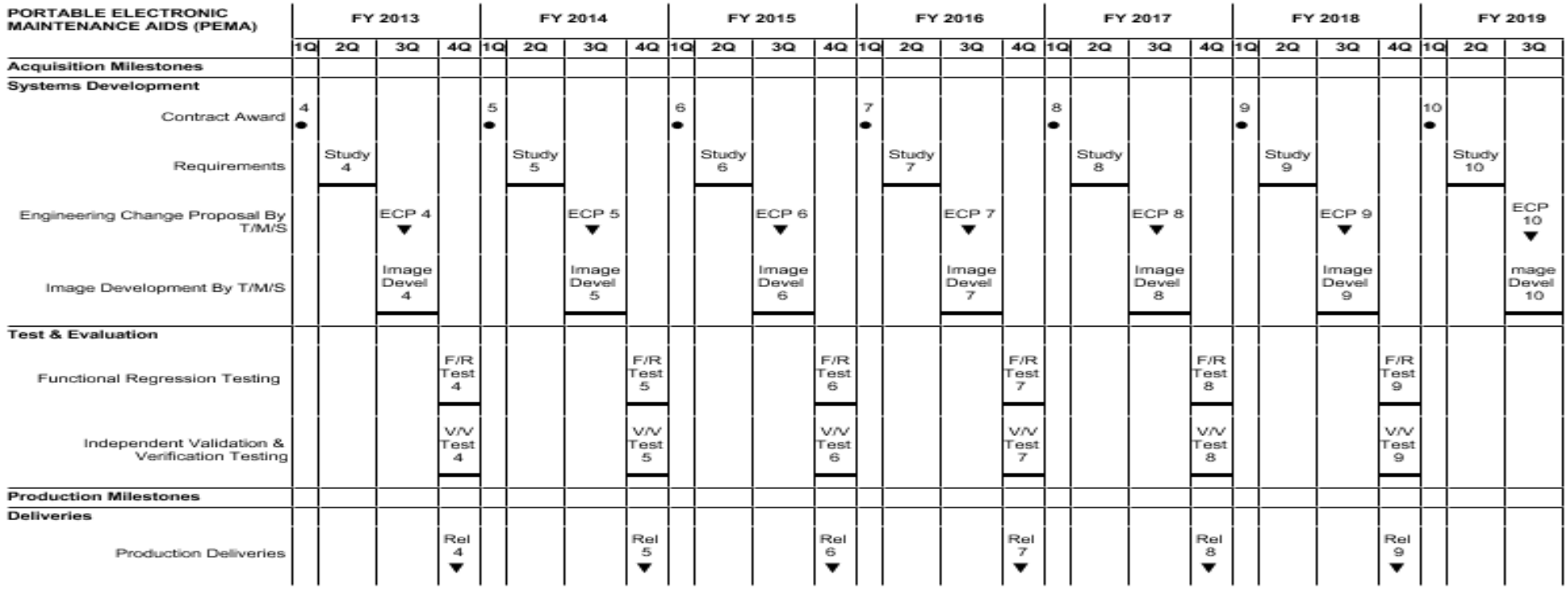
| Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>0601 / *Acft Handling & Service Equip* |

| Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>0601 / *Acft Handling & Service Equip* |




*2015DON - 0205633N - 0601*

| Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>0601 / *Acft Handling & Service Equip* |




*2015DON - 0205633N - 0601*

| Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy | | | | | | | | | | | Date: March 2014 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | | | | | R-1 Program Element (Number/Name)<br>PE 0205633N / *Aviation Improvements* | | | | Project (Number/Name)<br>0852 / *Consolidated Auto Support System* | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2013** | **FY 2014** | **FY 2015 Base** | **FY 2015 OCO #** | **FY 2015 Total** | **FY 2016** | **FY 2017** | **FY 2018** | **FY 2019** | **Cost To Complete** | **Total Cost** |
| 0852: *Consolidated Auto Support System* | 126.886 | 12.984 | 6.496 | 6.533 | - | 6.533 | 6.633 | 6.775 | 6.881 | 7.020 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0.000 | - | - | - | - | - | - | - | - | - | | |

# The FY 2015 OCO Request will be submitted at a later date.

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

The electronic Consolidated Automated Support System (eCASS) project is the system design and development of the latest generation of the US Navy's CASS family of automatic test systems. The legacy CASS system was designed and developed in the 1980's and commenced fielding in 1992. As such, it is reaching the end of its useful life due to obsolescence issues. eCASS is the replacement system for legacy CASS systems, which provides Naval aircraft avionics component maintenance and repair support at Intermediate and Depot maintenance facilities both shore-based and afloat. As a CASS replacement program, the eCASS program objectives remain the same as that of CASS. Specifically: (1) increase material readiness; (2) reduce life cycle costs; (3) improve tester sustainability at depot and intermediate maintenance levels; (4) reduce proliferation of unique test equipment, and (5) provide test capability for existing and emerging avionics/electronics aircraft weapon systems.

The Test Technology Development project involves analysis, application, maturation, integration and testing of emerging electronic, mechanical and optical test technologies for potential military utility in support of Naval avionics testing and repair. Specific technologies being developed include synthetic instruments, new Advanced Targeting Forward Looking Infrared electro-optics capabilities, multi-analog test capability to enable functional testing, and modernization elements for the CASS family of automatic test systems.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2013 | FY 2014 | FY 2015 |
|---|---|---|---|
| ***Title:*** eCASS Development | 12.984 | 6.196 | 6.233 |
| ***Articles:*** | - | - | - |
| ***Description:*** Develop, integrate and test an Automatic Test System (ATS) to replace legacy CASS systems. The new ATS will be compatible with and capable of hosting the hundreds of existing Test Programs that are currently utilized on legacy CASS at the Intermediate and Depot levels of maintenance, as well as any emerging Test Programs that may require greater test capability than provided by legacy CASS. | | | |
| ***FY 2013 Accomplishments:***<br>Continue Test Program Set integration. Conduct test events. | | | |
| ***FY 2014 Plans:***<br>Conduct Milestone C Review. Conduct test events. Award LRIP Option(s) (APN-7). | | | |
| ***FY 2015 Plans:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>0852 / *Consolidated Auto Support System* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2013 | FY 2014 | FY 2015 |
|---|---|---|---|
| Continue test events. | | | |
| ***Title:*** Test Technology Development | - | 0.300 | 0.300 |
| ***Articles:*** | - | - | - |
| ***Description:*** Develops, integrates, and evolves enhanced test capabilities and technologies for insertion into the Consolidated Automated Support System (CASS) family of test systems. As weapon system electronics evolve, new test capabilities are required to support advanced systems. Existing test capabilities must be extended in range, accuracy, time and frequency domains in order to sustain the required test accuracy ratios for weapon systems support (the automatic test system must be four times as accurate as the asset being tested).<br><br>***FY 2013 Accomplishments:***<br>Continue to develop, integrate, and evolve enhanced test capabilities and technologies for insertion into the CASS family of test systems.<br><br>***FY 2014 Plans:***<br>Continue to develop, integrate, and evolve enhanced test capabilities and technologies for insertion into the CASS family of test systems.<br><br>***FY 2015 Plans:***<br>Continue to develop, integrate, and evolve enhanced test capabilities and technologies for insertion into the CASS family of test systems. | | | |
| **Accomplishments/Planned Programs Subtotals** | 12.984 | 6.496 | 6.533 |

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

| Line Item | FY 2013 | FY 2014 | FY 2015 Base | FY 2015 OCO | FY 2015 Total | FY 2016 | FY 2017 | FY 2018 | FY 2019 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • APN/0705: *Common Ground Equip APN-7* | 93.063 | 89.662 | 80.908 | - | 80.908 | 103.375 | 94.499 | 96.116 | 98.014 | Continuing | Continuing |

**Remarks**

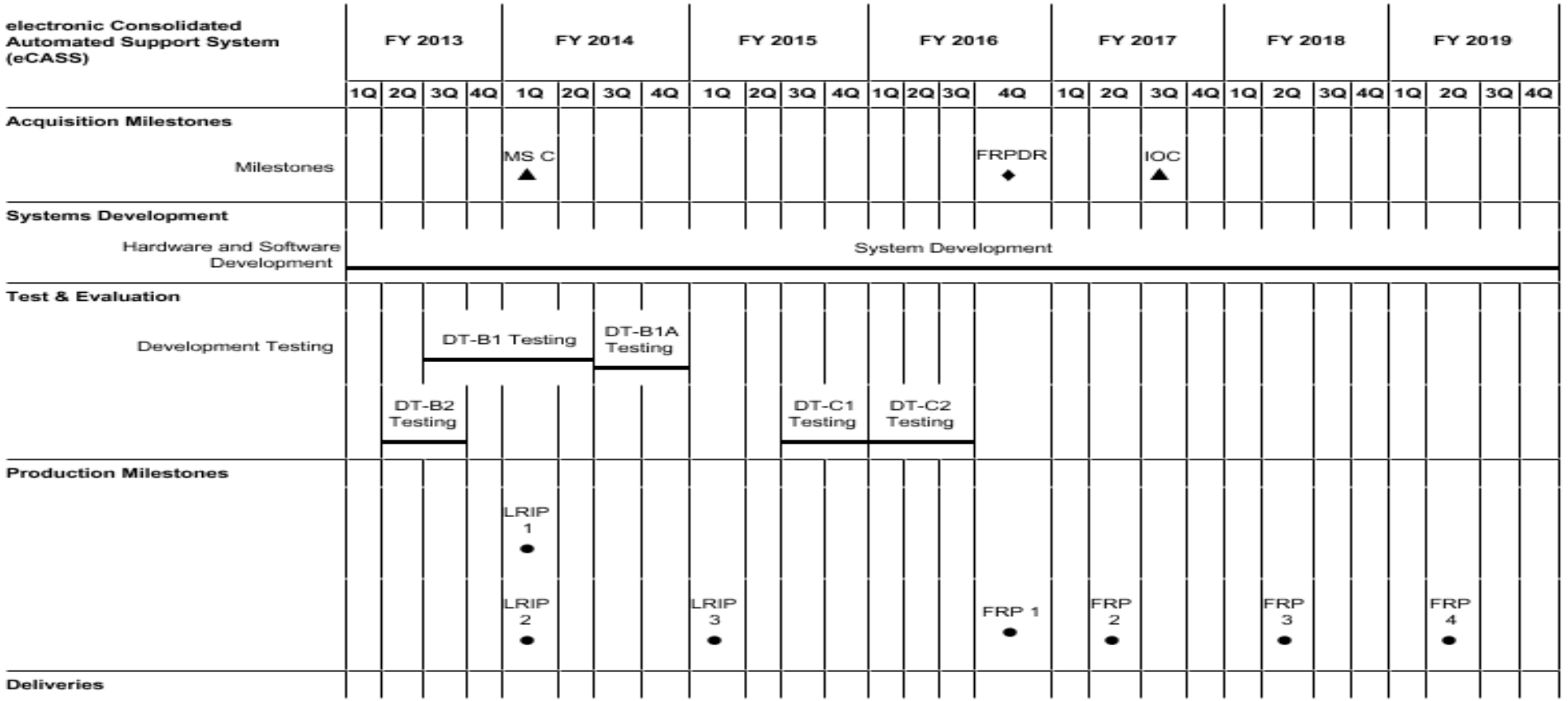
**D. Acquisition Strategy**

Formal test technology reviews with industry are conducted annually (cooperative Joint Services initiative) to define maturity of needed technologies. Further studies are conducted as needed. Procurement strategy is determined by market survey and cooperative opportunities.

**E. Performance Metrics**

Milestone Reviews

| Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>0852 / *Consolidated Auto Support System* |




*2015PB - 0205633N - 0852*

| Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy | | | | | | | | | Date: March 2014 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | | | | | R-1 Program Element (Number/Name)<br>PE 0205633N / *Aviation Improvements* | | | | Project (Number/Name)<br>1041 / *Acft Equip Repl/Maint Prog* | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2013** | **FY 2014** | **FY 2015 Base** | **FY 2015 OCO #** | **FY 2015 Total** | **FY 2016** | **FY 2017** | **FY 2018** | **FY 2019** | **Cost To Complete** | **Total Cost** |
| 1041: *Acft Equip Repl/Maint Prog* | 37.246 | 2.930 | 3.273 | 3.243 | - | 3.243 | 3.338 | 3.395 | 3.434 | 3.503 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0.000 | - | - | - | - | - | - | - | - | - | | |

# The FY 2015 OCO Request will be submitted at a later date.

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

Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP) is the only Navy program which provides Research, Development, Test & Evaluation engineering support specifically for in-service, out-of-production aircraft equipment. AERMIP increases readiness through reliability, maintainability, and safety improvements to existing systems and equipment installed in Naval aircraft. It also provides a transition vehicle to deploy Total Ownership Cost reduction initiatives through flight-test support and Fleet Test & Evaluation. It meets affordable readiness objectives by providing a cost-effective solution to obsolescence problems encountered when service lives are extended. AERMIP promotes commonality and standardization across aircraft platform lines and among the services through extension of application and use of non-developmental items. AERMIP also decreases life cycle costs through reduced operational and support costs. AERMIP facilitates the Operational, Safety and Improvement Program by applying proven low-risk solutions to current fleet problems. AERMIP also funds high-priority flight testing which is not associated with any acquisition or development program under the Flight Test General task.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2013 | FY 2014 | FY 2015 |
|---|---|---|---|
| ***Title:*** Avionics and Wiring | 0.465 | 0.596 | 0.534 |
| ***Articles:*** | - | - | - |

***FY 2013 Accomplishments:***

Performed sustained operational testing on materials, equipment, and the procedures/process required for their implementation, continuing to refine their operation in real-world environments, including off-board equipment for generator and battery diagnostics and prognostics. Continued to enhance algorithms for multiple battery models covering additional legacy platforms. Pursued next-generation wiring, battery, and generator diagnosis and prognostics methods, and prove the applicability to Naval aviation. Addressed emergent avionics and wiring-related reliability issues impacting multiple aircraft platforms.

***FY 2014 Plans:***

Perform sustained operational testing on materials, equipment, and the procedures/process required for their implementation, continuing to refine their operation in real-world environments, including off-board equipment for diagnostics and prognostics. Pursue next-generation technologies that reduce maintenance burden, including diagnosis and prognostics methods, and prove the applicability to Naval aviation. Address emergent avionics and wiring-related reliability issues impacting multiple aircraft platforms.

***FY 2015 Plans:***

| Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>1041 / *Acft Equip Repl/Maint Prog* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2013 | FY 2014 | FY 2015 |
|---|---|---|---|
| Qualify additional material or pieces of equipment and the procedures or processes required for implementation. Test and evaluate equipment for effectiveness of wiring diagnostics and prognostics. Purse technology advances in ultra-high density power storage from industry. Address avionics related reliability/maintainability issues impacting multiple aircraft platforms while continuing to investigate high value return on investment initiatives. Begin to review and investigate high speed data connector reliability in aircraft subsystems. | | | |
| ***Title:*** Air Vehicle | 1.700 | 1.786 | 1.821 |
| ***Articles:*** | - | - | - |
| ***FY 2013 Accomplishments:***<br>Performed sustained operational testing on materials, equipment, and the procedures/process required for their implementation, continuing to refine their operation in real-world environments. Developed expanded methods of structural repair with focus on low cost and reduced labor procedures that can be done in fleet environments. Continued expansion of human factors focus and advanced materials and coatings in corrosion prevention control. Based on advancement in material sciences, test and qualify new materials or equipment technologies and the procedures/process required for their implementation to improve operational reliability, while containing cost growth. | | | |
| ***FY 2014 Plans:***<br>Perform sustained operational testing on materials, equipment, and the procedures/process required for their implementation, continuing to refine their operation in real-world environments. Continue development of expanded methods of structural repair with focus on low cost and reduced labor procedures that can be done in fleet environments. Continue expansion of human factors focus and advanced materials and coatings in corrosion prevention control. Based on advancement in technology, test and qualify new materials or equipment and the procedures/process required for their implementation to improve operational reliability, while containing cost growth. Begin efforts addressing rapid composite tooling, multi-layer sacrificial film laminates, and expanded qualification of electro-discharge machine drilling. | | | |
| ***FY 2015 Plans:***<br>Based on advancement in technology, test and qualify new materials or equipment and the procedures/process required for their implementation to improve operational reliability, while containing cost growth. Continue development of expanded methods of structural repair with focus on low cost and reduced labor procedures that can be done in fleet environments. Address rapid composite tooling and expansion of human factors focus through enhanced maintainer performance. Continue to qualify multi-layer sacrificial film laminates, expanded qualification of electro-discharge machine drilling and advanced materials/coatings for corrosion prevention control. Address subsystem related reliability/maintainability issues impacting multiple aircraft platforms while continuing to investigate high value return on investment initiatives. Begin efforts to qualify improved cold spray component repair, high performance paint strippers, structural adhesive bond primer, structural component life improvement through cold-work, and maintainability of aircraft slip resistant surface treatment. | | | |
| ***Title:*** Systems Engineering Revitalization | 0.765 | 0.891 | 0.888 |

| Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>1041 / *Acft Equip Repl/Maint Prog* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2013 | FY 2014 | FY 2015 |
|---|---|---|---|
| ***Articles:*** | - | - | - |
| ***FY 2013 Accomplishments:***<br>Performed continuous and systematic update of the Systems Engineering Technical Review (SETR) web-based checklist tool. Continued to identify web-tool critical limitations and implement changes and improvements within the tool to increase the effectiveness and efficiency of the tool. Continued to investigate systems engineering processes and tools across Naval Air Systems Command domains, inclusive of end item performance derivation from operational requirements and the associated concept of operations, with the derivation remaining relevant to the mission and system architectures and the goals of improving operational reliability while containing life-cycle costs. | | | |
| ***FY 2014 Plans:***<br>Perform continuous and systematic update of the Systems Engineering Technical Review (SETR) web-downloadable checklist tool. Continue to identify critical limitations and implement changes and improvements within the tool to increase the effectiveness and efficiency of the tool. Continue to investigate systems engineering processes and tools across Naval Air Systems Command domains, inclusive of the end item performance derivation from operational requirements and the associated concept of operations, with the derivation remaining relevant to the mission and system architectures and the goals of improving operational reliability while containing life-cycle costs. | | | |
| ***FY 2015 Plans:***<br>First, continue improvements in the SETR process by adopting Model Based Systems Engineering techniques and begin socializing changes with functional engineering competencies gaining support. Second, continue checklist implementation and maintenance. Improve user interfaces, possible cloud hosting, update checklist to every changing policy direction, and explore implementation on SIPRNET. Third, develop, improve, and maintain the NAVAIR Systems Engineering (SE) Web Portal to assist in dissemination of SE Policy, SE Tools and Checklists. | | | |
| **Accomplishments/Planned Programs Subtotals** | 2.930 | 3.273 | 3.243 |

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

N/A

**Remarks**

**D. Acquisition Strategy**

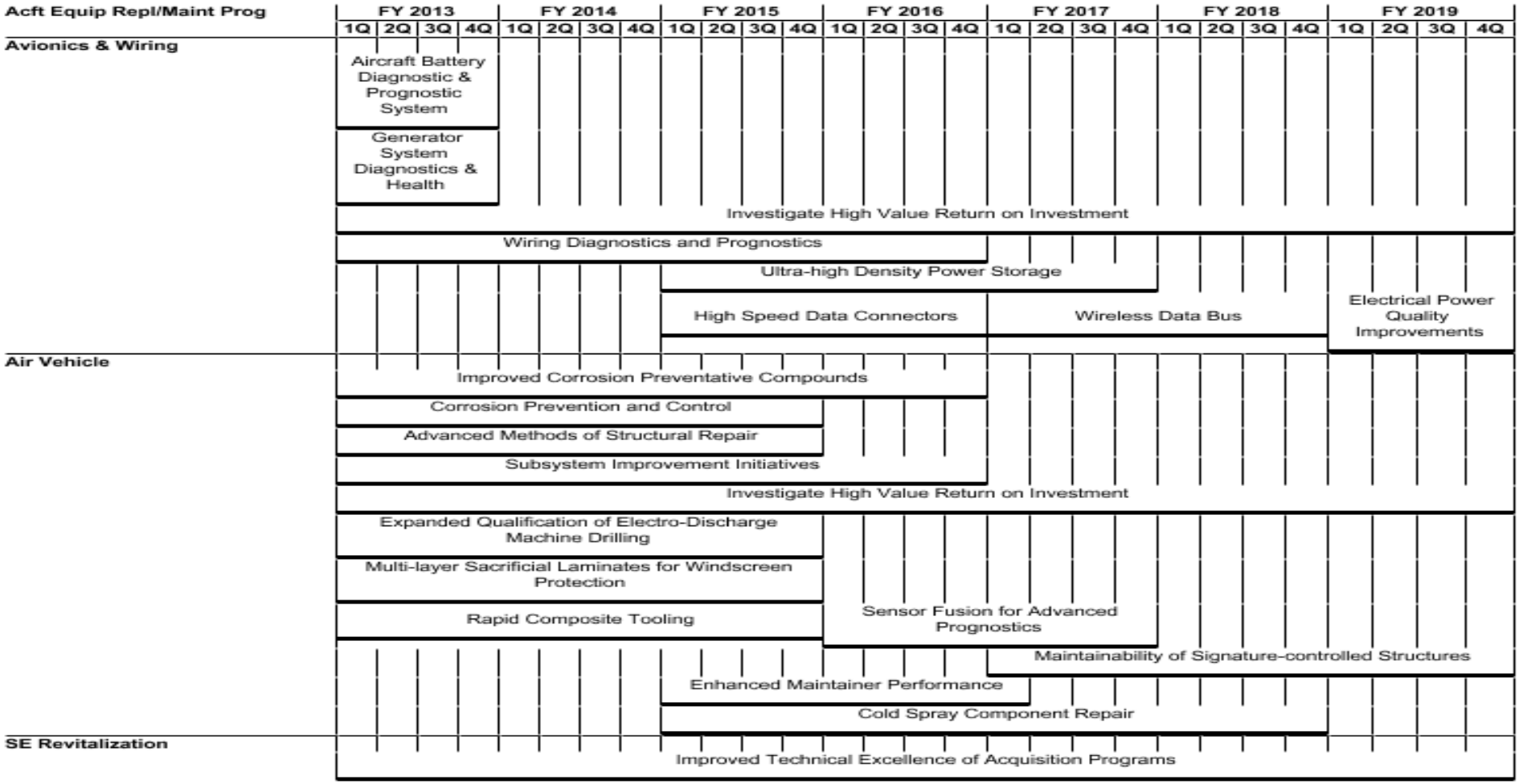
This is a non-ACAT program. Procurement strategy is determined by market survey and cooperative opportunities.

| Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>1041 / *Acft Equip Repl/Maint Prog* |

**E. Performance Metrics**

The Aircraft Equipment Reliability/Maintainability Improvement Program (AERMIP) program will, at a minimum, fund 8 to 15 projects a year that investigate and evaluate reliability and maintainability improvements to in-service, out-of-production aircraft equipment. AERMIP projects will have a greater than 75% success rate of insertion into Department of the Navy warfighting systems or support infrastructure.

| Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>1041 / *Acft Equip Repl/Maint Prog* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>1041 / *Acft Equip Repl/Maint Prog* |

| Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy | | | | | | | | | | | | Date: March 2014 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | | | | | R-1 Program Element (Number/Name)<br>PE 0205633N / *Aviation Improvements* | | | | Project (Number/Name)<br>1355 / *Propulsion and Power Component Improvement Program* | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2013** | **FY 2014** | **FY 2015 Base** | **FY 2015 OCO #** | **FY 2015 Total** | **FY 2016** | **FY 2017** | **FY 2018** | **FY 2019** | **Cost To Complete** | **Total Cost** |
| 1355: *Propulsion and Power Component Improvement Program* | 810.574 | 51.589 | 61.393 | 87.150 | - | 87.150 | 93.750 | 95.612 | 110.039 | 112.171 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0.000 | - | - | - | - | - | - | - | - | - | | |

# The FY 2015 OCO Request will be submitted at a later date.

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

The Propulsion and Power (P&P) Component Improvement Program (CIP) provides the only source of critical design and development engineering support to resolve safety, reliability and maintainability deficiencies of in-service Navy and Marine Corps aircraft propulsion systems. The highest priority issues P&P CIP addresses concern safety-of-flight deficiencies, which account for approximately 80% of P&P CIP efforts. The program also corrects service-revealed deficiencies, improves Operational Readiness and Reliability and Maintainability, and reduces platform Life Cycle Cost. Budgets are allocated across platform-specific teams and multi-platform product support teams based upon long term strategies to achieve safety and affordable readiness goals; the R-3 exhibit details annual portions of those long-term strategies. P&P CIP tasks have reduced the rate of in-flight aborts, safety incidents, non-mission capable rates, scheduled and unscheduled engine removals, maintenance work hours, and overall cost of ownership. This is accomplished through the maintenance and validation of specification performance, testing to qualify engineering changes, verifying life limits, and improving the inherent reliability of the propulsion and power systems as an integral part of Reliability Centered Maintenance initiatives. Historically, the missions, tactics, and environmental exposure of military aircraft systems change to meet new threats or operational demands, and often result in unforeseen problems, which if not corrected, can cause critical safety/readiness degradation, such as those experienced during OPERATIONS DESERT SHIELD/DESERT STORM, ENDURING FREEDOM, and IRAQI FREEDOM due to sand erosion. In addition, new problems arise through actual fleet deployment and usage of the aircraft. System development programs, while geared to resolve as many problems as possible before deployment, cannot duplicate actual operations or account for the vast array of environmental and usage variables, particularly when aircraft missions vary from those that the aircraft was designed to perform. Therefore, it has been found that P&P CIP can provide an immediate engineering response to these flight-critical problems and accelerated engine testing can avoid potential problems. P&P CIP starts after development and Navy acceptance of the first production article and addresses usage and life problems not covered by warranties. P&P CIP addresses engines, transmissions, propellers, starters, auxiliary power units, electrical generating systems, aircraft wiring, and fuel and lubricant systems. These efforts continue over the system's life, gradually decreasing to a minimum level sufficient to maintain the reliability, and decrease the operating costs, of older inventory. P&P CIP is a highly leveraged and cooperative tri-service program with Foreign Military Sales participation.

| **B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)** | **FY 2013** | **FY 2014** | **FY 2015** |
|---|---|---|---|
| ***Title:*** P3, E2, C2, C130 (T56) | 6.980 | 7.828 | 9.050 |
| ***Articles:*** | - | - | - |
| ***FY 2013 Accomplishments:***<br>Complete redesign the Aft Cone-Adaptor significant engine removal contributor. Continue design and fabrication of a replacement to the current electronic control system which will no longer be repairable due to obsolescence. Complete the Analytical Condition | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>1355 / *Propulsion and Power Component Improvement Program* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2013 | FY 2014 | FY 2015 |
|---|---|---|---|
| Inspections program. Complete qualification of redesigned combustor liner. Continue to investigate all service revealed deficiencies. Complete Gearbox improvements. Complete turbine vane durability project.<br>***FY 2014 Plans:***<br>Develop requirements and initiate design for an engine oil health monitoring system. Initiate design of more robust external scavenge pump. Continue development and testing of compressor blade/vane coating to improve corrosion and erosion resistance. Complete redesign and qualification of 3-4 turbine spacer. Complete qualification and begin incorporation of new reduction gearbox assembly planet gear bearing assembly. Complete incorporation of front compressor bearing labyrinth seal. Complete down-select program for new propeller brake. Complete redesign and begin incorporation of new front turbine bearing cage. Complete improvement and being incorporation of front turbine bearing support.<br>***FY 2015 Plans:***<br>Qualify and incorporate redesigned 3-4 turbine spacer to eliminate vibrational response at low-speed ground idle. Complete qualification and begin incorporation of compressor blade erosion corrosion-resistive coating. Complete qualification of oil health monitoring system. Begin redesign of fuel nozzles to eliminate coking and prevent hot section component damage. | | | |
| ***Title:*** E2/C2/C130/P3 (Props) | 3.000 | 1.900 | 1.930 |
| ***Articles:*** | - | - | - |
| ***FY 2013 Accomplishments:***<br>Complete research and testing of potential NP2000 Blade Erosion Coatings. Complete build of NP2000 Control System Working Model. Continue to investigate all service revealed deficiencies.<br>***FY 2014 Plans:***<br>Conduct flight testing of NP2000 modernized pump housing. Complete Fleet service evaluation of NP2000 blade erosion film. Continue to investigate all service revealed deficiencies. Begin fleet incorporation of P-3/C-130 taper bore plug.<br>***FY 2015 Plans:***<br>Complete flight testing of NP2000 modernized pump housing. Complete research and testing of potential NP2000 blade erosion prevention. Continue to investigate all service revealed deficiencies. | | | |
| ***Title:*** EA-6B (J52) | 1.940 | 2.300 | 1.410 |
| ***Articles:*** | - | - | - |
| ***FY 2013 Accomplishments:***<br>Complete incorporation of torque value and torque tooling. Complete development of a Thermal Barrier Coating for the combustion chamber interior surfaces. Develop updated repair and inspection criteria for fielded components.<br>***FY 2014 Plans:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>1355 / *Propulsion and Power Component Improvement Program* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2013 | FY 2014 | FY 2015 |
|---|---|---|---|
| Incorporate thermal barrier coating combustion chambers into the fleet assets. Implement and continue updating repair and inspection criteria for fielded components. Implement fuel flow-meter bracket redesign.<br>***FY 2015 Plans:***<br>Implement and continue updating repair and inspection criteria for fielded components. Manage parts obsolescence issues. | | | |
| ***Title:*** SH-60B/F, HH-60H, MH-60R/S (T700) | 1.480 | 3.575 | 4.090 |
| ***Articles:*** | - | - | - |
| ***FY 2013 Accomplishments:***<br>Continue redesign work to reduce impact of cost and readiness drivers for the T700 engine. Complete a Fleet Leader of the Automatic Wire Analyzer at Naval Air Station North Island to train operators, develop procedures, and measure effectiveness. Complete the redesign of the Main Transmission Gearbox from Magnesium to Aluminum.<br>***FY 2014 Plans:***<br>Implement safety changes (Stage 1 Blades, Dual Auto-Contingency). Develop and qualify corrosion reduction efforts on the H-60 intermediate and tail gearboxes. Develop new Li-Polymer battery for the H-60 to decrease maintenance man-hour requirements and total ownership costs.<br>***FY 2015 Plans:***<br>Continue redesign work to reduce impact of cost and readiness drivers for the T700 engine. Initiate T700 accelerated simulated mission endurance testing to demonstrate newly redesigned ceramic matrix composite shrouds and cutback diffuser. Conduct lithium battery development testing. | | | |
| ***Title:*** H-1 (T400/T700) | 0.625 | 1.105 | 1.080 |
| ***Articles:*** | - | - | - |
| ***FY 2013 Accomplishments:***<br>Complete development of T700-401 engine harness testor. Continue support of common T700 engine projects.<br>***FY 2014 Plans:***<br>Complete qualification of T700-401 engine harness tester. Continue support of common T700 engine projects.<br>***FY 2015 Plans:***<br>Continue support of common T700 engine and air turbine starter projects. Complete qualification and safety testing of the AH-1W lithium battery. | | | |
| ***Title:*** AV-8B (F402) | 7.334 | 8.174 | 5.640 |
| ***Articles:*** | - | - | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>1355 / *Propulsion and Power Component Improvement Program* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2013 | FY 2014 | FY 2015 |
|---|---|---|---|
| ***FY 2013 Accomplishments:***<br>Complete effort for low plasticity burnishing of low pressure compressor stage one, two and three blades. Complete fuel leak redesign of EVICS, HMU permanent magnet alternator, fuel manifold pipe leakage redesign, meandering wire magnetometer inspection technique for low pressure compressor stage one blade dovetails.<br>***FY 2014 Plans:***<br>Complete Low Pressure Compressor 1 blade redesign program, complete effort for low plasticity burnishing of low pressure compressor stage two and three blades, prepare for accelerated simulated mission endurance test, and prepare engine performance recovery plan.<br>***FY 2015 Plans:***<br>Complete flight test evaluation of redesigned low pressure compressor stage one blade and damper. Complete evaluation and qualification of engine variable inlet control system hydromechanical unit permanent magnet alternator ceramic bearing. Complete tasking for application of low plasticity burnishing on low pressure compressor stage two and three blades. | | | |
| ***Title:*** H-53/H-46/H-3 (T58/T64) | 5.703 | 2.000 | 4.940 |
| ***Articles:*** | - | - | - |
| ***FY 2013 Accomplishments:***<br>H-46/H-3 (T58)<br>Continue to develop inspection and repair criteria for fielded components.<br>H-53 (T64)<br>Complete modernized torque sensor effort. Complete Fuel control reliability improvement program. Continue life management program, Prognostic Diagnostic based management analysis and Reliability Centered Maintenance efforts.<br>***FY 2014 Plans:***<br>Complete fuel control reliability and main engine carbon seal improvement programs. Continue life management analysis and reliability centered maintenance efforts. Continue to develop inspection and repair criteria for fielded components.<br>***FY 2015 Plans:***<br>H-46/H-3 (T58)<br>Continue to develop inspection and repair criteria for fielded components.<br>H-53 (T64) | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>1355 / *Propulsion and Power Component Improvement Program* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2013 | FY 2014 | FY 2015 |
|---|---|---|---|
| Continue life management analysis and reliability centered maintenance efforts. Continue to develop inspection and repair criteria for fielded components. Continue cost of ownership reduction programs. Complete accessory gearbox free-wheel unit lubrication improvement. | | | |
| ***Title:*** F-18 C/D/E/F (F414/F404) | 13.811 | 16.281 | 13.960 |
| ***Articles:*** | - | - | - |
| ***FY 2013 Accomplishments:***<br>Complete flameholder attachment redesign. Complete Full Authority Digital Electronic Control obsolescence redesign. Complete turbine disk dovetail edge of contact improvements. Complete Main Fuel Control improvements to reduce mission aborts. Begin mission analysis updates. Continue to develop lifting model. Continue life limited part life extension. Continue to develop inspection and repair criteria. | | | |
| ***FY 2014 Plans:***<br>Test cell performance management process to improve operability and reduce unscheduled engine removals, Variable Exhaust Nozzle (VEN) pump cover life improvement, pilot spraybar flow optimization to improve light off times, AB spraybar heat shield durability improvements, fuel nozzle life increase, alternate compressor blade rub coats to improve repairability and blade tip sealing performance, low plasticity burnishing qualification complete and approved for future stage 2 fan blade procurements, improved VEN pump and anti-ice valve qualified and available to Fleet. | | | |
| ***FY 2015 Plans:***<br>Complete test cell performance management process to improve operability and reduce unscheduled engine removals. Complete Variable Exhaust Nozzle pump cover life improvement, pilot spraybar flow optimization to improve light off times, and afterburner spraybar heat shield durability improvements. Implement fuel nozzle life increase, alternate compressor blade rub coats to improve repairability, and blade tip sealing performance. | | | |
| ***Title:*** T-45 (F405) | 4.673 | 6.625 | 3.700 |
| ***Articles:*** | - | - | - |
| ***FY 2013 Accomplishments:***<br>Complete to address safety issues reported from fleet. Analysis and redesign components based on service revealed deficiencies. | | | |
| ***FY 2014 Plans:***<br>Continue redesign work to reduce impact of cost and readiness drivers for the F405 engine based on service revealed deficiencies and address safety issues reported from fleet. Complete component testing and initiate engine testing of low pressure compressor blade improvements to mitigate blade root cracking in-service and reduce scrap rate at overhaul. Complete high | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>1355 / *Propulsion and Power Component Improvement Program* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2013 | FY 2014 | FY 2015 |
|---|---|---|---|
| pressure compressor redesigns to improve corrosion resistance and continue redesigns to improve performance retention. Continue redesign of engine correct rotation system to reduce high failure rate and reduce cost of ownership.<br>***FY 2015 Plans:***<br>Continue redesign work to reduce impact of cost and readiness drivers for the F405 engine based on service revealed deficiencies and address safety issues reported from fleet. Complete component testing and initiate engine testing of low pressure compressor blade improvements to mitigate blade root cracking in-service, and reduce scrap rate at overhaul. Complete high pressure compressor redesigns to improve corrosion resistance and continue redesigns to improve performance retention. Continue redesign of engine correct rotation system to reduce high failure rate and reduce cost of ownership. | | | |
| ***Title:*** V-22 Propulsion | 0.595 | 1.792 | 0.850 |
| ***Articles:*** | - | - | - |
| ***FY 2013 Accomplishments:***<br>N/A<br>***FY 2014 Plans:***<br>Continue to support the V-22 propulsion system in funding valid propulsion and power component improvement program efforts to address safety, reliability, and/or maintainability issues.<br>***FY 2015 Plans:***<br>Begin implementation of nacelle blower and machined impellers to mitigate safety issue and increase scheduled maintenance interval by 2x. Upgrade engine control hardware-in-the-loop (HWIL) simulation with updated engine control software and transition to "Software" full authority digital engine control to reduce future costs of maintaining the HWIL capability. Kick off auxiliary power unit redesign efforts per FY14 trade study. | | | |
| ***Title:*** Multi-Platform Product Support Teams | 4.112 | 9.228 | 7.401 |
| ***Articles:*** | - | - | - |
| ***FY 2013 Accomplishments:***<br>Continue projects to provide common support to multiple platforms in the areas of improved drive systems, secondary power and mechanical systems; improved tools for performance analysis, modeling and simulation, diagnostics, engine reliability assessment, and structural integrity; improve products and processes for fuels, lubricants, and refueling equipment; and improve electrical system product support, wiring, and battery systems. Includes funding for Government Furnished Equipment fuel provided in support of engine developmental and qualification testing.<br>***FY 2014 Plans:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>1355 / *Propulsion and Power Component Improvement Program* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2013 | FY 2014 | FY 2015 |
|---|---|---|---|
| Continue projects to provide common support to multiple platforms in the areas of improved drive systems; secondary power and mechanical systems; improved tools for performance analysis, modeling and simulation, diagnostics, engine reliability assessment, and structural integrity; improved products and processes for fuels, lubricants, and refueling equipment; and improved electrical system product support, wiring, and battery systems. Includes funding for Government Furnished Equipment fuel provided in support of engine developmental and qualification testing.<br>***FY 2015 Plans:***<br>Continue projects to provide common support to multiple platforms in the areas of improved drive systems, secondary power, and mechanical systems; improve tools for performance analysis, modeling and simulation, diagnostics, engine reliability assessment, and structural integrity; improve products and processes for fuels, lubricants, and refueling equipment; and improve electrical system product support, wiring, and battery systems. Includes funding for Government Furnished Equipment fuel provided in support of engine developmental and qualification testing. Study data system solutions for the Naval Power Avionics Thermal and Hydraulics Lab and install full control system solution. Provide support for growing modeling capability with large storage solutions for the research, development, test, and evaluation connected devices. | | | |
| ***Title:*** Adversary (J85) (F100) | 1.336 | 0.585 | 1.200 |
| ***Articles:*** | - | - | - |
| ***FY 2013 Accomplishments:***<br>Continue contribution to common Component Improvement Program (CIP) tasks with United States Air Force (USAF) for F100 and J85 Engine. J85 unique tasks include rotating part life update and fuel control redesign.<br>***FY 2014 Plans:***<br>Continue contribution to common CIP with the USAF and Foreign Military Sales group for the J85 engine. The most prevalent tasks for the J85 engine are Stage 1 turbine nozzle durability, compressor life cycle fatigue life update, and high-pressure turbine second-stage shroud heat shield.<br>***FY 2015 Plans:***<br>Continue contributing to the common CIP with the USAF and Foreign Military Sales group for the J85 engine. Investigate improvements on support equipment, revision of the life cycle fatigue life of rotating components, definition of optimal maintenance and schedule requirements, and optimization of engine functional and trim procedures and software. | | | |
| ***Title:*** Joint Strike Fighter (F135 Engine) | - | - | 31.899 |
| ***Articles:*** | - | - | - |
| ***FY 2013 Accomplishments:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>1355 / *Propulsion and Power Component Improvement Program* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2013 | FY 2014 | FY 2015 |
|---|---|---|---|
| N/A<br>***FY 2014 Plans:***<br>N/A<br>***FY 2015 Plans:***<br>Work with Joint Program Office and U.S. Air Force (USAF) to prioritize and develop engineering project descriptions that resolve Fleet revealed deficiencies that are not part of system development. In concert with the USAF, support Joint service Lead-the-Fleet (LTF) engine testing on the conventional takeoff and landing/aircraft carriers system. Procure the short takeoff/vertical landing hardware to initiate LTF testing. | | | |
| **Accomplishments/Planned Programs Subtotals** | 51.589 | 61.393 | 87.150 |

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

N/A

**Remarks**

**D. Acquisition Strategy**

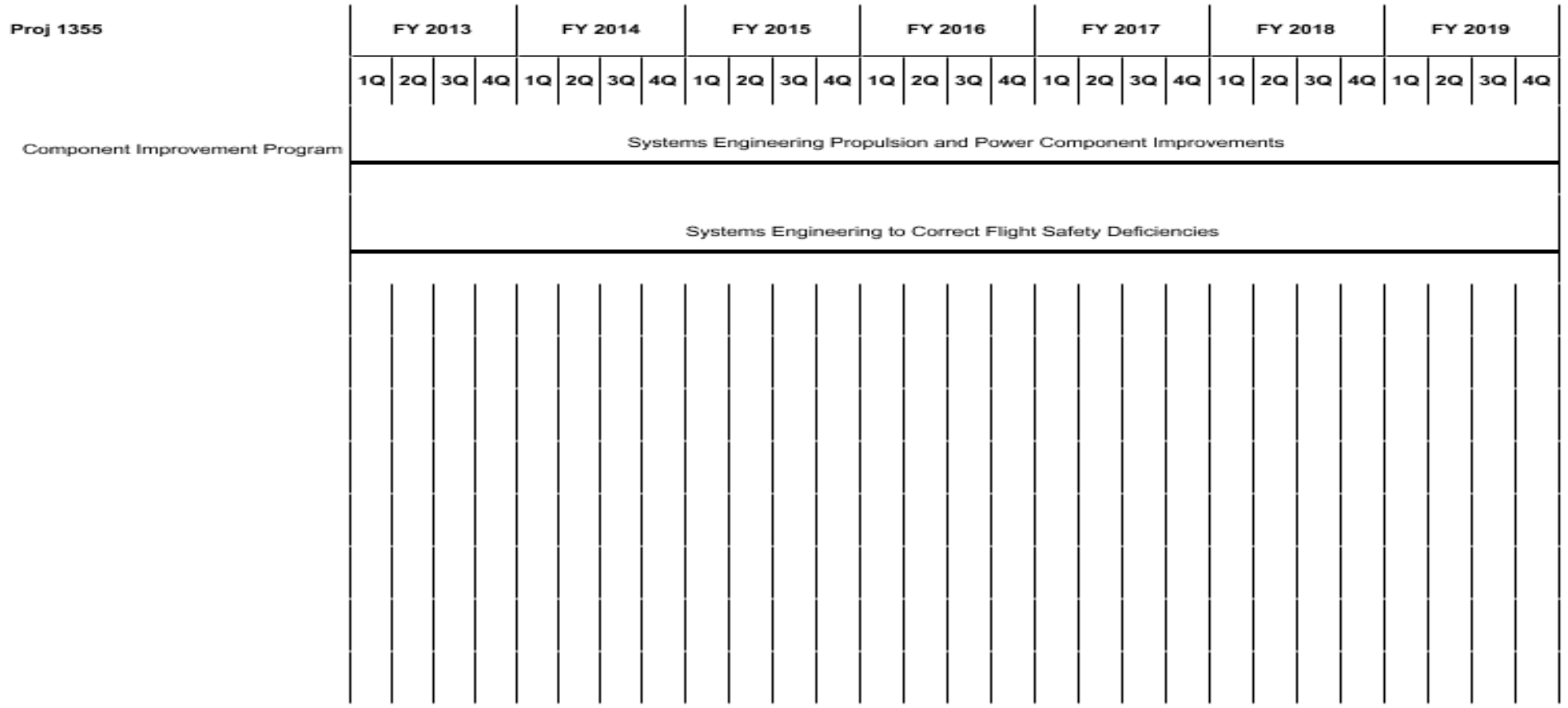
This is a NON-ACAT program. Procurement strategy is determined by market survey and cooperative opportunities.

**E. Performance Metrics**

The Propulsion and Power Component (P&P) Improvement Program (CIP) will support engineering design and development efforts for 100% of the safety of flight issues on in-service propulsion and power systems covered under the program. Over the past two years, this equated to more than 275 individual Engineering Project Descriptions (EPDs). P&P CIP will also address reliability and maintainability deficiencies equating to at least another 100 individual EPDs. Similar projects have increased the aggregate engine reliability across the USN/USMC fleet, as measured by the mean flight hours between engine removals, by 40% over the past eight years.

Program execution will be actively managed on 100% of the projects via contractor earned value data and overall obligation and expenditure rates as reflected in Navy ERP. Data will be analyzed and measured against OSD/FMB benchmarks on a monthly basis.

| Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>1355 / *Propulsion and Power Component Improvement Program* |




*2015PB - 0205633N - 1355*

| Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy | | | Date: March 2014 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | R-1 Program Element (Number/Name)<br>PE 0205633N / *Aviation Improvements* | Project (Number/Name)<br>2269 / *EAF Matting* | |

| COST ($ in Millions) | Prior Years | FY 2013 | FY 2014 | FY 2015 Base | FY 2015 OCO # | FY 2015 Total | FY 2016 | FY 2017 | FY 2018 | FY 2019 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2269: *EAF Matting* | 3.999 | 4.248 | 5.168 | 7.384 | - | 7.384 | 14.473 | 12.455 | - | - | - | 47.727 |
| Quantity of RDT&E Articles | 0.000 | - | - | - | - | - | - | - | - | - | | |

# The FY 2015 OCO Request will be submitted at a later date.

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

The Expeditionary Airfields (EAF) program was a FY2012 New Start, with funding released to the project in May 2012. The EAF program designs, develops and tests a Sustainment Lighting System (SLS) to replace the obsolete legacy EAF lighting system. This system will provide EAF Marine Aircraft Wing Support Squadrons with the required EAF equipment to install Forward Operating Bases and Forward Arming and Refueling Points. With the deployment of this equipment, the Marine Aircraft Wing Support Squadrons can support all United States Marine Corps (USMC) aircraft allowing the Combatant Commanders the flexibility to deploy Aircraft Combat Elements to meet anticipated threats.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2013 | FY 2014 | FY 2015 |
|---|---|---|---|
| ***Title:*** Expeditionary Airfields Improvements | 4.248 | 5.168 | 7.384 |
| ***Articles:*** | - | - | - |
| ***Description:*** The EAF program designs, develops, tests and fields a Sustainment Lighting System (SLS) to replace the obsolete legacy EAF lighting system. This system will provide EAF Marine Aircraft Wing Support Squadrons with the required EAF equipment to install Forward Operating Bases and Forward Arming and Refueling Points. With the deployment of this equipment the Marine Aircraft Wing Support Squadron can support all USMC aircraft allowing the Combatant Commanders the flexibility to deploy Aircraft Combat Elements to meet anticipated threats. | | | |
| ***FY 2013 Accomplishments:***<br>Developed and released a Request for Proposal package for the Sustainment Lighting System (SLS), including a system specification, Statement of Work (SOW), and a Contract Deliverable Requirement List (CDRL) package. Development of an approved, Milestone Decision Authority (MDA), acquisition strategy. | | | |
| ***FY 2014 Plans:***<br>Evaluate offer or proposals for the SLS leading to contract award. Begin the design, development and integration of the SLS program. Achieve milestone B with MDA. | | | |
| ***FY 2015 Plans:***<br>Continue the design, development and integration of the SLS program leading to a System Requirement Review (SRR) and Preliminary Design Review (PDR). | | | |
| **Accomplishments/Planned Programs Subtotals** | 4.248 | 5.168 | 7.384 |

| Exhibit R-2A, RDT&E Project Justification: PB 2015 Navy | | | Date: March 2014 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | R-1 Program Element (Number/Name)<br>PE 0205633N / *Aviation Improvements* | Project (Number/Name)<br>2269 / *EAF Matting* | |

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

| Line Item | FY 2013 | FY 2014 | FY 2015 Base | FY 2015 OCO | FY 2015 Total | FY 2016 | FY 2017 | FY 2018 | FY 2019 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • 0204161N/4208: *Expeditionary Airfields.* | 33.687 | 4.677 | - | - | - | - | - | - | - | - | 288.774 |
| • 0204161N/4213: *ASE-Expeditionary Airfields* | - | - | 8.423 | - | 8.423 | 8.517 | 8.693 | 8.790 | 8.966 | Continuing | Continuing |

**Remarks**

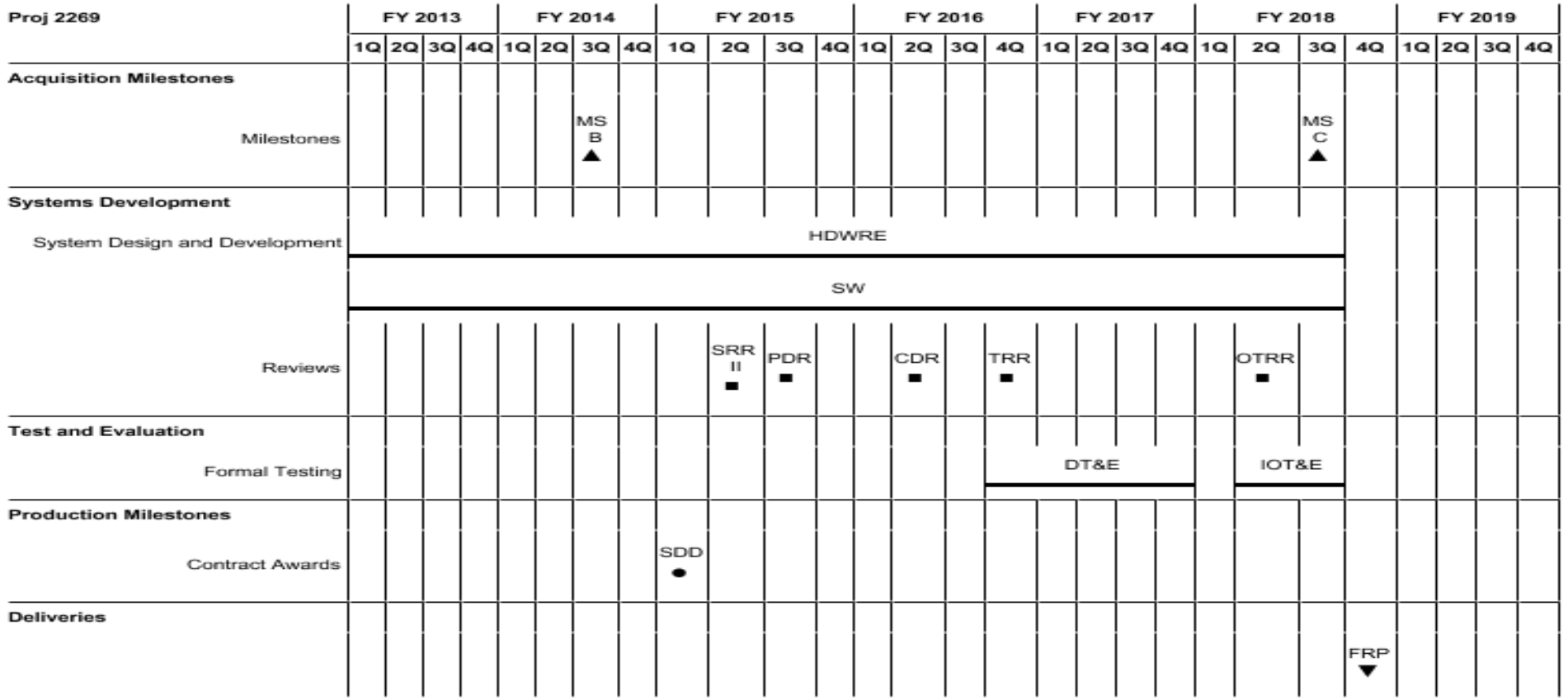
**D. Acquisition Strategy**

Expeditionary Airfields (EAF): The program will use a Full and Open competition contract strategy for the system design, development, integration and testing of the Sustainment Lighting System (SLS).

**E. Performance Metrics**

Milestone Reviews

| Exhibit R-4, RDT&E Schedule Profile: PB 2015 Navy | | Date: March 2014 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0205633N / *Aviation Improvements* | **Project (Number/Name)**<br>2269 / *EAF Matting* |

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