| Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Navy | | | | | | | | | | | Date: May 2017 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development* | | | | | R-1 Program Element (Number/Name)<br>PE 0206313M *I Marine Corps Comms Systems* | | | | | | | |
| **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 | 1,321.272 | 84.017 | 118.146 | 123.825 | - | 123.825 | 95.243 | 85.908 | 87.074 | 89.427 | Continuing | Continuing |
| 2270: *Exp Indirect Fire Gen Supt Wpn Sys* | 248.364 | 21.436 | 25.381 | 27.484 | - | 27.484 | 26.103 | 26.363 | 26.947 | 27.483 | Continuing | Continuing |
| 2273: *Air Ops Cmd & Control (C2) Sys* | 413.245 | 10.969 | 13.219 | 14.630 | - | 14.630 | 11.423 | 10.965 | 11.240 | 11.463 | Continuing | Continuing |
| 2274: *Command & Control Warfare Sys* | 32.950 | 8.533 | 6.531 | 8.129 | - | 8.129 | 8.233 | 7.054 | 7.214 | 7.358 | Continuing | Continuing |
| 2275: *Marine Corps Tactical Radio Systems* | 36.429 | 4.929 | 15.161 | 22.722 | - | 22.722 | 11.329 | 8.119 | 8.190 | 8.453 | Continuing | Continuing |
| 2276: *Comms Switching and Control Sys* | 40.765 | 1.938 | 2.216 | 2.799 | - | 2.799 | 2.618 | 2.748 | 2.808 | 2.663 | Continuing | Continuing |
| 2277: *System Engineering and Integration* | 38.330 | 5.013 | 4.861 | 8.314 | - | 8.314 | 5.582 | 6.079 | 6.395 | 6.402 | Continuing | Continuing |
| 2278: *Air Defense Weapons System* | 44.734 | 1.635 | 35.009 | 24.214 | - | 24.214 | 6.237 | 6.081 | 6.074 | 6.065 | Continuing | Continuing |
| 2510: *MAGTF CSSE & SE* | 281.492 | 13.040 | 2.345 | 1.518 | - | 1.518 | 1.340 | 1.369 | 1.488 | 1.508 | Continuing | Continuing |
| 3099: *Radar System* | 184.963 | 3.972 | 13.423 | 14.015 | - | 14.015 | 22.378 | 17.130 | 16.718 | 18.032 | Continuing | Continuing |
| 9999: *Congressional Adds* | 0.000 | 12.552 | 0.000 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 12.552 |

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

This program element provides funding to develop the command and control (C2) support and information infrastructures for the Fleet Marine Force and supporting establishment. Doctrinally, the C2 support system and the information infrastructure form two parts of a triad of capabilities which permits command and control systems to be transformed into a complete operating system. The third element of the triad is command and control organization and is not covered in this program element. USMC command and control is divided into seven functional areas and one supporting functional area as follows: intelligence C2, fire support C2, air operations C2, radio systems C2, combat service support C2, warfare C2, radar systems C2, and C2 support (information processing and communications).

Within this program element, subprojects have been grouped by C2 functional area for more efficient planning. Air defense weapons systems have been added to facilitate planning and a separate project is used for systems assigned to the supporting establishment. Subprojects which support the Commander's decision processes have been collected into the Command Post Systems project since these systems must work in close cooperation to ensure effective C2 of Marine Air Ground Task Forces.

| Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Navy | Date: May 2017 |
|---|---|
| **Appropriation/Budget Activity**<br>1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development* | **R-1 Program Element (Number/Name)**<br>PE 0206313M *I Marine Corps Comms Systems* |

| B. Program Change Summary ($ in Millions) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 77.909 | 82.159 | 94.060 | - | 94.060 |
| Current President's Budget | 84.017 | 118.146 | 123.825 | - | 123.825 |
| Total Adjustments | 6.108 | 35.987 | 29.765 | - | 29.765 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | 7.738 | 0.000 | | | |
| • SBIR/STTR Transfer | -1.631 | 0.000 | | | |
| • Program Adjustments | 0.000 | 35.987 | 29.315 | - | 29.315 |
| • Rate/Misc Adjustments | 0.001 | 0.000 | 0.450 | - | 0.450 |

| Congressional Add Details ($ in Millions, and Includes General Reductions) | FY 2016 | FY 2017 |
|---|---|---|
| **Project:** 9999: *Congressional Adds* | | |
| Congressional Add: *Radar Enhancements* | 12.552 | 0.000 |
| Congressional Add Subtotals for Project: 9999 | 12.552 | 0.000 |
| Congressional Add Totals for all Projects | 12.552 | 0.000 |

**Change Summary Explanation**

The funding increase of $5.679M from FY17 to FY18 can be attributed to improvements and enhancements to Exp Indirect Fire Gen Supt Wpn Sys, Air Operations C2 systems, Command and Control Warfare Systems, Tactical Radio Systems, and System Engineering and Integration.

Exp Indirect Fire Gen Supt Wpn Sys funding increases will support the development, integration, and testing of several C2 systems to include all Marine Air Ground Task Force (MAGTF) Command and Control (C2) Systems and Applications (MAGTF C2 SA). Additionally, increased funding will support development of Handheld Command and Control capabilities, to include test and evaluation and systems engineering activities in FY18.

Command and Control Air Operation System - Command and Control Information Services (C2AOS-C2IS) is an ACAT III, post Milestone B, Air Force led program with joint interest. The funding increase will allow for USMC participation in the Air Force scheduled Warfighter Assessments, Developmental Testing, and Multi-service Operational Testing and Evaluation (MOT&E) to ensure USMC requirements will be met.

| Exhibit R-2, RDT&E Budget Item Justification: FY 2018 Navy | Date: May 2017 |
|---|---|
| **Appropriation/Budget Activity**<br>1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development* | **R-1 Program Element (Number/Name)**<br>PE 0206313M *I Marine Corps Comms Systems* |

Command and Control Warfare systems increase to Counter Radio-Controlled Improvised Explosive Device (RCIED) Electronic Warfare (CREW) will fund test and evaluation supporting mounted CREW development efforts.

Tactical Radio Systems will continue development of the Next Generation Troposcatter (NGT). The NGT is a transit case solution which will replace the AN/TRC-170A. The funding increase from FY17 to FY18 supports the NGT MILSTD c/x-band testing and engineering support. Additionally, TCM will continue development and testing of Joint Enterprise Network Manager (JENM) and the testing and evaluation of High Frequency Radio II (HFR II) and Multi-Band Radio (MBR) Replacement.

Under Systems Engineering and Integration, the funding increase establishes the Military Information Support Operations (MISO) program to develop and test a Marine Corps variant of the Special Operations Command Fly Away Broadcast System. MISO capabilities are critical to the success of the MAGTF mission, enabling commanders to shape the information environment, counter enemy propaganda, misinformation, disinformation, and adversarial narratives.

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | | | | | | | | | | Date: May 2017 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | | | | | R-1 Program Element (Number/Name)<br>PE 0206313M / *Marine Corps Comms Systems* | | | | Project (Number/Name)<br>2270 / *Exp Indirect Fire Gen Supt Wpn 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** |
| 2270: *Exp Indirect Fire Gen Supt Wpn Sys* | 248.364 | 21.436 | 25.381 | 27.484 | - | 27.484 | 26.103 | 26.363 | 26.947 | 27.483 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

**Note**

NOTE: The increase of $2.103M from FY17 to FY18 will fund improvements and enhancements to Software Release, Marine Corps Enterprise Information Technology Services (MCEITS), and Marine Corps Software Resource Center (MCSRC).

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

Marine Air Ground Task Force (MAGTF) Command and Control (C2) Systems and Applications (MAGTF C2 SA) - MAGTF C2 SA merges the development, integration and testing of 45 existing C2 systems and applications into one common enterprise capability. They reside in all Combat Operations Centers (COCs) and related USMC C2 platforms. This effort provides greater economies of scale/affordability with system developers, technical design agents, integration agents and individual program offices. MAGTF C2 SA efforts are in alignment with the combat developers requirements for: Net-Centric systems, Development of reusable Open Architecture components, Data exposure, Enhancing the Warfighter's Situational Awareness and Increasing/Maximizing the Commander's decision space.

Joint Battle Command - Platform (JBC-P) Family of Systems (FoS) - JBC-P FoS is an Army led ACAT II program of Joint Requirements Oversight Council (JROC) interest, formerly known as the Blue Force Tracker (BFT) FoS. It is comprised of L-Band SATCOM and is a digital, battle command information FoS that provides integrated, on the move, timely, relevant Command and Control Situational Awareness (C2SA) information to tactical combat, combat support and combat service support commanders, leaders, and key C2 nodes. JBC-P FoS will provide JROC mandated C2SA convergence across aircraft, ground vehicles and dismounted personnel.

Global Command and Control System - Tactical Command Operations System (GCCS-TCO) - GCCS-TCO is the principal tool within the Marine Air Ground Task Force (MAGTF) for situational awareness through distribution of the Common Tactical Picture (CTP). It supports tactical operations providing information via high speed computer systems in a timely manner and includes the Intel Operations Workstations/Servers. R&D funds provide science and technology advanced concepts to be applied to the system for an increase in functional capabilities to the warfighter, to include Joint Command and Control (JC2) development efforts within Tactical Service Oriented Architecture (TSOA).

Identity Dominance System-MC (IDS-MC) - IDS-MC is a multi-modal (fingerprint, iris and face) biometric collection system that provides the USMC a reliable and effective capability to collect, share, match, access, verify and store identity information. IDS-MC will enable the Marine to collect appropriate biometric, biographical and reference information on an individual and match this locally developed information with pre-existing information available to the expeditionary force. The system will display match results with linkage to the respective individual's biographical and reference information as well as help analyze the response, update records as appropriate, create reports and disseminate updated information. The primary mission of IDS-MC is to provide the Marine Corps with the means to identify persons encountered in the battle space. While IDS-MC is not an intelligence analysis system, it does provide identification information in support of military intelligence and

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* |

law enforcement operations by providing positive identification of persons of interest. IDS-MC is an enabler in the areas of detainee management and questioning, base access, counterintelligence screening, border control, law enforcement, displaced persons' management and aiding in humanitarian assistance missions. IDS-MC supports the tactical application of identity dominance and fully supports a forward presence, crisis response and contingency response capability.

Advanced Field Artillery Tactical Data Family of Systems (AFATDS FoS) - AFATDS FoS consists of three programs, AFATDS, Back Up Computer System (BUCS) and Mobile Tactical Shelter (MTS). The AFATDS automates the fire planning, tactical fire direction, and fire support coordination required to support maneuver from the sea and subsequent operations ashore. AFATDS integrates all supporting arms assets within the MAGTF such as mortars, cannon artillery, rockets and missiles, close air support, and naval surface fire support systems. BUCS is a hand-held computer system designed to provide a backup to the AFATDS in computing ballistic firing solutions, as well as provide survey and Meteorological functions in support of artillery. Additionally BUCS is the primary ballistic firing solution system during Ship To Objective Maneuver (STOM) and for the Expeditionary Fire Support System (EFSS). The MTS is a Lightweight Multi-purpose Shelter mounted on a High Mobility Multipurpose Wheeled Vehicle (HMMWV) which protects both the AFATDS and operators from the environment. MTS enables rapid emplacement and displacement of fire support elements and provides networked communications on the move.

Target Hand-Off System (THS) - The THS addressed a Marine Corps operational requirement for a lightweight, handheld, and accurate target acquisition engagement coordination system. THS provides MAGTF Commanders with the only man-portable target location capability that allows Air Officers and Fire Support Coordinators to prosecute identified targets. The THS' advance interoperability capability provides the MAGTF Commander with the only portable target acquisition system able to interoperate with all target prosecution platforms available in the battlefield. The THS is designed for the Forward Air Controllers (FACs), Forward Observers (FOs), Fire Support Teams (FSTs), Firepower Control Teams (FCTs), Tactical Air Control Parties (TACPs) and Reconnaissance Teams to quickly acquire targets in day, night and near-all-weather visibility conditions, in order to conduct precise, rapid indirect surface fire support, Naval Surface Fire Support (NSFS) and Close Air Support (CAS).

Handheld Command and Control (H2C2) - H2C2 project vision outlines a collective and efficient mobile computing Acquisition Strategy to ensure economies of scale and scope. The H2C2 portfolio consists of two specific capabilities - secure wireless access to multiple networks and handheld communication platforms. The handheld capability provides low cost (commercially available) platforms (smartphones and tablets) for use on every network regardless of the operational environment. The emerging technologies will enable access to both classified and unclassified systems on a single device. The secure wireless capability enables Marines burdened by wired implementations an option to leverage wireless mediums. This capability provides wireless communication between a variety of devices. Starting in FY18, Handheld efforts were re-aligned from JBC-P program.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***Title:*** MAGTF C2: Product Development | 7.783 | 7.198 | 9.548 | 0.000 | 9.548 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>-Continued improving and enhancing MAGTF interoperability using the service oriented architecture provided by the TSOA. This greatly enhances the efficiency of data distribution between architecturally disparate tactical data systems. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| -Continued developing presentation layer applications in conjunction with Warfighter input using the Agile Application Development (A2D) process.<br>-Completed transition of selected Command and Control Personal Computer (C2PC)/Joint Common Operational Picture Tactical Workstation (JTCW) application functionality into services hosted on the TSOA framework and C2 software packages.<br>-Continued research and development for transfer of legacy stove-piped MAGTF C2 systems to modern interoperable applications resulting in a more efficient Joint and Coalition C2 environment for the MAGTF. Funding provided for the development of one major release and one Rapid Response and Integration (R2I) application. | | | | | |
| ***FY 2017 Plans:***<br>-Continue the addition of Authoritative Data Sources from Intelligence, Logistics and Operations to the TSOA in order to meet identified Marine Corps gaps.<br>-Continue improving and enhancing MAGTF interoperability using the service oriented architecture provided by the TSOA.<br>-Continue developing applications for the Marine Corps Software Resource Center to enable more effective information sharing and the ability for Marines to make more informed and timely decisions.<br>-Continue research and development for the deployment of the TSOA to additional Marine Corps platforms (NOTM and MCEITS). | | | | | |
| ***FY 2018 Base Plans:***<br>-Continue the addition of Authoritative Data Sources from Intelligence, Logistics and Operations to the TSOA in order to meet identified Marine Corps gaps.<br>-Continue improving and enhancing MAGTF interoperability using the service oriented architecture provided by the TSOA.<br>-Continue developing applications for the Marine Corps Software Resource Center to enable more effective information sharing and the ability for Marines to make more informed and timely decisions.<br>-Continue research and development for the deployment of the TSOA to additional Marine Corps platforms (NOTM and MCEITS).<br>- The increase of $2.350M from FY17 to FY18 will fund improvements and enhancements to Software Release, Marine Corps Enterprise Information Technology Services (MCEITS), and Marine Corps Software Resource Center (MCSRC). | | | | | |
| ***FY 2018 OCO Plans:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| N/A | | | | | |
| ***Title:*** MAGTF C2: Support Costs | 1.022 | 1.208 | 1.369 | 0.000 | 1.369 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>- Continued system engineering support for system integration, configuration management and technical assessments.<br>***FY 2017 Plans:***<br>- Continue system engineering support for system integration, configuration management and technical assessments.<br>***FY 2018 Base Plans:***<br>- Continue system engineering support for system integration, configuration management and technical assessments.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** MAGTF C2: Test and Evaluation | 1.000 | 1.425 | 1.659 | 0.000 | 1.659 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>-Continued test support for the Joint Tactical Common Operational (COP) Workstation (JTCW).<br>-Continued conducting developmental testing of JTCW and Joint interoperability testing in conjunction with the Joint Interoperability Test Command (JITC).<br>-Continued to participate in technical working groups in support of test and engineering.<br>-Continued to provide technical assistance to other programs supported by Marine Corps Tactical Systems Support Activity (MCTSSA) that involve the use of these systems as well as through the Operating forces Tactical Systems Support Center (OFTSSC) trouble calls.<br>***FY 2017 Plans:***<br>-Continue test support for the Joint Tactical Common Operational (COP) Workstation (JTCW).<br>-Continue conducting developmental testing of JTCW and Joint interoperability testing in conjunction with the Joint Interoperability Test Command (JITC).<br>-Continue to participate in technical working groups in support of test and engineering. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| -Continue to provide technical assistance to other programs supported by Marine Corps Tactical Systems Support Activity (MCTSSA) that involve the use of these systems as well as through the Operating forces Tactical Systems Support Center (OFTSSC) trouble calls.<br>***FY 2018 Base Plans:***<br>-Continue test support for the Joint Tactical Common Operational (COP) Workstation (JTCW).<br>-Continue to participate in technical working groups in support of test and engineering.<br>-Continue to provide technical assistance to other programs supported by Marine Corps Tactical Systems Support Activity (MCTSSA) that involve the use of these systems as well as through the Operating forces Tactical Systems Support Center (OFTSSC) trouble calls<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** MAGTF C2: Management Services | 1.000 | 1.275 | 1.300 | 0.000 | 1.300 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>Continued to receive software engineering support to provide appropriate government direction in design and development of software, conduct of source code reviews and prime vendor oversight from Federally Funded Research and Development Center (FFRDC).<br>***FY 2017 Plans:***<br>Continue to receive software engineering support to provide appropriate government direction in design and development of software, conduct of source code reviews and prime vendor oversight from Federally Funded Research and Development Center (FFRDC).<br>***FY 2018 Base Plans:***<br>Continue to receive software engineering support to provide appropriate government direction in design and development of software, conduct of source code reviews and prime vendor oversight from Federally Funded Research and Development Center (FFRDC).<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** GCCS-TCO: Product Development | 0.044 | 0.000 | 0.000 | 0.000 | 0.000 |
| ***Articles:*** | - | - | - | - | - |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***FY 2016 Accomplishments:***<br>- Completed the development of services linking the COP from GCCS-TCO to other COP viewing tools as a service inside the Combat Operations Center. The GCCS-TCO software improved interoperability with the Tactical Service Oriented Architecture, allowing COP and Situational Awareness data to be shared between the GCCS-TCO and other C2 systems.<br>***FY 2017 Plans:***<br>N/A<br>***FY 2018 Base Plans:***<br>N/A<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** GCCS-TCO: Management Services<br>***Articles:***<br>***FY 2016 Accomplishments:***<br>-Completed Engineering Support personnel and travel<br>***FY 2017 Plans:***<br>N/A<br>***FY 2018 Base Plans:***<br>N/A<br>***FY 2018 OCO Plans:***<br>N/A | 0.106<br>- | 0.000<br>- | 0.000<br>- | 0.000<br>- | 0.000<br>- |
| ***Title:*** AFATDS: Software Development and Integration<br>***Articles:***<br>***FY 2016 Accomplishments:***<br>- Initiated development of AFATDS software V6.8.1.1 P2<br>***FY 2017 Plans:*** | 1.444<br>- | 4.901<br>- | 4.565<br>- | 0.000<br>- | 4.565<br>- |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| - Continue development of AFATDS software version 6.8.1.1 P2<br>***FY 2018 Base Plans:***<br>- Complete development of AFATDS software version 6.8.1.1 P2<br>- Initiate development of AFATDS software version 7.0<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** AFATDS: Test and Evaluation | 0.861 | 0.435 | 0.305 | 0.000 | 0.305 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>- Initiated interoperability testing for AFATDS and BUCS software between all required Joint C2 and Fires systems<br>- Initiated initial tests to support G/ATOR and PERM Initial Operational Test and Evaluation (IOT&E) of functionality within AFATDS software version 6.8.1.1. P2.<br>***FY 2017 Plans:***<br>- Continue tests to support G/ATOR and PERM Initial Operational Test and Evaluation (IOT&E) of functionality within AFATDS software version 6.8.1.1. P2.<br>- Continue interoperability testing for AFATDS and BUCS software between all required Joint C2 and Fires systems.<br>***FY 2018 Base Plans:***<br>- Complete tests to support G/ATOR and PERM Initial Operational Test and Evaluation (IOT&E) of functionality within AFATDS software version 6.8.1.1. P2.<br>- Continue interoperability testing for AFATDS and BUCS software between all required Joint C2 and Fires systems.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** AFATDS: Management Services | 0.160 | 0.650 | 1.011 | 0.000 | 1.011 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:*** | | | | | |

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|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| -Continued Engineering Support personnel and travel<br>***FY 2017 Plans:***<br>-Continue to provide Engineering Support personnel and travel<br>***FY 2018 Base Plans:***<br>-Continue to provide Engineering Support personnel and travel<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** THS: Product Development<br>***Articles:***<br>***FY 2016 Accomplishments:***<br>-Continued capability requirements analysis and validation and conducted analysis of future interoperability and capability requirements.<br>-Initiated development of emerging requirements and incorporated software patches to improve interoperability.<br>***FY 2017 Plans:***<br>-Complete development of the first software version to support fielding and replace THS V1, which will be obsolete and unsupportable after FY17.<br>-Initiate the development of the next iteration of THS software.<br>***FY 2018 Base Plans:***<br>-Continue development of THS V2 software.<br>***FY 2018 OCO Plans:***<br>N/A | 2.981<br>- | 2.273<br>- | 1.661<br>- | 0.000<br>- | 1.661<br>- |
| ***Title:*** JBC-P: Software and Product Development/Integration<br>***Articles:***<br>***Description:*** NOTE: Decrease of $1.528M from FY17 to FY18 is aligned to the schedule for test and evaluation and systems engineering. Starting in FY18, Handheld efforts were re-aligned to H2C2 program.<br>***FY 2016 Accomplishments:***<br>-Continued coordination with the software and product development teams to assist in the development and integration of the JBC-P software capability and associated testing. | 0.627<br>- | 2.756<br>- | 1.393<br>- | 0.000<br>- | 1.393<br>- |

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|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| -Continued software engineering support to provide appropriate government direction in design and development of software.<br>***FY 2017 Plans:***<br>-Continue coordination with the software and product development teams to assist in the development and integration of the JBC-P software capability and associated testing.<br>-Continue software engineering support to provide appropriate government direction in design and development of software.<br>***FY 2018 Base Plans:***<br>-Continue coordination with the software and product development teams to assist in the development and integration of the JBC-P software capability and associated testing.<br>-Continue software engineering support to provide appropriate government direction in design and development of software.<br>-Decrease of $1.363 from FY17 to FY18 due to movement of Handheld efforts from JBC-P to H2C2 in FY18.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** JBC-P: Test and Evaluation | 0.342 | 0.490 | 0.325 | 0.000 | 0.325 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>-Continued laboratories integration to facilitate test and network integration test events.<br>***FY 2017 Plans:***<br>-Continue laboratories integration to facilitate test and network integration test events.<br>***FY 2018 Base Plans:***<br>-Continue laboratories integration to facilitate test and network integration test events.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** IDS-MC: Product Development | 0.505 | 0.000 | 0.000 | 0.000 | 0.000 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| - Continued software development and hardware integration including information assurance and cyber-security certification and accreditation.<br>- Continued system engineering and network integration of emerging requirements.<br>***FY 2017 Plans:***<br>N/A<br>***FY 2018 Base Plans:***<br>N/A<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** IDS-MC: Support<br>***Articles:***<br>***FY 2016 Accomplishments:***<br>- Continued software development support and hardware integration including information assurance and cyber-security certification and accreditation.<br>- Continued system engineering and network integration support for emerging requirements.<br>***FY 2017 Plans:***<br>- Continue software development and hardware integration including information assurance and cyber security certification and accreditation.<br>- Continue system engineering and network integration of emerging requirements.<br>- Initiate capability requirements analysis and initiate development for IDS-MC increment 2.<br>***FY 2018 Base Plans:***<br>- Continue to develop, assess, and integrate emerging technologies for the IDS-MC Increment 2 integrated system design.<br>***FY 2018 OCO Plans:***<br>N/A | 0.300<br>- | 0.900<br>- | 0.883<br>- | 0.000<br>- | 0.883<br>- |
| ***Title:*** IDS-MC: Test and Evaluation<br>***Articles:***<br>***FY 2016 Accomplishments:*** | 0.000<br>- | 0.128<br>- | 0.000<br>- | 0.000<br>- | 0.000<br>- |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| N/A<br>***FY 2017 Plans:***<br>Initiate Engineering Change Proposal testing IDS-MC Increment 2 technology demonstrations and engineering testing which includes purchasing hardware COTS test articles for technology assessment for IDS-MC Increment 2.<br>***FY 2018 Base Plans:***<br>N/A<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** H2C2: Test and Evaluation<br>***Articles:***<br>***Description:*** NOTE: Increase of $1.723M from FY17 to FY18 is aligned to the schedule for test and evaluation and systems engineering.<br>***FY 2016 Accomplishments:***<br>N/A<br>***FY 2017 Plans:***<br>N/A<br>***FY 2018 Base Plans:***<br>-Initiate test and evaluation efforts for Handheld end user device.<br>***FY 2018 OCO Plans:***<br>N/A | 0.000<br>- | 0.000<br>- | 1.681<br>- | 0.000<br>- | 1.681<br>- |
| ***Title:*** H2C2: Integration Engineering<br>***Articles:***<br>***FY 2016 Accomplishments:***<br>-Continued to develop, design, test, and integrate various emerging capabilities across the H2C2 portfolio.<br>-Continued to provide support for sustained engagement with various industry providers, quick look technology excursions, and experimentation demonstrations for high risk emerging technology. | 3.261<br>- | 1.742<br>- | 1.784<br>- | 0.000<br>- | 1.784<br>- |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| -Continued support for development and planning of handheld device.<br>***FY 2017 Plans:***<br>-Continue to develop, design, test, and integrate various emerging capabilities across the H2C2 portfolio.<br>-Continue to provide support for sustained engagement with various industry providers, quick look technology excursions, and experimentation demonstrations for high risk emerging technology.<br>-Continue support for developmental test (DT) and for handheld device.<br>***FY 2018 Base Plans:***<br>-Continue to develop, design, test, and integrate various emerging capabilities across the H2C2 portfolio.<br>-Continue to provide support for sustained engagement with various industry providers, quick look technology excursions, and experimentation demonstrations for high risk emerging technology.<br>-Continue support for certification and accreditation efforts for handheld device.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 21.436 | 25.381 | 27.484 | 0.000 | 27.484 |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • PMC/6438BB: *IDS-MC* | 2.693 | 0.496 | 0.498 | - | 0.498 | 1.001 | 5.070 | 1.041 | 1.062 | Continuing | Continuing |
| • PMC/4631CC: *GCCS-TCO* | 0.000 | 6.005 | 3.264 | - | 3.264 | 0.789 | 1.827 | 9.501 | 0.098 | Continuing | Continuing |
| • PMC/4631DD: *AFATDS* | 2.695 | 2.826 | 15.520 | 0.177 | 15.697 | 15.244 | 15.562 | 15.865 | 16.182 | Continuing | Continuing |
| • PMC/4631FF: *JBC-P* | 12.426 | 34.558 | 29.740 | - | 29.740 | 8.421 | 8.593 | 8.760 | 8.935 | Continuing | Continuing |
| • PMC/4631GG: *THS* | 3.961 | 0.000 | 22.350 | - | 22.350 | 24.741 | 2.440 | 2.487 | 2.537 | Continuing | Continuing |

**Remarks**

**D. Acquisition Strategy**

MAGTF C2 SA: MAGTF C2 SA is delivering command and control capabilities through bi-annual software releases with an initial release in FY15 through multiple programs of record. In FY16, there were multiple releases to modernize the service oriented infrastructure and pull in more services from Authoritative Data Sources. In FY17 there will be multiple releases to pull in more services and deploy to additional platforms beyond the Combat Operations Center. Currently the initial focus is developing the Tactical Service Oriented Architecture (TSOA) software, which provides a common software infrastructure through which services and applications from other programs of record can begin the process of interfacing with in order to maximize software commonality across echelons and missions. The long term goal is

a software capability that will enable data discovery and data sharing across mission areas, a common standards-based viewer, core services and applications, and access to the Global Information Grid (GIG) and other Joint networks, data and services.

JBC-P: JBC-P FoS is leveraging the Army's development of the JBC-P. The Marine Corps program is contingent upon the Army's development and acquisition strategy. The Army will fund research and development for JBC-P unless there are Service unique requirements, which the Marine Corps program office will fund. The Marine Corps program office will participate in all design and readiness reviews and joint operational testing events.

GCCS-TCO: Contracting is performed with various vendors for software test and integration, Commercial-Off-The-Shelf (COTS) evaluation and documentation to develop advanced concepts and additional functional capabilities. The Program Management Office conducts quarterly performance reviews. Specific hardware is also procured for test purposes which include environmental, shock, compatibility, and interoperability testing.

Identity Dominance System (IDS): For IDS-MC Increment 1, the Program Office acquisition strategy leveraged the Navy's IDS Program and provide funding to enhance the Navy's system to meet Marine Corps requirements. The Marine Corps program office participated in all design and technical reviews as well as the FOT&E activities. For IDS-MC Increment 2, the Marine Corps Program Office is collaborating with the Army and Navy to leverage market research and technology demonstration data for system hardware and software selection in support of technical refresh. The Marine Corps plans to conduct technology assessments in FY17, conduct PDR and CDR in FY18, MS C in FY19, and Full Deployment Decision (with system procurement) in FY20. and The long-term goal is to equip the Marine with a user-friendly biometric authentication technology that will be employed throughout DoD to deny the enemy freedom of movement within the populace and positively identify known insurgents within an Area of Responsibility (AOR). R&D efforts will be a combined effort with the Navy PM and the USMC for IDS Increment 2, and led by the Marine Corps Program Office.

AFATDS: AFATDS is managed through Army CECOM, Aberdeen Proving Ground, MD. R&D efforts for the next AFATDS version will be a combined effort between the software developer, the Army PM, and the USMC for software enhancements through DISA. Current software enhancements are performed at Army, Ft. Sill, OK.

THS: The acquisition of components (software/hardware) for the THS initiative will maximize the use of existing COTS, Government-Off-The-Shelf (GOTS), Non-Developmental Item (NDI), and Government Furnished Equipment (GFE). Software is transitioning to a government owned baseline. Software must maintain compatibility with five Programs of Record (POR) and seven Operational Flight Programs (OFP).

H2C2: H2C2 will use an evolutionary approach for technology insertion. The approach will leverage and mature COTS and NDI technologies to rapidly transition a handheld data capability to other acquisition programs. H2C2 inserts mature technology into existing programs in order to fill capability gaps and requirement shortfalls. These technologies will be inserted at different times along gaining program acquisition cycles. This strategy will apply to available technology at different proposed technology insertion points for each gaining program.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy | | | Date: May 2017 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | R-1 Program Element (Number/Name)<br>PE 0206313M / *Marine Corps Comms Systems* | Project (Number/Name)<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* | |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAGTF C2 | C/CPFF | SPAWAR : Charleston, SC | 47.566 | 3.360 | Mar 2016 | 1.598 | Jan 2017 | 5.848 | Apr 2018 | - | | 5.848 | Continuing | Continuing | Continuing |
| MAGTF C2 | WR | NSWC : Panama City, FL | 0.736 | 0.250 | Jan 2016 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| MAGTF C2 | WR | NSWC : Dahlgren, VA | 9.538 | 1.500 | Sep 2016 | 1.800 | May 2017 | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| MAGTF C2. | C/CPFF | SPAWAR : San Diego, CA | 4.232 | 1.123 | Jul 2016 | 1.000 | May 2017 | 1.200 | Apr 2018 | - | | 1.200 | Continuing | Continuing | Continuing |
| MAGTF C2 | WR | SSC A : Charleston, SC | 5.343 | 1.250 | Feb 2016 | 1.800 | Jan 2017 | 2.000 | Feb 2018 | - | | 2.000 | Continuing | Continuing | Continuing |
| MAGTF C2 | WR | ARL : Washington, DC | 0.983 | 0.300 | Sep 2016 | 0.700 | May 2017 | 0.500 | Mar 2018 | - | | 0.500 | Continuing | Continuing | Continuing |
| MAGTF C2 | C/CPFF | NSWC2 : Dahlgren, VA | 0.260 | 0.000 | | 0.300 | Feb 2017 | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| GCCS-TCO | C/CPFF | MCSC : Quantico, VA | 5.691 | 0.044 | Jul 2016 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 5.735 | - |
| AFATDS | MIPR | PM Mission Cmd (Army) : Aberdeen Proving Ground, MD | 31.640 | 1.099 | Jan 2016 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 32.739 | - |
| AFATDS | MIPR | DISA : Belleville, IL | 0.000 | 0.000 | | 3.836 | Mar 2017 | 3.893 | Mar 2018 | - | | 3.893 | Continuing | Continuing | Continuing |
| AFATDS | MIPR | Army/SEC : Fort Sill, OK | 0.000 | 0.000 | | 1.500 | Mar 2017 | 1.318 | Mar 2018 | - | | 1.318 | Continuing | Continuing | Continuing |
| AFATDS | WR | NSWC, Indian Head : Indian Head, MD | 0.000 | 0.345 | Apr 2016 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.345 | - |
| THS | SS/CPFF | Stauder Tech : St. Louis, MO | 23.769 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| THS | MIPR | AMRDEC : Huntsville, AL | 2.432 | 2.981 | May 2016 | 2.273 | Mar 2017 | 1.661 | Mar 2018 | - | | 1.661 | Continuing | Continuing | Continuing |
| JBC-P | WR | SPAWAR : Charleston, SC | 2.990 | 0.221 | Dec 2015 | 0.299 | Jan 2017 | 0.287 | Dec 2017 | - | | 0.287 | Continuing | Continuing | Continuing |

| Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy | | | Date: May 2017 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | R-1 Program Element (Number/Name)<br>PE 0206313M / *Marine Corps Comms Systems* | Project (Number/Name)<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* | |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JBC-P | C/CPFF | SPAWAR2 : Charleston, SC | 0.386 | 0.195 | Dec 2015 | 0.241 | May 2017 | 0.211 | Dec 2017 | - | | 0.211 | Continuing | Continuing | Continuing |
| JBC-P | C/CPFF | NSWC2 : Crane, IN | 0.000 | 0.211 | Dec 2015 | 0.188 | Jun 2017 | 0.386 | Dec 2017 | - | | 0.386 | Continuing | Continuing | Continuing |
| JBC-P | WR | DPSS : China Lake, CA | 0.000 | 0.000 | | 0.565 | Feb 2017 | 0.509 | Feb 2018 | - | | 0.509 | Continuing | Continuing | Continuing |
| JBC-P | WR | DPSS2 : China Lake, CA | 0.000 | 0.000 | | 1.463 | Jul 2017 | 0.000 | | - | | 0.000 | 0.000 | 1.463 | - |
| IDS-MC | MIPR | NAVSEA/PMS-408 : Washington, DC | 1.971 | 0.505 | Jun 2016 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| Prior Years Cumulative Funding | Various | Various : Various | 67.411 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| | | **Subtotal** | 204.948 | 13.384 | | 17.563 | | 17.813 | | - | | 17.813 | - | - | - |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAGTF C2 | WR | SPAWAR : San Diego, CA | 3.926 | 1.022 | Feb 2016 | 1.208 | Jan 2017 | 1.369 | Feb 2018 | - | | 1.369 | Continuing | Continuing | Continuing |
| H2C2 Integration Eng | WR | SPAWAR : Charleston, SC | 1.192 | 1.381 | Dec 2015 | 0.937 | Dec 2016 | 0.200 | Dec 2017 | - | | 0.200 | Continuing | Continuing | Continuing |
| H2C2 Integration Eng | C/FFP | SPAWAR : Charleston, SC | 0.181 | 0.188 | Jul 2016 | 0.295 | Dec 2016 | 0.255 | Dec 2017 | - | | 0.255 | Continuing | Continuing | Continuing |
| H2C2 Integration Eng | WR | NSWC Crane : Crane, IN | 0.000 | 0.626 | Dec 2015 | 0.510 | Nov 2016 | 0.295 | Nov 2017 | - | | 0.295 | Continuing | Continuing | Continuing |
| H2C2 Integration Eng | C/FFP | CECOM/MITRE : Monmouth, NJ | 0.000 | 0.291 | Apr 2016 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.291 | - |
| H2C2 Integration Eng | WR | NSWC China Lake : China Lake, CA | 0.000 | 0.615 | Mar 2016 | 0.000 | | 0.819 | Dec 2017 | - | | 0.819 | Continuing | Continuing | Continuing |
| H2C2 Integration Eng | C/CPFF | NSWC Crane2 : Crane, IN | 0.000 | 0.060 | Sep 2016 | 0.000 | | 0.115 | Jun 2018 | - | | 0.115 | Continuing | Continuing | Continuing |

| Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy | | | Date: May 2017 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | R-1 Program Element (Number/Name)<br>PE 0206313M / *Marine Corps Comms Systems* | Project (Number/Name)<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* | |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| H2C2 Integration Eng | Various | MCSC : Stafford, VA | 0.000 | 0.100 | Nov 2015 | 0.000 | | 0.100 | Nov 2017 | - | | 0.100 | Continuing | Continuing | Continuing |
| IDS-MC | WR | NSWC Dahlgren : Dahlgren, VA | 2.721 | 0.300 | Jan 2016 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 3.021 | - |
| IDS-MC | WR | SPAWAR : Charleston, SC | 0.036 | 0.000 | | 0.900 | Nov 2016 | 0.883 | Nov 2017 | - | | 0.883 | Continuing | Continuing | Continuing |
| Prior Years Cumulative Funding | Various | Various : Various | 6.763 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 6.763 | - |
| | | **Subtotal** | 14.819 | 4.583 | | 3.850 | | 4.036 | | - | | 4.036 | - | - | - |

**Remarks**

IDS FY17-FY18: IDS-MC will utilize SPAWAR Atlantic to provide Lab support for technology assessment for IDS-MC increment 2 or technology refresh.

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAGTF C2 | WR | NRL : Washington, DC | 2.083 | 0.250 | Apr 2016 | 0.825 | May 2017 | 0.859 | Feb 2018 | - | | 0.859 | Continuing | Continuing | Continuing |
| MAGTF C2 | C/ FFPLOE | MCTSSA. : Camp Pendleton, CA | 2.141 | 0.750 | Feb 2016 | 0.600 | Apr 2017 | 0.800 | Jan 2018 | - | | 0.800 | Continuing | Continuing | Continuing |
| THS | MIPR | DISA/JITC : Ft. Huachuca, AZ | 0.689 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| JBC-P | C/CPFF | MCTSAA : Camp Pendleton, CA | 0.979 | 0.219 | Mar 2016 | 0.287 | Dec 2016 | 0.235 | Mar 2018 | - | | 0.235 | Continuing | Continuing | Continuing |
| JBC-P | WR | SPAWAR : Charleston, SC | 1.654 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| JBC-P | MIPR | DISA/JITC : Ft Huachuca, AZ | 0.130 | 0.123 | Feb 2016 | 0.000 | | 0.090 | Feb 2018 | - | | 0.090 | Continuing | Continuing | Continuing |
| JBC-P | WR | NSWC Corona4 : Norco, CA | 0.000 | 0.000 | | 0.074 | Feb 2017 | 0.000 | | - | | 0.000 | 0.000 | 0.074 | - |
| JBC-P | C/FFP | NSWC Corona 5 : Norco, CA | 0.000 | 0.000 | | 0.129 | Jun 2017 | 0.000 | | - | | 0.000 | 0.000 | 0.129 | - |

| Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy | | | Date: May 2017 |
|---|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* | |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IDS-MC | WR | NSWC : Crane, IN | 0.000 | 0.000 | | 0.128 | Nov 2016 | 0.000 | | - | | 0.000 | 0.000 | 0.128 | - |
| AFATDS | MIPR | PM Mission Cmd (Army) : Aberdeen Proving Ground, MD | 0.000 | 0.861 | Jan 2016 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.861 | - |
| H2C2 | WR | SPAWAR1 : Charleston, SC | 0.000 | 0.000 | | 0.000 | | 0.335 | Dec 2017 | - | | 0.335 | 0.000 | 0.335 | - |
| H2C2 | WR | NSWC Corona : Norco, CA | 0.000 | 0.000 | | 0.000 | | 0.865 | Dec 2017 | - | | 0.865 | 0.000 | 0.865 | - |
| H2C2 | C/FFP | SPAWAR2 : Charleston, SC | 0.000 | 0.000 | | 0.000 | | 0.200 | Dec 2017 | - | | 0.200 | 0.000 | 0.200 | - |
| H2C2 | C/FFP | NSWC Corona : Norco, CA | 0.000 | 0.000 | | 0.000 | | 0.200 | Dec 2017 | - | | 0.200 | 0.000 | 0.200 | - |
| H2C2 | WR | NSWC China Lake : China Lake, CA | 0.000 | 0.000 | | 0.000 | | 0.081 | Dec 2017 | - | | 0.081 | 0.000 | 0.081 | - |
| Prior Years Cumulative Funding | Various | VARIOUS : VARIOUS | 12.484 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 12.484 | - |
| | | **Subtotal** | 20.160 | 2.203 | | 2.043 | | 3.665 | | - | | 3.665 | - | - | - |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MAGTF C2 | C/CPFF | CECOM/MITRE : Ft. Monmouth, NJ | 5.252 | 1.000 | Jan 2016 | 1.275 | May 2017 | 1.300 | Dec 2017 | - | | 1.300 | Continuing | Continuing | Continuing |
| AFATDS | C/CPFF | CECOM/MITRE : Ft. Monmouth, NJ | 0.000 | 0.160 | Jan 2016 | 0.650 | Jan 2017 | 0.670 | Jan 2018 | - | | 0.670 | 0.000 | 1.480 | - |
| GCCS TCO | C/CPFF | CECOM/MITRE : Ft. Monmouth, NJ | 0.000 | 0.106 | Jan 2017 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.106 | - |
| Prior Years Cumulative Funding | Various | Various : Various | 3.185 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 3.185 | - |
| | | **Subtotal** | 8.437 | 1.266 | | 1.925 | | 1.970 | | - | | 1.970 | - | - | - |

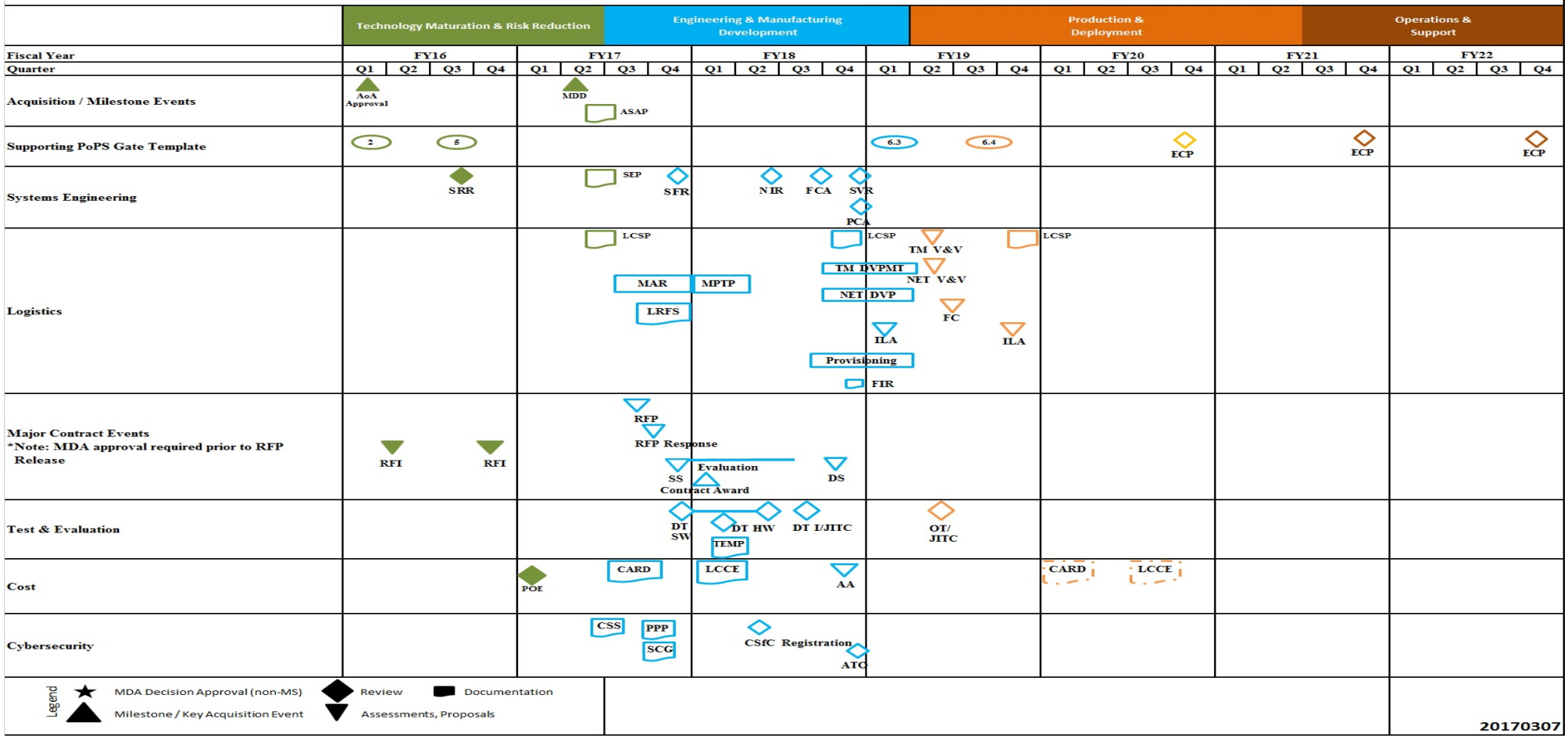
| Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy | | | Date: May 2017 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | R-1 Program Element (Number/Name)<br>PE 0206313M / *Marine Corps Comms Systems* | Project (Number/Name)<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* | |

| | 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** | 248.364 | 21.436 | | 25.381 | | 27.484 | | - | | 27.484 | - | - | - |

**Remarks**

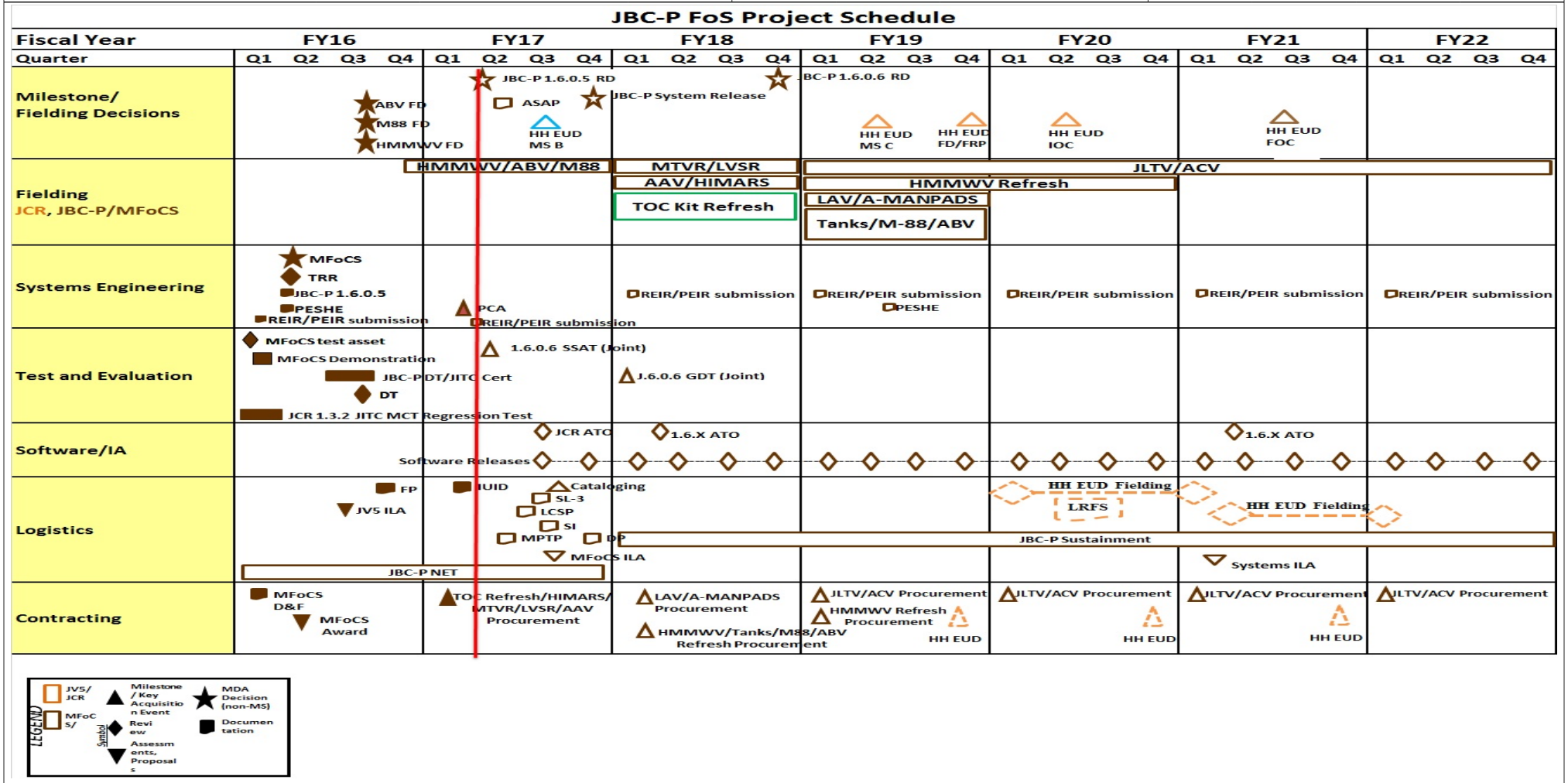
| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* |

# Handheld Command and Control (H2C2) Program Schedule



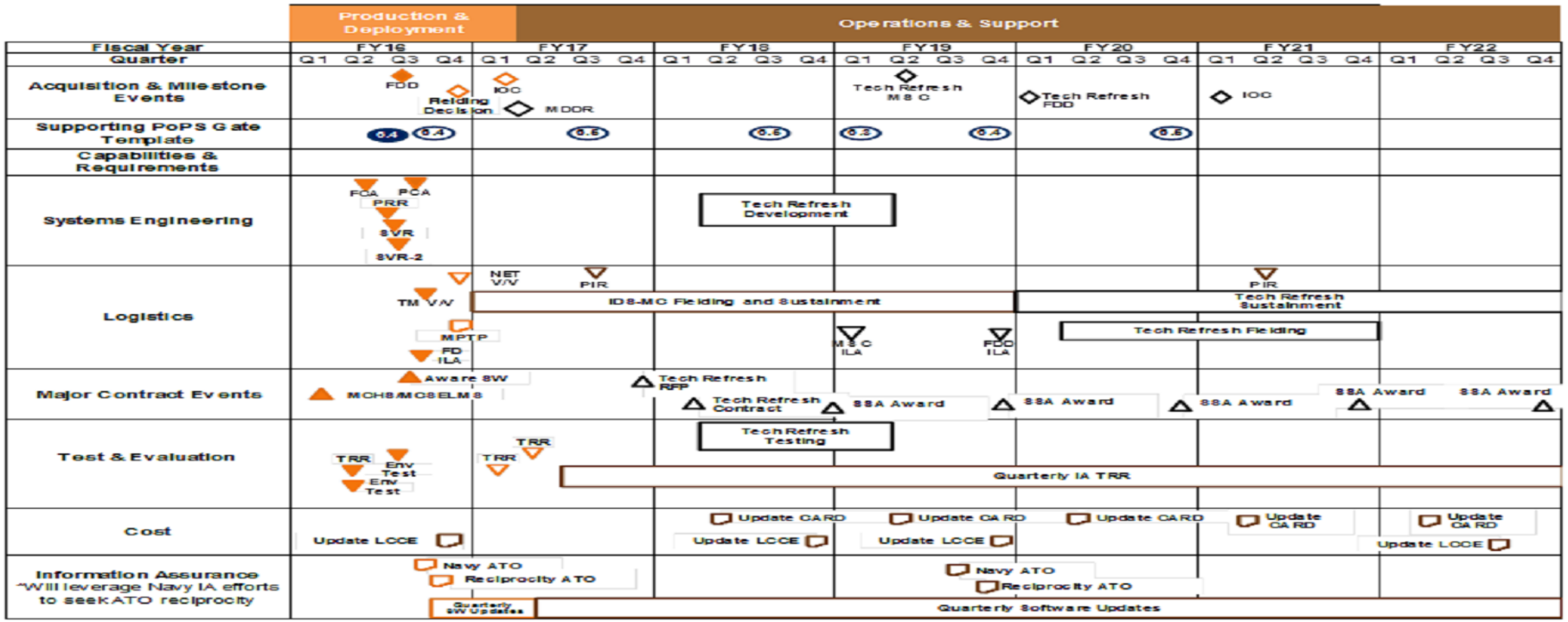
| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* |

## JBC-P FoS Project Schedule



| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* |

# Identity Dominance System (IDS) Program Schedule

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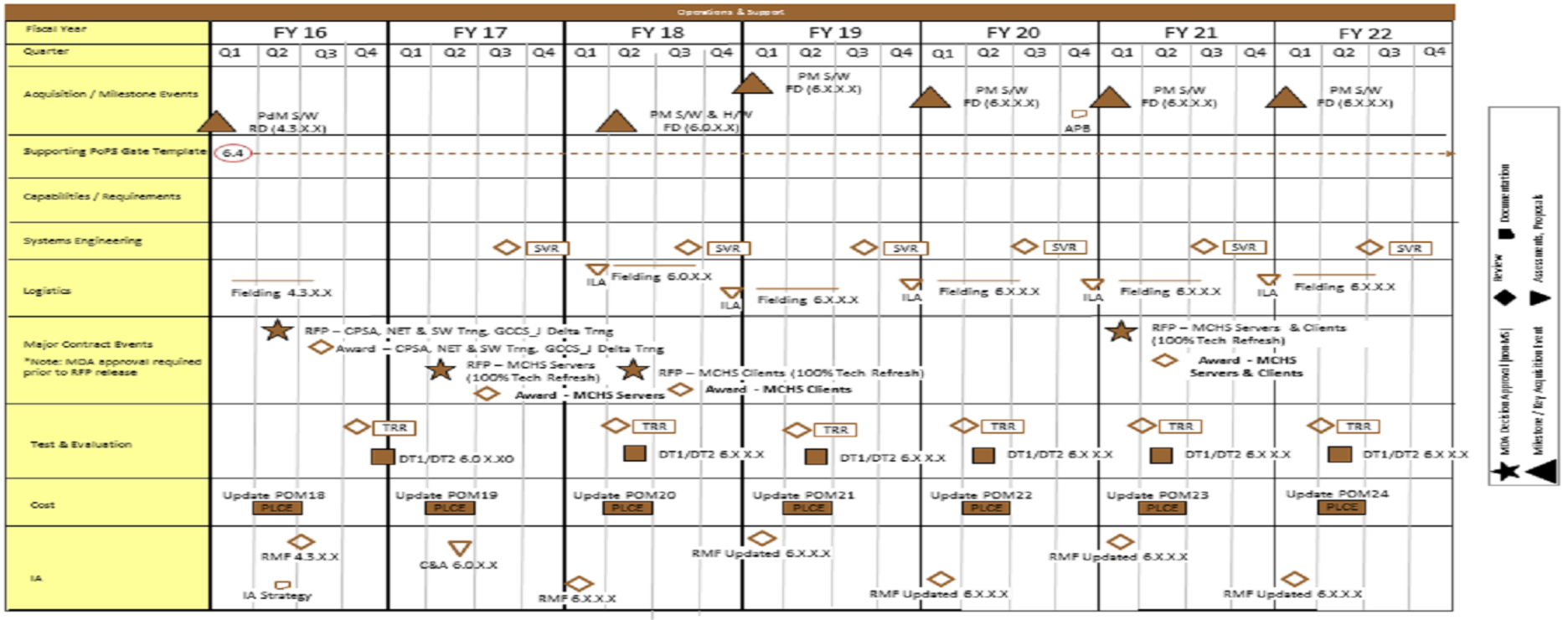
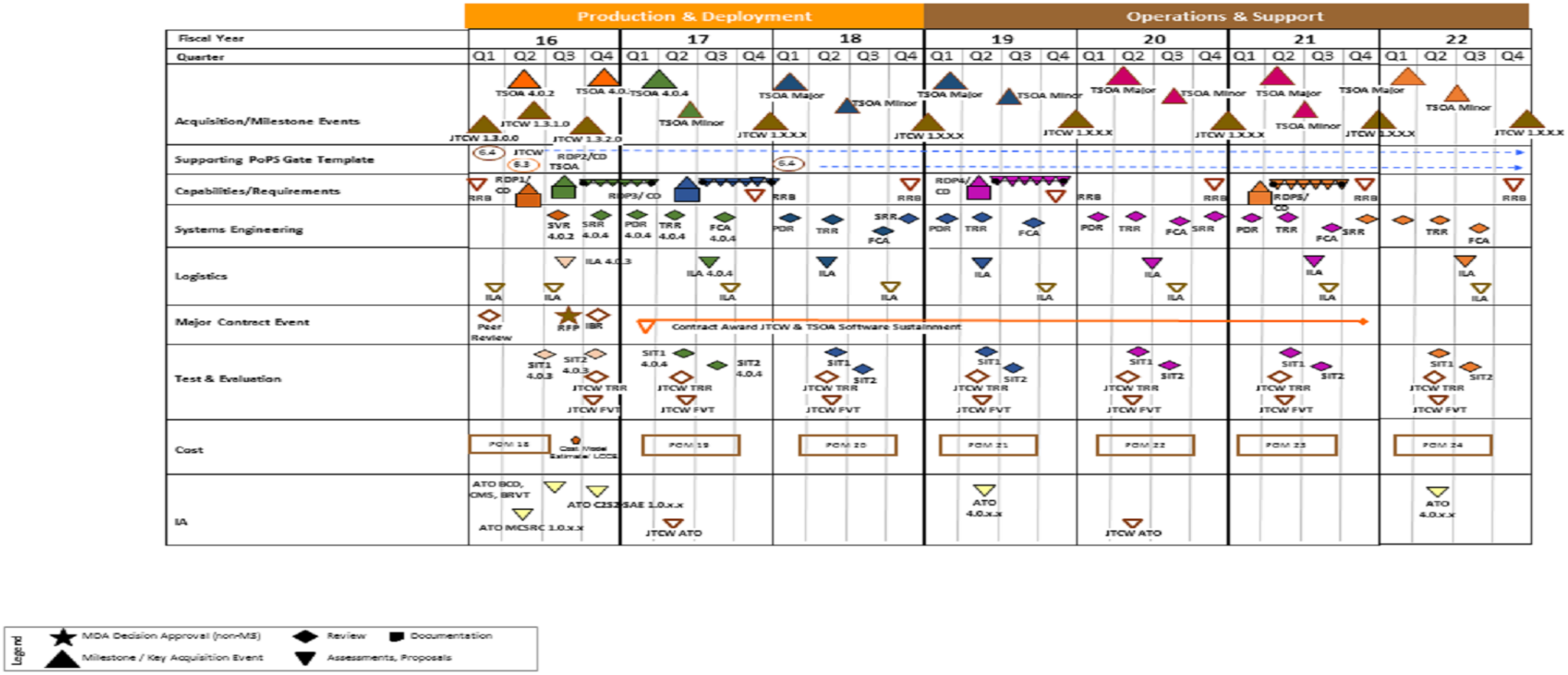
| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* |

## GCCS-TCO SCHEDULE

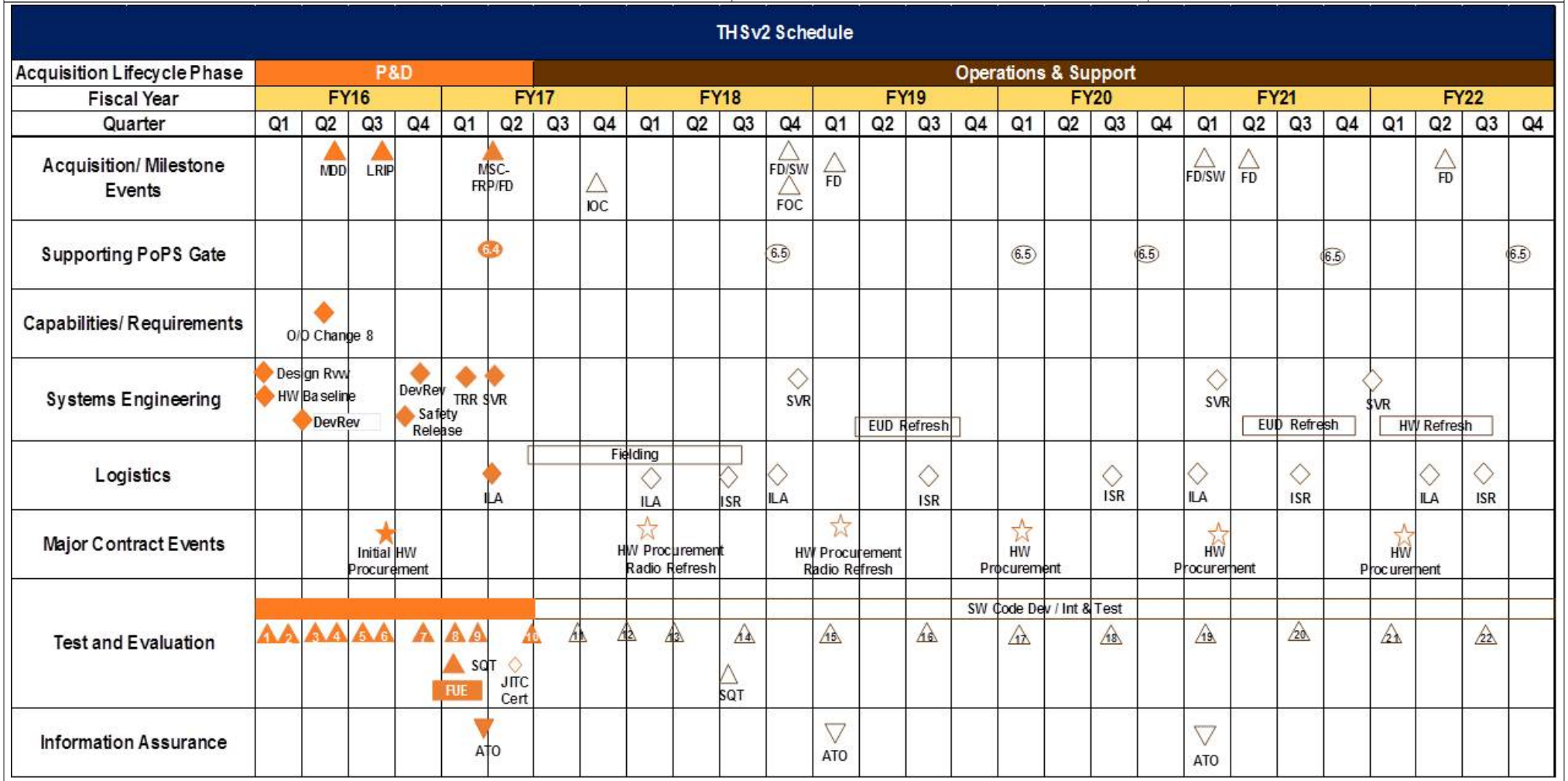


| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* |

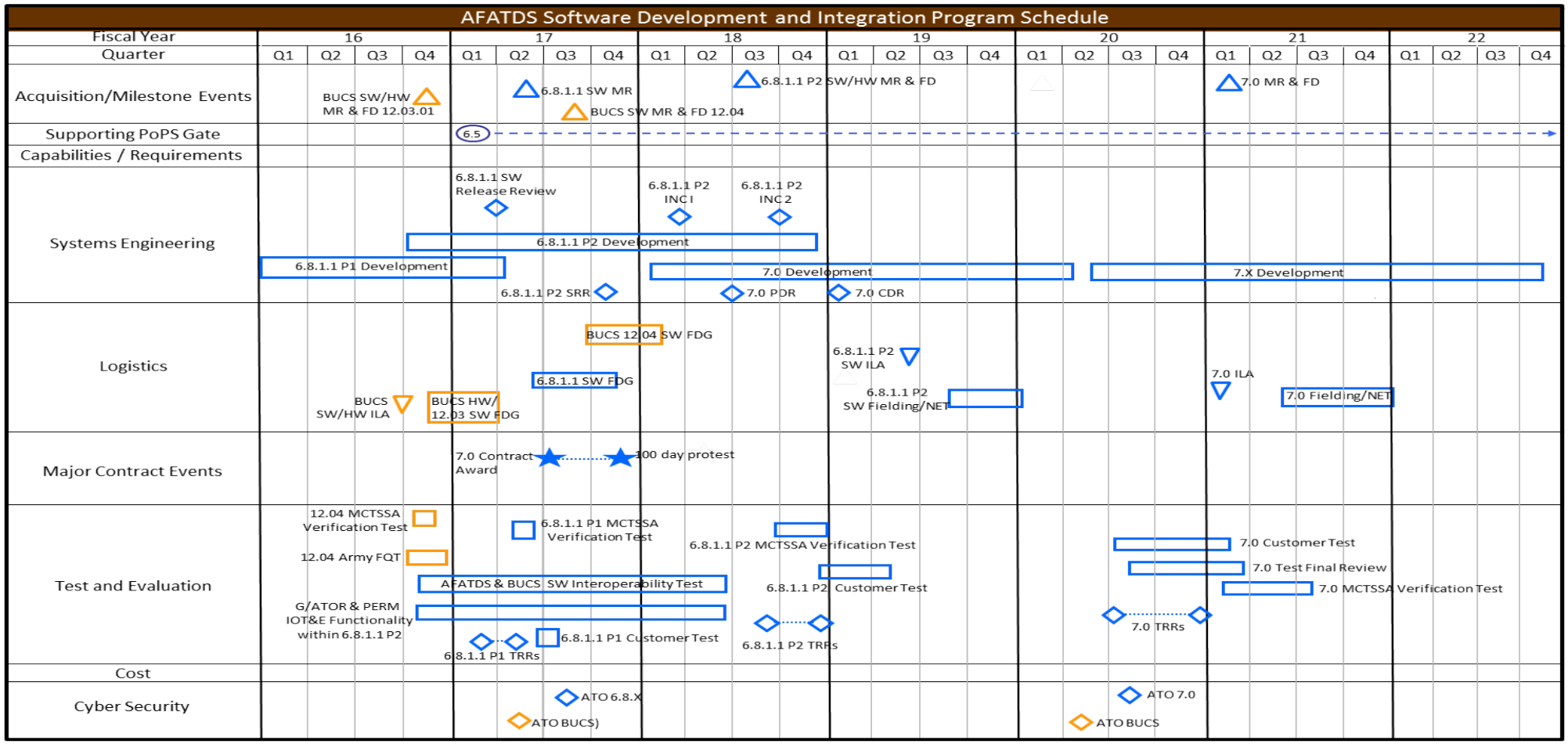
## MAGTF C2 Schedule



| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* |



| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* |



| Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2270 / *Exp Indirect Fire Gen Supt Wpn Sys* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***Proj 2270*** | | | | |
| MAGTF C2 Contract Award Software Sustainment | 1 | 2017 | 1 | 2017 |
| MAGTF C2 SIT 1 | 2 | 2018 | 2 | 2018 |
| MAGTF C2 SIT 2 | 3 | 2018 | 3 | 2018 |
| GCCS-TCO RFP | 2 | 2017 | 2 | 2017 |
| GCCS TCO MCHS Servers Award | 3 | 2017 | 3 | 2017 |
| GCCS-TCO PM S/W & H/W FD (6.0.X.X) | 2 | 2018 | 2 | 2018 |
| GCCS TCO MCHS Clients Award | 3 | 2018 | 3 | 2018 |
| AFATDS 7.0 Software Development | 1 | 2018 | 2 | 2020 |
| AFATDS 7.0 Testing | 3 | 2020 | 3 | 2021 |
| THS - THS V2 Milestone C | 2 | 2017 | 2 | 2017 |
| JBC-P FoS Platform Fielding - MTVR, LVSR | 1 | 2018 | 4 | 2018 |
| JBC-P FoS Platform Fielding - AAV, HIMARS | 1 | 2018 | 4 | 2018 |
| JBC-P HH EUD MS C | 2 | 2019 | 2 | 2019 |
| JBC-P HH EUD IOC | 2 | 2020 | 2 | 2020 |
| H2C2 DT HW | 1 | 2018 | 1 | 2018 |
| H2C2 OT | 2 | 2019 | 2 | 2019 |
| IDS-MC Increment 1 FDD | 3 | 2016 | 3 | 2016 |
| IDS-MC Increment 1 Fielding Decision | 4 | 2016 | 4 | 2016 |
| IDS-MC Initial Operational Capability (IOC) | 1 | 2017 | 1 | 2017 |
| IDS-MC Tech Refresh Development | 2 | 2018 | 2 | 2019 |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | | Date: May 2017 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | R-1 Program Element (Number/Name)<br>PE 0206313M / *Marine Corps Comms Systems* | Project (Number/Name)<br>2273 / *Air Ops Cmd & Control (C2) 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2273: *Air Ops Cmd & Control (C2) Sys* | 413.245 | 10.969 | 13.219 | 14.630 | - | 14.630 | 11.423 | 10.965 | 11.240 | 11.463 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

**Note**

Funding for the Common Aviation Command and Control System (CAC2S) program was moved to PE 0206335M Common Aviation Command and Control System (CAC2S), Project 3373 beginning in FY15. Prior Year funding is located in PE 0206313M Marine Corps Comms Systems, Project 2273 Air Ops Cmd & Control (C2) Systems.

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

Combat Operations Center (COC) - AN/TSQ-239 (V)1-4 are a deployable, self-contained, modular, centralized and scalable facility ((V)1 MEF-size, (V)2 MSC/Div-size, (V)3 Regiment-size, (V)4 Battalion-size) which provides digital, shared Command and Control/Situational Awareness functionalities to enhance the Common Operational Picture (COP) for the Command Element, Ground Command Element, Air Combat Element, and Logistics Combat Element. It is a commercial-off-the-shelf integrated hardware solution using unit provided radios, re-hosted tactical data systems, and available Marine Corps prime movers to transport the system. Funds support testing and Information Assurance (IA) certification activities, integration of emerging technology, and On The Move (OTM) capabilities. The increase of $0.807M from FY17 to FY18 will fund market research for hardware refresh beginning in FY18.

Composite Tracking Network (CTN) - Provides a ground based sensor netting solution that significantly improves situational awareness by correlating sensor measurement data (target position, speed, heading, Identification Friend and Foe (IFF), etc.) from local and remote radars in the Cooperative Engagement Capability (CEC) network. This data is then provided to the warfighter in the form of composite, real-time, air surveillance tracks to the Marine Air Command and Control node and is integral in providing an accurate representation of the airspace to reduce ground to air and air to air fratricide, facilitate more effective integration of air and surface fires, extend the air defensive capability of the Naval force in the littorals and enable integrated fire control (IFC) for the Marine Corps. The decrease of $3.697M from FY17 to FY18 is due to fully funding Common Array Block - Expeditionary (CAB-E) antenna integration into the CTN system in FY17.

Remote Video Viewing Terminal (RVVT) - Consists of Commercial Off-The-Shelf (COTS) Video Down-Link (VDL) products such as the VideoScout Mobile Configuration 2 (VS-MC/2), VideoScout Mobile Configuration 3 (VS-MC/3), Man Portable Video Down-Link (MPVDL) that allow for the viewing and exploitation of Full Motion Video (FMV) from Intelligence, Surveillance and Reconnaissance (ISR) assets. VDL systems are mission critical for coordination of direct and indirect fires and the prevention of fratricide. These systems provide the warfighter with video and metadata from all USMC manned and unmanned aircraft to include but not limited to Raven B, Puma, Micro-UAS, Shadow, Predator, Fire Scout, and Litening Pod on P-3, AV8-B, and F/A-18. Data is displayed to Forward Observers (FO), Joint Fires Observers (JFO), Joint Terminal Attack Coordinators (JTAC), and Forward Air Controller (FAC).

Theater Battle Management Core System (TBMCS) - Joint mandated Air War planning tool for the generation, dissemination and execution of the Air Tasking Order (ATO). TBMCS is an Air Force led program, which provides the automated tools necessary to manage tactical air operations, execute area air defense and airspace

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2273 / *Air Ops Cmd & Control (C2) Sys* |

management in the tactical area of operation, and coordinate operations with components of other military services. TBMCS is located at the Tactical Air Command Center (TACC), with remotes located throughout the area of operation. It is scalable, allowing for joint, coalition and service specific operations. It is an evolutionary acquisition program. The increase of $3.306M from FY17 to FY18 is due to the initiation of funding in support of Air Force led Command and Control Air Operation System - Command and Control Information Services (C2AOS-C2IS) requirements. USMC is funding participation in the Air Force's test events to ensure USMC requirements are being implemented as C2AOS-C2IS will be the replacement for Air Force TBMCS. C2AOS-C2IS - is an ACAT III, post Milestone B, Air Force led program. C2AOS-C2IS will bring increased capability to the Operating Forces with a modern services based infrastructure and modern applications. C2AOS-C2IS provides additional tools to conduct: Situational Awareness and Assessment; Airspace De-confliction; Execution Management and Re-planning; Close Air Support; Targeting/Weaponeering; and Time Critical Targeting. Software development and sustainment keeps Marine Aviation relevant and operational in a joint theater. USMC risk reduction efforts include conducting Critical Analysis/Map Abstraction Layer implementation and assessment and Risk Reduction Testing.

The Marine Air Command and Control System (MACCS) Sustainment - Consists of various command and control agencies designed to provide the Aviation Combat Element (ACE) commander with the ability to monitor, supervise and influence the application of Marine aviation assets in support of Air/Ground operations. The MACCS Sustainment provides funding to keep these fielded systems ready, relevant and capable until their functions are replaced by the Common Aviation Command and Control System (CAC2S). MACCS RDT&E funding is not required after FY15 and is no longer included in Project Element 0206313M beginning in FY16.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***Title:*** COC: Continued Capability Solution | 0.584 | 1.920 | 4.446 | 0.000 | 4.446 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>-Initiated market research, test and software integration efforts needed to align with other C2 systems.<br>***FY 2017 Plans:***<br>-Continue testing and software integration efforts needed to align with other C2 systems.<br>-Initiate market research in anticipation of hardware refresh beginning in FY18.<br>***FY 2018 Base Plans:***<br>-Continue testing and software integration efforts needed to align with other C2 systems.<br>-Complete market research for hardware refresh.<br>-Increase of $2.526 from FY17 to FY18 for testing and software integration efforts to address end-of-life obsolescence issues and alignment with other C2 systems.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** COC: Management Services | 0.853 | 2.636 | 0.917 | 0.000 | 0.917 |
| ***Articles:*** | - | - | - | - | - |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2273 / *Air Ops Cmd & Control (C2) Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***FY 2016 Accomplishments:***<br>-Initiated engineering support for system optimization and system enhancements<br>***FY 2017 Plans:***<br>-Continue engineering support for system optimization and system enhancements.<br>***FY 2018 Base Plans:***<br>-Continue engineering support for system optimization and system enhancements.<br>-Decrease of $1.719 from FY17 to FY18 due to reduced FFRDC engineering support.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** Composite Tracking Network (CTN): Support and Management Services | 0.458 | 0.746 | 0.262 | 0.000 | 0.262 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>- Continued Software Maintenance Support and Certification.<br>- Continued Data Collection and Analysis.<br>- Continued systems engineering and updates to the software baseline.<br>- Continued travel, engineering support, and test support.<br>***FY 2017 Plans:***<br>- Continue Software Maintenance Support and Certification.<br>- Continue Data Collection and Analysis.<br>- Continue systems engineering and updates to the software baseline.<br>- Continue travel, engineering support, and test support.<br>- Initiate Common Array Block - Expeditionary (CAB-E) support efforts to replace current Compact Solid State Antenna (CSSA) which will be obsolete and unreliable by FY18.<br>***FY 2018 Base Plans:***<br>- Continue systems engineering efforts and updates to the software baseline.<br>- Continue travel, engineering support, and test support.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** Composite Tracking Network (CTN): Engineering Development | 4.830 | 1.667 | 1.117 | 0.000 | 1.117 |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2273 / *Air Ops Cmd & Control (C2) Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>- Continued CAB-E testing/verification/updates.<br>- Continued to support updates for Accelerated Mid-Term Interoperability Improvement Program (AMIIP).<br>***FY 2017 Plans:***<br>- Continue CAB-E testing/verification/updates.<br>- Continue to support updates for AMIIP.<br>- Complete software certification to maintain interoperability with Cooperative Engagement Capability (CEC) Network to include associated engineering support.<br>- Continue Independent Verification and Validation support as well as Information Assurance (IA) tactical side hardening regression testing.<br>***FY 2018 Base Plans:***<br>- Continue software certification to maintain interoperability with Cooperative Engagement Capability (CEC) Network to include associated engineering support.<br>- Continue Independent Verification and Validation support as well as Information Assurance (IA) tactical side hardening regression testing.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** RVVT: Preparation | 1.334 | 0.163 | 1.158 | 0.000 | 1.158 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>- Continued Analysis of Alternatives (AOA) for family of RVVT systems.<br>***FY 2017 Plans:***<br>- Complete analysis for MC/2 and MC/3 replacement.<br>***FY 2018 Base Plans:***<br>- Continue the development and integration of software to ensure full motion video compatibility across the spectrum of weapons and targeting platforms that receive and transmit the data. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2273 / *Air Ops Cmd & Control (C2) Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| Funding increase of $.995M from FY17 to FY18 supports the integration of encrypted video into handheld targeting and target handoff system.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** Composite Tracking Network (CTN): Developmental Testing and Cyber Security | 0.150 | 3.427 | 0.764 | 0.000 | 0.764 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>- Continued Common Array Block-Expeditionary (CAB-E) antenna testing/verification/updates and developmental activities.<br>- Continued integration and interoperability developmental testing with CAC2S, G/ATOR, and the TPS-59 Mode V.<br>- Continued Information Assurance (IA) developmental activities. | | | | | |
| ***FY 2017 Plans:***<br>- Continue Common Array Block-Expeditionary (CAB-E) antenna testing/verification/updates and developmental activities.<br>- Continue integration and interoperability developmental testing with CAC2S, G/ATOR, and the TPS-59 Mode V.<br>- Continue Information Assurance (IA) developmental activities.<br>-Initiate efforts to integrate the Common Array Block-Expeditionary (CAB-E) Antenna into the Composite Tracking Network (CTN) system. Efforts include: SDP-S firmware and software updates, performance verification and test of AN/USB-4G system level requirements as well as systems engineering support for the retrofit of a CTN production representative model with a CAB-E Antenna.<br>- Initiate developmental test #1 efforts in support of Common Array Block-Expeditionary (CAB-E) to include associated engineering support. | | | | | |
| ***FY 2018 Base Plans:***<br>- Continue integration and interoperability developmental testing with CAC2S, G/ATOR, and the TPS-59 Mode V.<br>- Continue Information Assurance (IA) developmental activities.<br>- Initiate CAB-E Formal Qualification Test (FQT) efforts and Field User Evaluation (FUE) test events.<br>- Initiate CTN Independent Verification and Validation (IV&V) testing to include associated engineering support. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2273 / *Air Ops Cmd & Control (C2) Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| - Initiate developmental test #2 efforts in support of Common Array Block-Expeditionary (CAB-E) to include associated engineering support.<br><br>Funding decrease of $2.663M from FY17 to FY18 due to fully funding CAB-E integration into the CTN system in FY17.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** C2AOS-C2IS Product Development<br>***Articles:***<br>***FY 2016 Accomplishments:***<br>N/A<br>***FY 2017 Plans:***<br>N/A<br>***FY 2018 Base Plans:***<br>- Initiate efforts to implement and assess tactical map software to interface with C2AOS-C2IS.<br>***FY 2018 OCO Plans:***<br>N/A | 0.000<br>- | 0.000<br>- | 0.445<br>- | 0.000<br>- | 0.445<br>- |
| ***Title:*** C2AOS-C2IS Support<br>***Articles:***<br>***FY 2016 Accomplishments:***<br>N/A<br>***FY 2017 Plans:***<br>N/A<br>***FY 2018 Base Plans:***<br>- Initiate critical analysis efforts with C2AOS-C2IS applications in support of risk reduction testing.<br>***FY 2018 OCO Plans:***<br>N/A | 0.000<br>- | 0.000<br>- | 0.324<br>- | 0.000<br>- | 0.324<br>- |
| ***Title:*** C2AOS-C2IS Test and Evaluation | 0.000 | 0.000 | 1.674 | 0.000 | 1.674 |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2273 / *Air Ops Cmd & Control (C2) Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>N/A<br>***FY 2017 Plans:***<br>N/A<br>***FY 2018 Base Plans:***<br>- Initiate information assurance testing on developmental software to determine the cyber security posture and conduct risk reduction testing to identify potential vulnerabilities.<br>- Initiate USMC support of Air Force C2AOS-C2IS Joint Partner testing.<br>- Initiate Regression Testing of tactical map software interface.<br>- Initiate test support efforts to Air Force led Integrated Developmental Test, Integrated Developmental Test Regression Test and Operational Tests.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** C2AOS-C2IS Management Services | 0.000 | 0.000 | 0.546 | 0.000 | 0.546 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>N/A<br>***FY 2017 Plans:***<br>N/A<br>***FY 2018 Base Plans:***<br>- Initiate management support efforts to participate in the development of C2AOS-C2IS and Air Force led test events to ensure USMC requirements are addressed.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** TBMCS - Software Development Support | 2.760 | 2.660 | 2.977 | 0.000 | 2.977 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2273 / *Air Ops Cmd & Control (C2) Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| -Continued test and evaluation support for TBMCS upgrades for Joint Interoperability.<br>***FY 2017 Plans:***<br>-Continue test and evaluation support for TBMCS upgrades for Joint Interoperability.<br>-Initiate development test and evaluation support of USMC developed software releases which support the software baseline for Cyber Security upgrades as well as Cyber Security Accreditation.<br>-Initiate software integration analysis in preparation for TBMCS to C2AOS-C2IS transition.<br>***FY 2018 Base Plans:***<br>-Continue test and evaluation support for TBMCS upgrades for Joint Interoperability.<br>-Continue development test and evaluation support of USMC developed software releases which support the software baseline for Cyber Security upgrades as well as Cyber Security Accreditation.<br><br>Increase of $0.317M in FY18 is to support cyber security updates required for transition to Risk Management Framework (RMF).<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 10.969 | 13.219 | 14.630 | 0.000 | 14.630 |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • PMC/4640CT: *CTN* | 0.810 | 1.515 | 5.360 | - | 5.360 | 5.561 | 3.527 | 0.000 | 0.000 | 0.000 | 67.784 |
| • PMC/4640CU: *MACCS* | 1.922 | 2.855 | 2.662 | - | 2.662 | 0.050 | 0.051 | 0.052 | 0.053 | 0.000 | 99.176 |
| • PMC/4640DX: *TBMCS* | 0.580 | 1.299 | 1.902 | - | 1.902 | 1.477 | 1.478 | 1.485 | 1.520 | Continuing | Continuing |
| • PMC/419000: *COC* | 10.384 | 0.000 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 213.732 |
| • PMC/464023: *RVVT* | 0.231 | 10.248 | 8.469 | - | 8.469 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| • PMC/463100: *COC* | 0.000 | 9.827 | 10.188 | - | 10.188 | 10.824 | 11.303 | 11.827 | 12.060 | Continuing | Continuing |

**Remarks**

PMC funding for Common Aviation Command and Control (CAC2S) program was moved to PE 0206335M, BLI 4644 CAC2S beginning FY 2015. Prior year funding is located in PE 0206313M, BLI 4640 Air Operations C2 Systems.
PMC funding for Combat Operations Center (COC) program was moved from BLI 4190 to 4631 starting in FY17.

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2273 / *Air Ops Cmd & Control (C2) Sys* |

**D. Acquisition Strategy**

TBMCS - is an ACAT III, Air Force led program with joint interest/oversight. USMC will continue following the Air Force lead when fielding only the joint modules of TBMCS. As USMC unique requirements are identified the USMC will deviate accordingly to sufficiently sustain systems. Over the course of the FYDP, TBMCS is to separately manage the development and fielding of software and hardware engineering change proposals for Information Assurance (IA) and functionality updates to ensure daily direct support of the Air Battle Plan in joint theaters of operation. The Air Force is in the process of transitioning TBMCS to C2AOS-C2IS. C2AOS-C2IS is an ACAT III, Air Force led joint interest program and identified as a viable replacement of TBMCS. C2AOS-C2IS is currently in development by the Air Force with an anticipated Full Deployment Decision (FDD) 4th quarter FY 2018. The USMC C2AOS-C2IS strategy is to support and participate in the Air Force led FY 2018 joint test events, implementation of a tactical map interface, and conduct risk reduction testing in order to ensure the USMC remains aligned with the Air Force mandated testing and fielding schedules.

CTN - The USMC's CTN acquisition strategy is to participate in the USN's Cooperative Engagement Capability (CEC) program procurement and testing, making necessary modifications to support the Marine Corps' requirement. The next major efforts are the development and procurement of the Common Array Block-Expeditionary (CAB-E) Antenna to replace the Composite Solid State Antenna (CSSA), which will become obsolete in FY 2018, and completion of interfaces with Ground/Air Task Oriented Radar (G/ATOR) and CAC2S.

RVVT - The RVVT acquisition strategy is to continually improve the Video Down-Link (VDL) products by enhancing the encryption, range, and reducing the power and weight requirements through competition. Efforts to integrate Full Motion Video (FMV) to support Joint Fires Observers (JFOs) and Joint Terminal Attack Controllers (JTACs) began in FY 2017.

COC - The COC AN/TSQ-239 (V)1-4 is the foundation of USMC C2, meeting near term communications and network requirements across the OpFor. There is a continuing developmental effort to evolve the COC into a fully integrated MAGTF C2 capability. FY 2016 supported continual tech refresh, technology insertion, modernization and software upgrade releases and alignment with associated Command and Control programs as required by OpFor Commanders. FY 2017 and FY 2018 continues to maintain industry standard and interoperability with disparate C2 systems across the joint forces.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy | | | Date: May 2017 |
|---|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2273 / *Air Ops Cmd & Control (C2) Sys* | |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Prior Years Cumulative Funding | Various | VARIOUS : VARIOUS | 256.411 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 256.411 | - |
| CTN Engineering Devlopment | C/CPFF | NAVSEA PEO IWS : Washington, DC | 14.322 | 4.830 | May 2016 | 3.427 | May 2017 | 1.117 | Feb 2018 | - | | 1.117 | Continuing | Continuing | Continuing |
| COC | WR | NSWC : Dahlgren,VA | 5.430 | 0.254 | Mar 2016 | 0.185 | Feb 2017 | 1.240 | Feb 2018 | - | | 1.240 | 0.000 | 7.109 | - |
| COC | C/CPIF | NSWC : Dahlgren, VA | 0.000 | 0.130 | Jun 2016 | 0.167 | Apr 2017 | 1.706 | Feb 2018 | - | | 1.706 | 0.000 | 2.003 | - |
| COC | WR | SSC-LANT : Charleston, SC | 1.079 | 0.200 | Aug 2016 | 1.285 | Feb 2017 | 1.315 | Feb 2018 | - | | 1.315 | 0.000 | 3.879 | - |
| COC | C/CPIF | SSC-Lant2 : Charleston, SC | 0.000 | 0.000 | | 0.283 | Apr 2017 | 0.185 | Jan 2018 | - | | 0.185 | 0.000 | 0.468 | - |
| RVVT | MIPR | ARDEC : Picatinny, NJ | 0.000 | 1.334 | Jan 2016 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 1.334 | - |
| C2AOS-C2IS Tactical Map Software Development | SS/FFP | Raytheon Solypsis : Fulton, MD | 0.000 | 0.000 | | 0.000 | | 0.445 | Dec 2017 | - | | 0.445 | 0.000 | 0.445 | - |
| RVVT | MIPR | AMRDEC : Huntsville, AL | 1.008 | 0.000 | | 0.163 | Mar 2017 | 1.158 | Mar 2018 | - | | 1.158 | 0.000 | 2.329 | - |
| | | **Subtotal** | 278.250 | 6.748 | | 5.510 | | 7.166 | | - | | 7.166 | - | - | - |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Prior Years Cumulative Funding | Various | VARIOUS : VARIOUS | 46.207 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 46.207 | - |
| CTN Engineering Support | WR | NSWC : Dahlgren, VA | 5.357 | 0.231 | Jan 2016 | 0.682 | Jan 2017 | 0.215 | Jan 2018 | - | | 0.215 | Continuing | Continuing | Continuing |
| CTN Engineering Support | WR | NSWC : PHD, CA | 0.515 | 0.054 | Feb 2016 | 0.040 | Feb 2017 | 0.033 | Feb 2018 | - | | 0.033 | Continuing | Continuing | Continuing |
| CTN Engineering Support | WR | NSWC : Crane, IN | 1.201 | 0.150 | Nov 2015 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 1.351 | - |

| Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy | | | Date: May 2017 |
|---|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2273 / *Air Ops Cmd & Control (C2) Sys* | |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CTN Engineering Support | Various | Travel-TAD : Not Specified | 1.077 | 0.023 | Sep 2016 | 0.024 | Sep 2017 | 0.014 | Sep 2018 | - | | 0.014 | Continuing | Continuing | Continuing |
| C2AOS-C2IS Engineering Support | WR | NSWC Dahlgren : Dahlgren, VA | 0.000 | 0.000 | | 0.000 | | 0.324 | Dec 2017 | - | | 0.324 | 0.000 | 0.324 | - |
| | | **Subtotal** | 54.357 | 0.458 | | 0.746 | | 0.586 | | - | | 0.586 | - | - | - |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Prior Years Cumulative Funding | Various | VARIOUS : VARIOUS | 37.693 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 37.693 | - |
| TBMCS Software Development | C/FFP | Lockheed Martin : Colorado Springs, CO | 6.985 | 2.543 | Mar 2016 | 2.660 | Mar 2017 | 2.977 | Mar 2018 | - | | 2.977 | Continuing | Continuing | Continuing |
| TBMCS Software Development | MIPR | Englin AFB : Englin AFB, FL | 0.846 | 0.217 | Jun 2016 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| CTN Developmental Testing | WR | NSWC Corona : Corona, CA | 1.557 | 0.000 | | 0.333 | Feb 2017 | 0.325 | Feb 2018 | - | | 0.325 | 0.000 | 2.215 | - |
| CTN Developmental Testing | WR | NSWC DD : Dahlgren, VA | 1.321 | 0.150 | Jan 2016 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 1.471 | - |
| CTN Engineering/Cyber Security Development | C/CPFF | NAVSEA PEO IWS : Washington DC | 0.333 | 0.000 | | 1.334 | Jan 2017 | 0.439 | Jan 2018 | - | | 0.439 | 0.000 | 2.106 | - |
| C2AOS-C2IS Operational Test Support | WR | MCOTEA : Quantico, VA | 0.000 | 0.000 | | 0.000 | | 0.939 | Dec 2017 | - | | 0.939 | 0.000 | 0.939 | - |
| C2AOS-C2IS Developmental Test Support | C/FFP | TBD : TBD | 0.000 | 0.000 | | 0.000 | | 0.315 | Jan 2018 | - | | 0.315 | 0.000 | 0.315 | - |
| C2AOS-C2IS Cyber Security Training | MIPR | NSWC Dahlgren : Dahlgren, VA | 0.000 | 0.000 | | 0.000 | | 0.420 | Dec 2017 | - | | 0.420 | 0.000 | 0.420 | - |
| | | **Subtotal** | 48.735 | 2.910 | | 4.327 | | 5.415 | | - | | 5.415 | - | - | - |

| Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy | | | Date: May 2017 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | R-1 Program Element (Number/Name)<br>PE 0206313M / *Marine Corps Comms Systems* | Project (Number/Name)<br>2273 / *Air Ops Cmd & Control (C2) Sys* | |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**Remarks**

TBMCS Lockheed Martin software development contract increases in FY 2018 to support the development of additional information assurance controls required to maintain the cyber security posture in preparation for the transition to Risk Management Framework, in accordance with DoD Instruction 8510.01.

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Prior Years Cumulative Funding | Various | VARIOUS : VARIOUS | 28.671 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 28.671 | - |
| COC Engineering Support | FFRDC | U.S. Army, MITRE : Stafford, VA | 3.232 | 0.853 | Mar 2016 | 2.636 | Jun 2017 | 0.917 | Mar 2018 | - | | 0.917 | 0.000 | 7.638 | - |
| C2AOS-C2IS Program Support | C/FFP | TBD : TBD | 0.000 | 0.000 | | 0.000 | | 0.546 | Dec 2017 | - | | 0.546 | 0.000 | 0.546 | - |
| | | **Subtotal** | 31.903 | 0.853 | | 2.636 | | 1.463 | | - | | 1.463 | 0.000 | 36.855 | - |

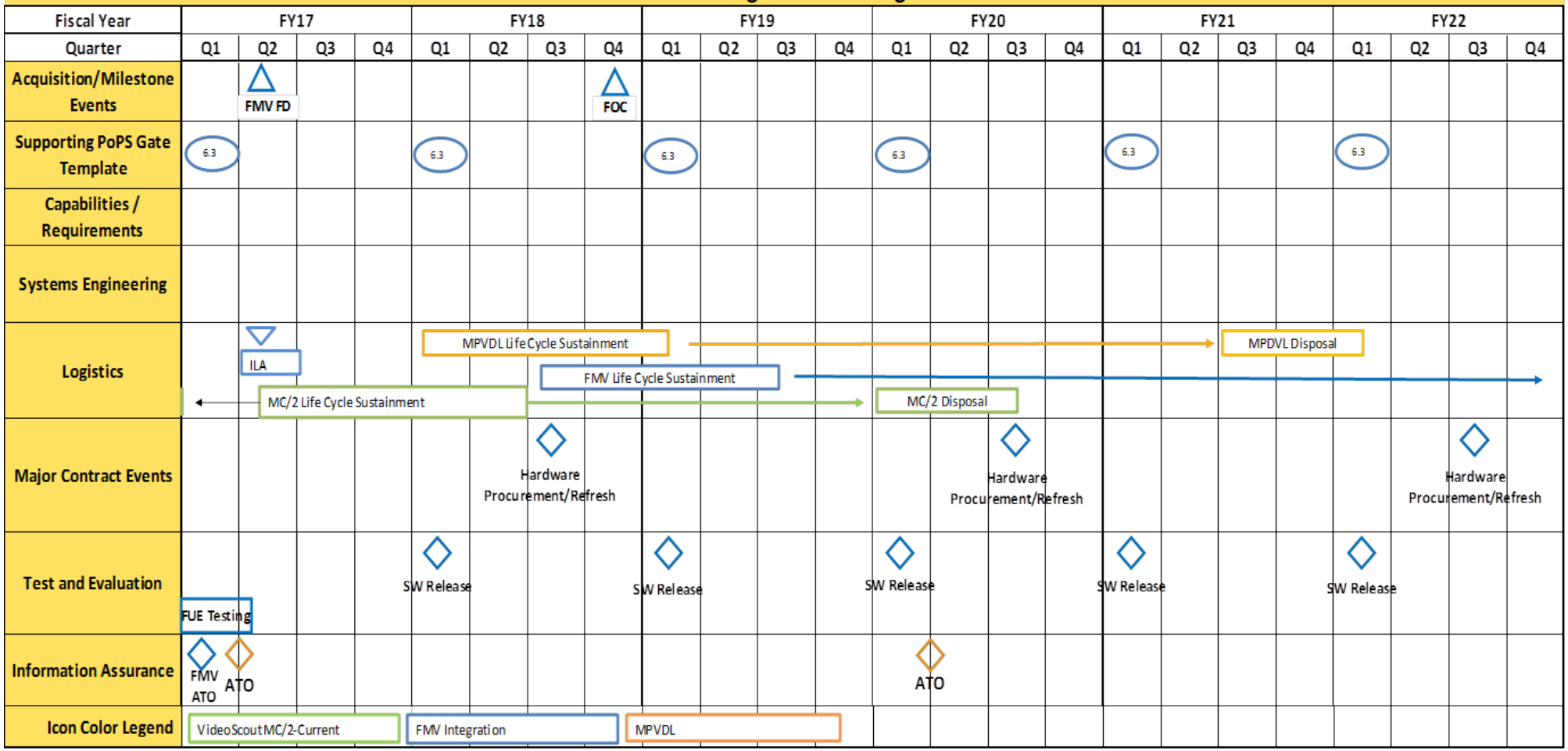
| | Prior Years | FY 2016 | | FY 2017 | | FY 2018 Base | | FY 2018 OCO | | FY 2018 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 413.245 | 10.969 | | 13.219 | | 14.630 | | - | | 14.630 | - | - | - |

**Remarks**

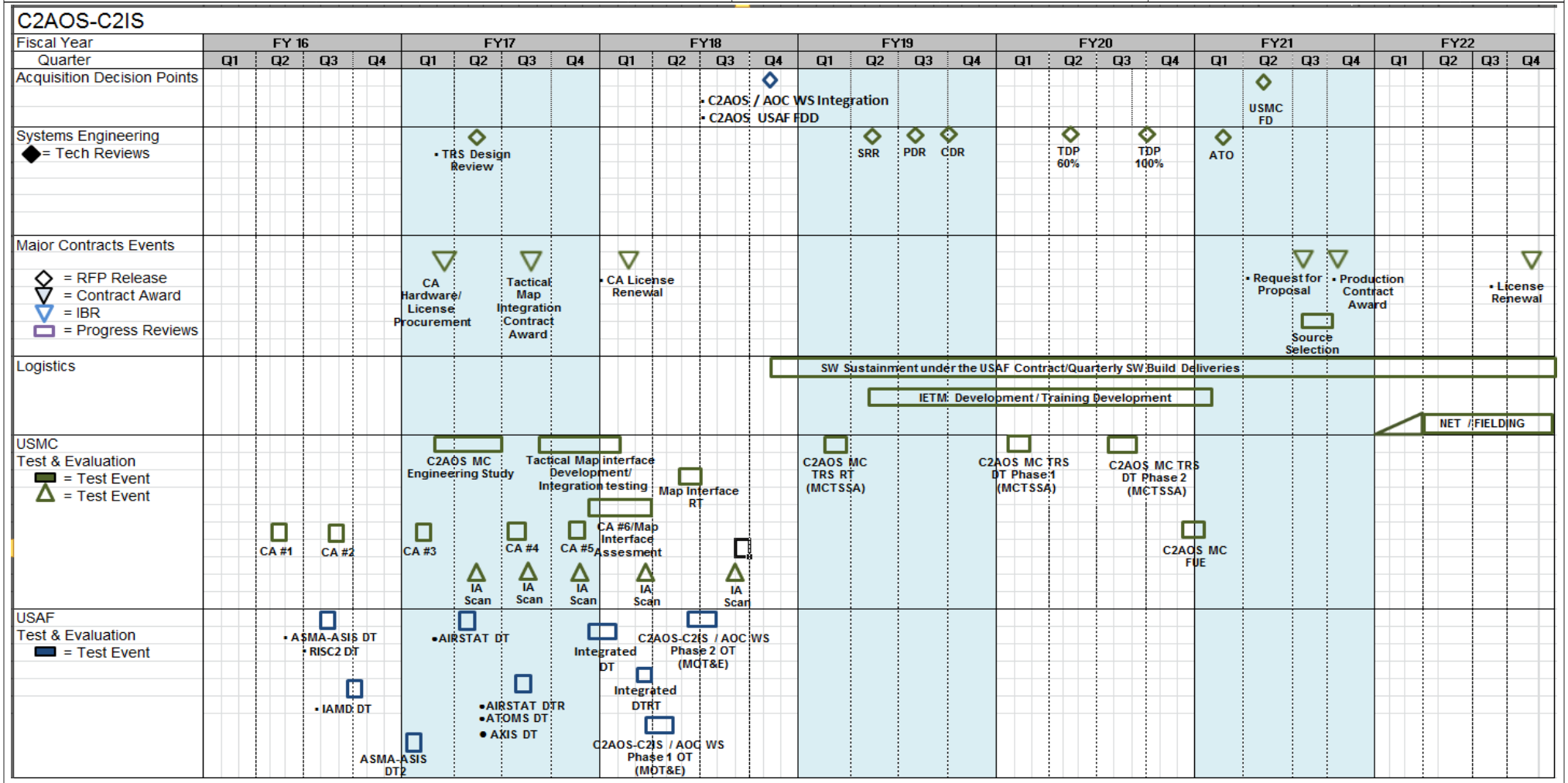
The increase from FY17 to FY18 is due to the initiation of funding in support of Command and Control Air Operation System - Command and Control Information Services (C2AOS-C2IS) requirements.

| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2273 / *Air Ops Cmd & Control (C2) Sys* |

## Remote Video Viewing Terminal Program Schedule

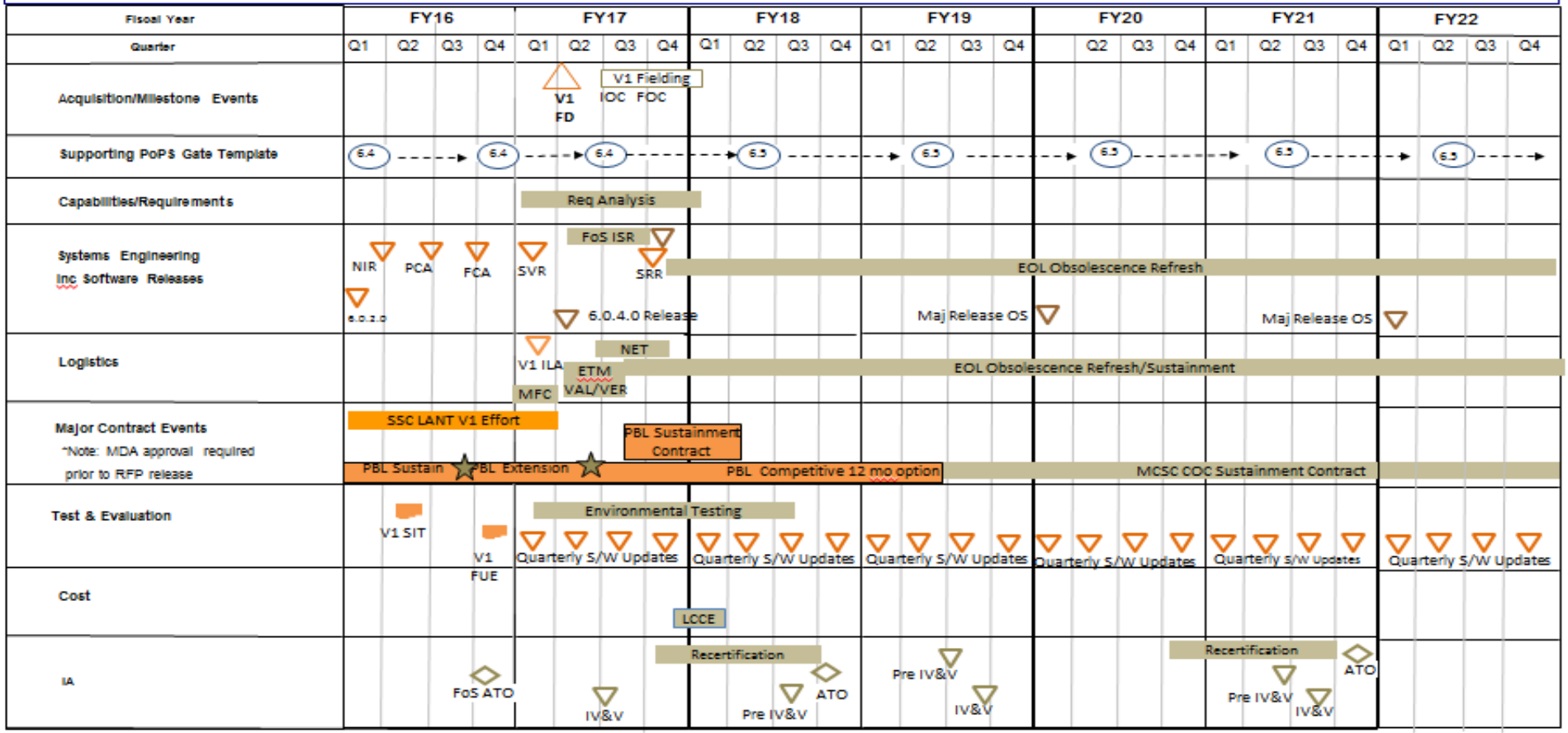


| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2273 / *Air Ops Cmd & Control (C2) Sys* |

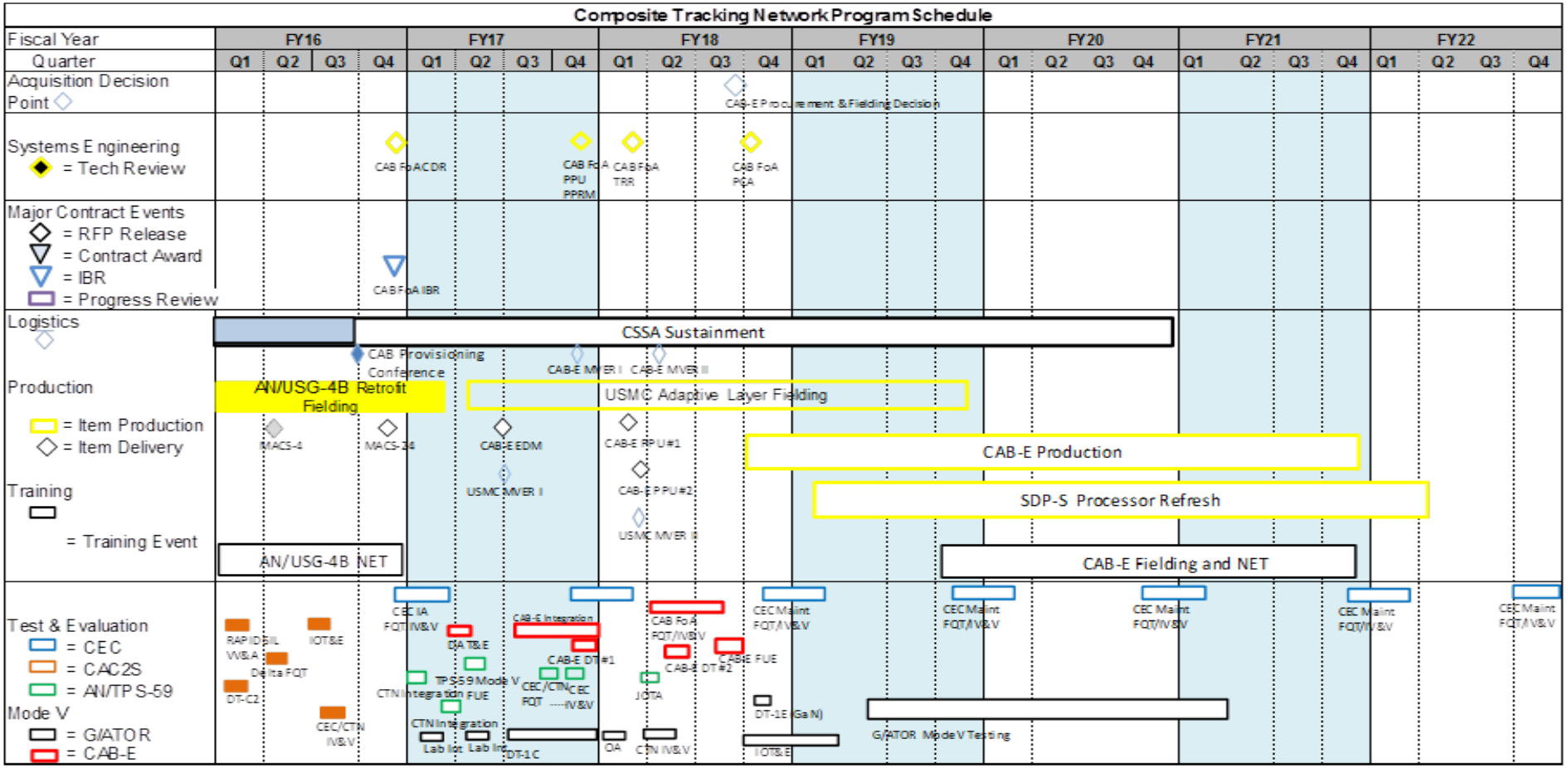


| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2273 / *Air Ops Cmd & Control (C2) Sys* |

# Combat Operations Center (COC) Program Schedule

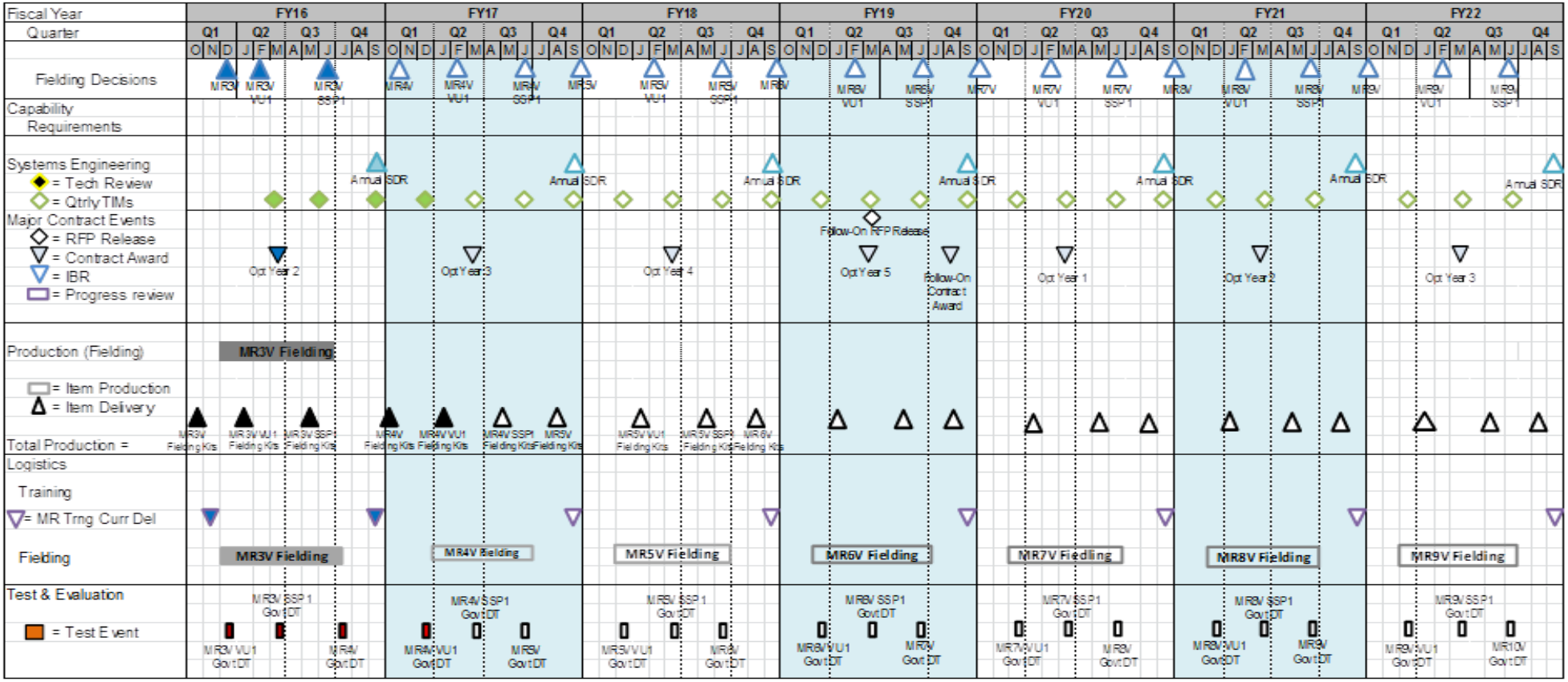


| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2273 / *Air Ops Cmd & Control (C2) Sys* |



| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2273 / *Air Ops Cmd & Control (C2) Sys* |

## TBMCS Program Schedule



| Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2273 / *Air Ops Cmd & Control (C2) Sys* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***Proj 2273*** | | | | |
| TBMCS MR4V Fielding Decision | 1 | 2017 | 1 | 2017 |
| TBMCS MR4V Fielding | 2 | 2017 | 4 | 2017 |
| TBMCS Option Year 3 Software Development Award | 2 | 2017 | 2 | 2017 |
| TBMSC Annual System Design Review | 4 | 2017 | 4 | 2017 |
| TBMCS MR5V Fielding Decision | 1 | 2018 | 1 | 2018 |
| TBMCS MR4V Fielding Kits (PMC 4640) | 1 | 2017 | 1 | 2017 |
| TBMCS MR5V Fielding Kits (PMC 4640) | 4 | 2017 | 4 | 2017 |
| TBMCS MR5V Fielding | 1 | 2018 | 3 | 2018 |
| TBMCS Option Year 4 Software Development Award | 2 | 2018 | 2 | 2018 |
| TBMCS Government Developmental Test | 3 | 2018 | 3 | 2018 |
| TBMCS Annual System Design Review | 4 | 2018 | 4 | 2018 |
| CTN Integration Event with G/ATOR | 1 | 2017 | 1 | 2017 |
| CTN - AN/TPS 59 Mode V Field User Evaluation (FUE) | 2 | 2017 | 2 | 2017 |
| CTN - CAB-E Integration | 3 | 2017 | 1 | 2018 |
| CTN - DT-1C G/ATOR | 3 | 2017 | 4 | 2017 |
| CTN - CAB-E Developmental Test #1 | 4 | 2017 | 4 | 2017 |
| CTN - CAB-E Developmental Test #2 | 2 | 2018 | 2 | 2018 |
| CTN - Independent Verification and Validation (IV&V) Test | 2 | 2018 | 2 | 2018 |
| CTN - CAB-E Procurement and Fielding Decision (PMC 4640) | 3 | 2018 | 3 | 2018 |
| CTN - CAB-E Field User Evaluation (FUE) | 3 | 2018 | 3 | 2018 |
| RVVT Fielding Decision (FD) | 2 | 2017 | 2 | 2017 |

| Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2273 / *Air Ops Cmd & Control (C2) Sys* |

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| RVVT Full Operational Capability (FOC) | 4 | 2018 | 4 | 2018 |
| COC V1 Fielding Decision | 2 | 2017 | 2 | 2017 |
| COC V1 IOC | 3 | 2017 | 3 | 2017 |
| COC V1 FOC | 3 | 2017 | 3 | 2017 |
| COC Req Analysis | 1 | 2017 | 1 | 2018 |
| C2AOS-C2IS Engineering Study | 1 | 2017 | 2 | 2017 |
| C2AOS-C2IS Tactical Map Interface Development/Integration Testing | 3 | 2017 | 1 | 2018 |
| C2AOS-C2IS Tactical Map Interface Assessment | 4 | 2017 | 2 | 2018 |
| C2AOS-C2IS Air Force Developmental/Regression Test | 1 | 2018 | 1 | 2018 |
| C2AOS-C2IS Information Assurance Testing | 1 | 2018 | 1 | 2018 |
| C2AOS-C2IS Regression Testing of Tactical Map Interface | 2 | 2018 | 2 | 2018 |
| C2AOS-C2IS - USAF Full Deployment Decision (FDD) | 4 | 2018 | 4 | 2018 |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | | Date: May 2017 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | R-1 Program Element (Number/Name)<br>PE 0206313M / *Marine Corps Comms Systems* | Project (Number/Name)<br>2274 / *Command & Control Warfare 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2274: *Command & Control Warfare Sys* | 32.950 | 8.533 | 6.531 | 8.129 | - | 8.129 | 8.233 | 7.054 | 7.214 | 7.358 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

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

COUNTER RADIO-CONTROLLED IMPROVISED EXPLOSIVE DEVICE (RCIED) ELECTRONIC WARFARE (USMC CREW) SYSTEMS are vehicle mounted and dismounted modular programmable multi-band radio frequency jammers designed to deny enemy use of selected portions of the radio frequency spectrum in the vicinity of the jammer to counter the RCIED threat. The mounted and dismounted systems provide Marines in vehicle convoys and on foot with the necessary protection from the continued and evolving threat of deadly RCIEDs. Legacy CREW systems are currently deployed to meet threats in the multiple theaters of operation and fielded to selected Marine Expeditionary Units (MEU)/Marine Expeditionary Forces (MEF) in support of worldwide deployment. To continue to support the various worldwide missions, each CREW unit receives customized programming (loadsets) to counter that area's RCIED threats. The testing, programming development, and product improvement research are funded with the CREW's RDTE,N funding and prioritized to meet the growing demand for all deployed Marine units.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***Title:*** *USMC CREW - Product Development | 1.335 | 1.932 | 1.416 | 0.000 | 1.416 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** NOTE: The increase of $1.598M from FY17 to FY18 in the overall CREW program reflects increased test and evaluation supporting mounted CREW development efforts. | | | | | |
| ***FY 2016 Accomplishments:***<br>-Continued the development of software waveform loadsets for USMC CREW Systems including mounted and dismounted system's waveforms used specifically to counter IED threat worldwide.<br>-Continued software waveform loadsets for Universal Test Sets (UTS) across multiple deployment theaters.<br>-Continued development of additional software improvements to overcome selected CREW capability issues not limited by technology obsolescence.<br>-Continued to develop vehicle installation kits for the CREW mounted systems in order to support the integration and installation of the upgrade kits into Marine Corps vehicle platform.<br>-Continued system level verification testing on the Modi II systems to counter RCIED threats. | | | | | |
| ***FY 2017 Plans:***<br>-Continue the development of software waveform loadsets for USMC CREW Systems including mounted and dismounted system's waveforms used specifically to counter IED threat worldwide. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2274 / *Command & Control Warfare Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| -Continue software waveform loadsets for Universal Test Sets (UTS) across multiple deployment theaters.<br>-Continue development of additional software improvements to overcome selected Thor III capability issues not limited by technology obsolescence.<br>-Continue to develop vehicle installation kits for the CREW mounted systems in order to support the integration and installation of the upgrade kits into Marine Corps vehicle platform.<br>-Continue system level verification testing on the Modi II system to counter RCIED threats.<br>***FY 2018 Base Plans:***<br>-Continue development of software waveform loadsets for USMC CREW Systems including mounted and dismounted system's waveforms used specifically to counter IED threat worldwide.<br>-Continue software waveform loadsets for Universal Test Sets (UTS) across multiple deployment theaters.<br>-Continue testing and technique development of additional software threatloads to overcome capability issues impacting dismounted Marines and each vehicle platform type.<br>-Continue contracting efforts to update the CREW CVRJ Augmentation Program (CAP) to deliver a system capable of performing against the product specification.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** *USMC CREW - Support | 0.311 | 0.649 | 0.722 | 0.000 | 0.722 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>-Continued to conduct systems engineering and integration support required for the mounted CREW into Marine Expeditionary Units (MEU)/Marine Expeditionary Force (MEF) mission profiles by developing vehicle installation kits for these mounted units.<br>-Continued system support for CVRJ (V)2, Thor III, Modi II, and Universal Test Sets by analyzing CREW performance impacts resulting from compatibility and environmental risk impacts.<br>***FY 2017 Plans:***<br>-Continue to conduct systems engineering and integration support required for the mounted CREW into Marine Expeditionary Units (MEU)/Marine Expeditionary Force (MEF) mission profiles by developing vehicle installation kits for these mounted units. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2274 / *Command & Control Warfare Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| -Continue system support for CVRJ (V)2, Thor III, Modi II, and Universal Test Sets by analyzing CREW performance impacts resulting from compatibility and environmental risk impacts.<br>***FY 2018 Base Plans:***<br>-Continue to conduct systems engineering support for the CREW family of systems and integration support required for the mounted CREW into Marine Expeditionary Units (MEU)/Marine Expeditionary Force (MEF) mission profiles by developing vehicle installation kits for these mounted units.<br>-Continue system support for CVRJ (V)2, Thor III, Modi II, and Universal Test Sets by analyzing CREW performance impacts resulting from compatibility and environmental risk impacts.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** *USMC CREW - Test and Evaluation | 3.478 | 0.261 | 3.095 | 0.000 | 3.095 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** NOTE: The increase of $2.834M from FY17 to FY18 reflects increased test and evaluation supporting mounted CREW development efforts for software load-set development and capability testing of the Modi II CREW System.<br>***FY 2016 Accomplishments:***<br>-Continued test events in support of the CVRJ (V)2, Thor III, Modi II and Universal Test Set (UTS) systems regarding its ability to defeat the RCIED threat in multiple worldwide locations.<br>-Continued testing of the mounted and dismounted CREW production units that will be fielded for Marine Expeditionary Units (MEU)/Marine Expeditionary Force (MEF) use.<br>-Continued compatibility testing against USMC and other services devices to ensure Marine Corps CREW systems maintain required performance capabilities.<br>-Continued characterizing operational limitations regarding the CREW systems and standoff restrictions for its operation.<br>-Continued mounted and dismounted CREW improvements testing to distinguish possible design limitations that can be improved to optimize the Marines use of the system.<br>***FY 2017 Plans:***<br>-Continue test events in support of the CVRJ (V)2, Thor III, Modi II and Universal Test Set (UTS) systems regarding its ability to defeat the RCIED threat in multiple worldwide locations. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2274 / *Command & Control Warfare Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| -Continue testing of the mounted and dismounted CREW production units that will be fielded for Marine Expeditionary Units (MEU)/Marine Expeditionary Force (MEF) use.<br>-Continue compatibility testing against USMC and other services devices to ensure Marine Corps CREW systems maintain required performance capabilities.<br>-Continue characterizing operational limitations regarding the CREW systems and standoff restrictions for its operation.<br>-Continue mounted and dismounted CREW improvements testing to distinguish possible design limitations that can be improved to optimize the Marines use of the system.<br>***FY 2018 Base Plans:***<br>-Continue test events in support of the CVRJ (V)2, Thor III, Modi II and Universal Test Set (UTS) systems regarding its ability to defeat the RCIED threat in multiple worldwide locations.<br>-Continue testing of the mounted and dismounted CREW production units that will be fielded for Marine Expeditionary Units (MEU)/Marine Expeditionary Force (MEF) use.<br>-Continue compatibility testing against USMC and other services devices to ensure Marine Corps CREW systems maintain required performance capabilities.<br>-Complete characterizing operational limitations regarding the CREW systems and standoff restrictions for its operation.<br>-Complete mounted and dismounted CREW improvements testing to distinguish possible design limitations that can be improved to optimize the Marines use of the system.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** *USMC CREW - Management | 3.409 | 3.689 | 2.896 | 0.000 | 2.896 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>-Continued to manage the new RCIED techniques development group and hardware engineering team to enhance loadsets upgrades to counter the evolving threat and prevent technology obsolescence for CVRJ(V)2, Thor III, Modi II and the Universal Test Set systems. Conducted system level configuration management activities for all CREW systems.<br>***FY 2017 Plans:***<br>-Continue to manage the new RCIED techniques development group and hardware engineering team to enhance loadsets upgrades to counter the evolving threat and prevent technology obsolescence for CVRJ(V)2, | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2274 / *Command & Control Warfare Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| Thor III, Modi II and the Universal Test Set systems. Conducting system level configuration management activities for all CREW systems.<br>***FY 2018 Base Plans:***<br>-Continue to manage the new RCIED techniques development group and hardware engineering team to enhance loadsets upgrades to counter the evolving threat and prevent technology obsolescence for CVRJ(V)2, Thor III, Modi II and the Universal Test Set systems. Conducting system level configuration management activities for all CREW systems.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 8.533 | 6.531 | 8.129 | 0.000 | 8.129 |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • PMC/652000: *CREW* | 0.000 | 75.000 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |

**Remarks**

**D. Acquisition Strategy**

COUNTER RADIO-CONTROLLED IMPROVISED EXPLOSIVE DEVICE (RCIED) ELECTRONIC WARFARE (USMC CREW): CREW mounted and dismounted systems provide Marines in vehicle convoys and on foot with the necessary protection from the continued and evolving threat of deadly RCIEDs in all current and future operations. The program will continue to develop new counter techniques, improve capabilities, enhance software and develop upgrades to counter evolving threats and prevent technology obsolescence. Activities include waveform development, non-recurring engineering for system enhancements, capability upgrades, and the testing/government studies required to support these changes. 3100 CVRJ(V1) mounted systems were upgraded with an increased capability, CVRJ(V)2, and fielded to support vehicle convoys. The USMC intends to upgrade the CVRJ(V)2 to counter advance threats facing deployed units. The CVRJ(V)2 upgrade, known as the CVRJ Augmentation Program (CAP) will require performance testing in FY19 before being fielded. The Thor III dismounted systems fielded to OEF and to selected MEU units starting in FY12, will be replaced by the Modi II systems starting in FY18. The Modi II program consists 565 dismounted systems and was initiated as an ongoing effort to develop new techniques, improve capabilities, enhance software and develop waveform loadsets to counter evolving threats and prevent technology obsolescence for the THOR III dismounted systems. The 565 dismounted systems were procured in FY15 with expected delivery in FY16 for product assurance testing in FY17. FY18 plan reflects increased test and evaluation for CREW development efforts to include software load-set development and capability testing of the Modi II CREW System.

**E. Performance Metrics**

Milestone Reviews

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | | | | | | | | | Date: May 2017 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | | | | | R-1 Program Element (Number/Name)<br>PE 0206313M / *Marine Corps Comms Systems* | | | | Project (Number/Name)<br>2275 / *Marine Corps Tactical Radio Systems* | | | |
| **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** |
| 2275: *Marine Corps Tactical Radio Systems* | 36.429 | 4.929 | 15.161 | 22.722 | - | 22.722 | 11.329 | 8.119 | 8.190 | 8.453 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

**Note**

NOTE: The overall project increase of $7.561M from FY17 to FY18 supports the development and testing of Joint Enterprise Network Manager (JENM); and the testing and evaluation of proposed High Frequency Radio II (HFR II) and MBR Replacement. Funds also be used to support the test and evaluation efforts for the laptop technical refresh as a result of the Department of Defense Chief Information Officer (DoD CIO) Win-10 mandate. Increases to TWTS from FY17 to FY18 supports the NGT MILSTD C/X-Band testing and engineering support.

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

Tactical Communications Modernization (TCM): TCM supports the research, testing, and evaluation of non-developmental tactical voice and data radio systems for mounted and dismounted operations within all echelons of the Marine Air Ground Task Force. The testing will ensure the communication systems are joint networking capable and supports National Security Agency (NSA) Communications Security (COMSEC) Modernization requirements. The funding provides contracted engineering support, facility test support, and test reporting for Mobile User Objective System (MUOS) terminals, antennas, and Joint Enterprise Network Manager (JENM).

Networking on the Move (NOTM): NOTM provides a robust command and control (C2) capability by integrating tactical data systems with on the move satellite communications (SATCOM) for beyond line-of-sight ability that allows battlefield commanders to have uninterrupted two-way access to digital data, anywhere on the battlefield. NOTM provides MAGTF commanders and staffs with full Common Operational Picture (COP) access, virtually unlimited situational awareness and a powerful ability to issue digital orders (fires, maneuver, planning) to GCE, ACE and LCE units at all echelons while on-the-move or at-the-halt. NOTM also provides Marine units the capability to link with and extend Defense Information System Network (DISN) services; SIPRNet, NIPRNet, and Defense Switched Networks (DSN). Integrated full motion video (receipt and retransmission), tactical voice communications plus three options for secure wireless local area network (LAN) connectivity between staff members makes this amphibious capability a crucial asset to all elements of the Marine Air-Ground Task Force (MAGTF).

Very Small Aperture Terminal (VSAT): VSAT is an integrated Commercial Off-the-Shelf (COTS) satellite communications terminal with a modular architecture that supports drop and insert architecture through scalable and flexible applications. VSAT uses commercial Ku and military Ka and X frequency bands to provide beyond line-of-sight (BLOS) connectivity to support intra-MAGTF communications (NIPRNET, SIPRNET, and telephony) down to the battalion/squadron level. With the addition of the VSAT-Expeditionary (VSAT-E) the VSAT Family of Systems (FoS) now comes in four modular variants, depending on MAGTF-size and mission. The increase of $0.206M from FY17 to FY18 will support the test and evaluation efforts for the laptop technical refresh as a result of the Department of Defense Chief Information Officer (DoD CIO) Win-10 mandate.

Secure Mobile Anti-Jam Reliable Tactical-Terminal (SMART-T): SMART-T is an Army led, ACAT II program. The Marine Corps SMART-T has fielded the full Authorized Acquisition Objective (AAO) of 42 terminals and 35 AN/PSQ-17 Network Planning tools and completed the Advanced Extremely High Frequency (AEHF) upgrades. Out

of warranty repair for legacy components will be executed, when necessary, using the Army National Maintenance Contract. The SMART-T program will procure and field its Terminal Operating Unit (TOU) upgrades in FY17.

Terrestrial Wideband Transmission Systems (TWTS): TWTS is a capabilities portfolio that includes Beyond Line of Sight (BLOS) system (AN/TRC-170A) and Line of Sight (LOS) systems AN/MRC-142 Family of Systems (FoS). The AN/TRC-170A is a transportable BLOS, terrestrial, self-enclosed troposcatter terminal (multichannel) capable of transmitting and receiving digital data over varying distances up to 100 miles. Next Generation Troposcatter (NGT) is a transit case solution which will replace the AN/TRC-170A. AN/MRC-142B provides ship to shore communication. AN/MRC-142C FoS provides LOS, two-way, secure voice and data communications up to 35 miles.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***Title:*** TCM: Product Development | 1.650 | 0.442 | 1.542 | 0.000 | 1.542 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** NOTE: Increase of $1.1M from FY17 to FY18 will continue to provide for the Marine Corps fair share cost for development of the JENM application required for MUOS. | | | | | |
| ***FY 2016 Accomplishments:***<br>Continued funding for the Marine Corps fair share cost for development of the Joint Enterprise Network Manager (JENM) application required for MUOS. | | | | | |
| ***FY 2017 Plans:***<br>Continued funding the Marine Corps fair share cost for development of the Joint Enterprise Network Manager (JENM) application required for MUOS. Life Cycle Cost Estimate (LCCE) to support High Frequency Radio II (HFR II) | | | | | |
| ***FY 2018 Base Plans:***<br>Initiate the Life Cycle Cost Estimate (LCCE) to support Multi-Band Radio Replacement (MBR R). | | | | | |
| ***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** TCM: Engineering and Program Support | 0.103 | 0.082 | 0.030 | 0.000 | 0.030 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>Continued engineering and support efforts. | | | | | |
| ***FY 2017 Plans:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2275 / *Marine Corps Tactical Radio Systems* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| Continue engineering and support efforts.<br>***FY 2018 Base Plans:***<br>Continue engineering and support efforts.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** TCM: Test and Evaluation Support<br>***Articles:***<br>***Description:*** NOTE: Increase of $3.183M will continue to support MUOS test events and evaluations. In addition, it will fund procurement of test assets for equipment such as HFR II and other TCM Family of Systems (FoS); and funds test events such as software development test, road shock, shake and vibration testing and MIL-STD testing.<br>***FY 2016 Accomplishments:***<br>Completed procurement of (10) MUOS Firmware Licenses for test and evaluation purposes such as, MUOS Mil-STD Testing.<br>***FY 2017 Plans:***<br>Initiate test events in support of the Mobile Objective User System (MUOS) such as environmental and radiation hazard; as well as Field User Evaluations (FUEs).<br>***FY 2018 Base Plans:***<br>Continue to support Mobile Objective User System (MUOS) test events and evaluations.<br>Initiate procurement of test assets for equipment such as HFR II and other TCM Family of Systems (FoS).<br>Initiate test events such as software development test, road shock, shake and vibration testing and MIL-STD testing.<br>***FY 2018 OCO Plans:***<br>N/A | 0.132<br>- | 0.322<br>- | 3.505<br>- | 0.000<br>- | 3.505<br>- |
| ***Title:*** TCM: Management Services<br>***Articles:***<br>***Description:*** Increase of $.153M from FY17 to FY18 supports FFRDC research and engineering efforts for replacement of HFR II and MBR II equipment. | 0.237<br>- | 0.142<br>- | 0.295<br>- | 0.000<br>- | 0.295<br>- |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2275 / *Marine Corps Tactical Radio Systems* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***FY 2016 Accomplishments:***<br>Continued Engineering and Program Support for TCM.<br>***FY 2017 Plans:***<br>Continue Engineering and Program Support for the TCM Family of Systems (FoS).<br>***FY 2018 Base Plans:***<br>Continue Engineering and Program Support for the TCM Family of Systems (FoS).<br>Continue and increase support of FFRDC research and engineering for the replacement of HFRII and MBR II equipment.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** NOTM: Product Development | 1.048 | 5.716 | 6.220 | 0.000 | 6.220 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** NOTE: The increase of $0.504M from FY17 to FY18 will Initiate Light Armored Vehicle (LAV) design and integration, Broadband Meshable Data Link (BMDL), and NOTM Internally Transportable Vehicle (ITV) development efforts.<br>***FY 2016 Accomplishments:***<br>Continued product development for SATCOM denied environment.<br>***FY 2017 Plans:***<br>Continue Engineering Change Proposals (ECPs), technology refreshes to extend the systems life and maintain interoperability and major product improvements to complete the AAO of 140 systems.<br>Initiated development of NOTM Airborne.<br>The increase of $4.668M from FY16 to FY17 is associated with the initiation of NOTM Airborne development efforts and increased effort for NOTM ECPs and technology refreshes.<br>***FY 2018 Base Plans:***<br>Continue Engineering Change Proposals (ECPs), technology refreshes to extend the systems life and maintain interoperability and major product improvements to complete the AAO of 140 systems.<br>***FY 2018 OCO Plans:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2275 / *Marine Corps Tactical Radio Systems* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| N/A | | | | | |
| ***Title:*** NOTM: Test and Evaluation Support | 0.718 | 5.870 | 5.161 | 0.000 | 5.161 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>Continued test and evaluation support and testing. | | | | | |
| ***FY 2017 Plans:***<br>Continued test and evaluation support and testing.<br><br>The increase of $5.152M from FY16 to FY17 supports test and evaluation of NOTM-A and NOTM Size, Weight and Power (SWaP) reduction ECPs. | | | | | |
| ***FY 2018 Base Plans:***<br>Continue test and evaluation support and testing for NOTM-A, BMDL, NOTM Size, Weight and Power (SWaP) reduction ECPs, and NOTM ITV efforts. | | | | | |
| ***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** VSAT: Product Development | 0.386 | 0.389 | 0.366 | 0.000 | 0.366 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>Initiated VSAT Graphic User Interface (GUI) Design and Development; as well as development of the PMAP Tool to support Integrated Master Schedule management. | | | | | |
| ***FY 2017 Plans:***<br>Continue VSAT Graphic User Interface (GUI) Design and Development. | | | | | |
| ***FY 2018 Base Plans:***<br>Continue VSAT GUI Design and Development due to quarterly security software updates. | | | | | |
| ***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** VSAT: Engineering and Program Support | 0.239 | 0.252 | 0.254 | 0.000 | 0.254 |
| ***Articles:*** | - | - | - | - | - |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2275 / *Marine Corps Tactical Radio Systems* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***FY 2016 Accomplishments:***<br>Supported Engineering Change Proposals (ECPs) that included software upgrades and hardware refreshes. Initiated preliminary analysis on USMC Next Generation SATCOM efforts.<br>***FY 2017 Plans:***<br>Continue ECP engineering support to include Quad-Band Satellite Emulator (QBSE) development.<br>***FY 2018 Base Plans:***<br>Initiate ECPs on modem upgrades and R&D efforts focusing on Next Generation SATCOM.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** VSAT Test and Evaluation<br>***Articles:***<br>***Description:*** Increase of $.211M from FY17 to FY18 supports technical refresh test and evaluation events for items such as Master Reference Terminal (MRT) and laptops.<br>***FY 2016 Accomplishments:***<br>N/A<br>***FY 2017 Plans:***<br>N/A<br>***FY 2018 Base Plans:***<br>Initiate test and evaluation for system refreshes such as Master Reference Terminal (MRT) technical refresh and laptop refresh.<br>***FY 2018 OCO Plans:***<br>N/A | 0.000<br>- | 0.000<br>- | 0.211<br>- | 0.000<br>- | 0.211<br>- |
| ***Title:*** VSAT: Management Services<br>***Articles:***<br>***FY 2016 Accomplishments:***<br>Supported engineering efforts in support of capabilities based assessment for Next Generation SATCOM.<br>***FY 2017 Plans:*** | 0.056<br>- | 0.061<br>- | 0.077<br>- | 0.000<br>- | 0.077<br>- |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2275 / *Marine Corps Tactical Radio Systems* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| Initiate engineering efforts in support of analysis of requirements development.<br>***FY 2018 Base Plans:***<br>Continue engineering efforts in support of analysis of requirements development.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** SMART-T: Engineering and Program Support<br>***Articles:***<br>***FY 2016 Accomplishments:***<br>Completed ECP work to support procurement of the Terminal Operating Units (TOU) technical refresh for the AEHF SMART-T.<br>***FY 2017 Plans:***<br>Initiate ECPs to update the operating systems of the AEHF SMART-T, TOU, and Tactical Mission Planning Subsystems (TMPSS). Continued Information Assurance support activities.<br>***FY 2018 Base Plans:***<br>Continue to fund ECPs and Information Assurance support efforts.<br>***FY 2018 OCO Plans:***<br>N/A | 0.080<br>- | 0.055<br>- | 0.087<br>- | 0.000<br>- | 0.087<br>- |
| ***Title:*** SMART-T: Management Services<br>***Articles:***<br>***FY 2016 Accomplishments:***<br>Initiated engineering analysis on potential future technical upgrades.<br>***FY 2017 Plans:***<br>Continue to provide engineering analysis on potential future technical upgrades.<br>***FY 2018 Base Plans:***<br>Continue to provide engineering analysis on potential future technical upgrades.<br>***FY 2018 OCO Plans:***<br>N/A | 0.100<br>- | 0.134<br>- | 0.100<br>- | 0.000<br>- | 0.100<br>- |
| ***Title:*** TWTS: Product Development | 0.130 | 0.000 | 1.764 | 0.000 | 1.764 |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2275 / *Marine Corps Tactical Radio Systems* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** NOTE: Increase of $1.764M will initiate NGT Manpower Training Analysis Plan (MPTA/P) and NGT Architecture Development.<br><br>***FY 2016 Accomplishments:***<br>Completed funding the Next Generation Tropo (NGT) Life Cycle Cost Estimate (LCCE).<br><br>***FY 2017 Plans:***<br>N/A<br><br>***FY 2018 Base Plans:***<br>Initiate NGT Manpower Training Analysis Plan (MPTA/P) and NGT Architecture Development.<br><br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** TWTS: Engineering and Program Support | 0.050 | 1.084 | 1.796 | 0.000 | 1.796 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** Increase of $.712M from FY17 to FY18 will continue to fund engineering, safety, logistics and program management support for the Next Generation Tropo (NGT) systems and TWTS Family of Systems (FoS).<br><br>***FY 2016 Accomplishments:***<br>Continued test and evaluation, engineering planning, and program management efforts for TWTS.<br><br>***FY 2017 Plans:***<br>Continue engineering, safety, and program support for the TWTS Family of Systems (FoS).<br>Increase from FY16 to FY17 due to increase of engineering, safety, and program support for the Next Generation Tropo (NGT).<br><br>***FY 2018 Base Plans:***<br>Continue to fund engineering, safety, logistics and program management support for the Next Generation Tropo (NGT) systems and TWTS Family of Systems (FoS).<br><br>***FY 2018 OCO Plans:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2275 / *Marine Corps Tactical Radio Systems* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| N/A | | | | | |
| ***Title:*** TWTS: Test and Evalution Support<br>***Articles:***<br>***FY 2016 Accomplishments:***<br>N/A<br>***FY 2017 Plans:***<br>Initiate development of test and evaluation plans for Next Generation Tropo (NGT).<br>***FY 2018 Base Plans:***<br>Increase $.689M from FY17 to FY18 will continue test and evaluation events such as MIL-STD testing, NGT JITC certification plan and C/X-band testing in support of Next Generation Tropo (NGT).<br>***FY 2018 OCO Plans:***<br>N/A | 0.000<br>- | 0.242<br>- | 0.931<br>- | 0.000<br>- | 0.931<br>- |
| ***Title:*** TWTS Management Services<br>***Articles:***<br>***FY 2016 Accomplishments:***<br>N/A<br>***FY 2017 Plans:***<br>Initiate engineering and program support for TWTS FoS.<br>***FY 2018 Base Plans:***<br>Continue engineering and program support for TWTS FoS.<br>***FY 2018 OCO Plans:***<br>N/A | 0.000<br>- | 0.370<br>- | 0.383<br>- | 0.000<br>- | 0.383<br>- |
| **Accomplishments/Planned Programs Subtotals** | 4.929 | 15.161 | 22.722 | 0.000 | 22.722 |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • PMC/4633-1: *TCM* | 31.298 | 39.503 | 17.852 | - | 17.852 | 65.972 | 83.663 | 214.770 | 202.869 | Continuing | Continuing |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2275 / *Marine Corps Tactical Radio Systems* |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • PMC/4631-2: *NOTM* | 13.825 | 37.461 | 105.740 | 5.600 | 111.340 | 31.422 | 31.548 | 4.700 | 4.847 | Continuing | Continuing |
| • PMC/4633-3: *VSAT* | 1.984 | 6.589 | 2.068 | 4.590 | 6.658 | 4.567 | 3.145 | 3.205 | 3.269 | Continuing | Continuing |
| • PMC/4633-4: *SMART-T* | 0.656 | 0.537 | 0.549 | - | 0.549 | 0.571 | 0.593 | 0.605 | 0.617 | Continuing | Continuing |
| • PMC/4633-5: *TWTS* | 0.999 | 2.300 | 12.237 | - | 12.237 | 14.911 | 17.921 | 15.234 | 15.484 | Continuing | Continuing |
| • PMC/7000-1: *SMART-T Spares* | 0.000 | 0.201 | 0.205 | - | 0.205 | 0.210 | 0.215 | 0.219 | 0.223 | Continuing | Continuing |

**Remarks**

**D. Acquisition Strategy**

Tactical Communications Modernization (TCM): TCM will maximize the use of non-developmental radio solutions to meet the next generation of Marine Corps tactical radio requirements. The Mobile User Objective System (MUOS) effort will utilize terminal licenses and receive antennas via a bailment agreement for testing at contracted government test labs to include environmental, shock, electromagnetic compatibility and interoperability testing. High Frequency Radios II (HFR II) contracting strategy will maximize the use of non-developmental high frequency radios while promoting competition by having industry provide proposed HFR II solutions, validated by Military Standard tests with best value selection upon successful completion of tests.

Networking on the Move (NOTM): NOTM will use an evolutionary acquisition strategy that leverages Commercial-Off-The-Shelf (COTS) and Government-Off-The-Shelf (GOTS) technology to procure, sustain and meet emerging requirements. The design of the system provides for internal growth capability through an open system architecture enabling technology refresh to extend the system's life, maintain interoperability, Information Assurance (IA) compliance, and reduce costs due to Diminishing Manufacturing Sources and Material Shortages (DMSMS). It is envisioned that technology refresh will occur on the NOTM hardware and software periodically due to component obsolescence, user-driven requests for improvements, IA compliance, and mission-related requirements. Refresh will include investments to incorporate evolving capability to ensure compatibility with other systems, create lighter more efficient equipment, and keep pace with evolving software requirements. End-of-life equipment refresh is expected throughout the program's life cycle and may be managed through kit purchases, replacement through Engineering Change Proposals (ECPs), or as replacement parts as equipment is repaired.

Very Small Aperture Terminal (VSAT): The acquisition of the external antenna is a single step acquisition which is adding capability to the VSAT-L terminal. The external antenna provides a dual shot capability that replaces the LMST and Phoenix systems. The VSAT FoS' approach on technology refresh and sub-component upgrades due to obsolescence and IA security issues is evolutionary. This strategy is based on procuring the latest mature and supported Commercial Off The Shelf (COTS) technology to keep the systems technology relevant to continue to meet mission requirements. Individual VSAT FoS programs will submit Engineering Change Proposals (ECP) for technology refresh modifications due to subcomponent obsolescence. The ECP will support the latest iteration of the Original Equipment Manufacturer (OEM) COTS equipment. This is a life cycle sustainment effort that maintains common logistical elements without re-engineering for form, fit, and function whenever warranted, with continued support of formal school training curriculum for relevant VSAT FoS hardware and software (firmware) functions.

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2275 / *Marine Corps Tactical Radio Systems* |

Secure Mobile Anti-Jam Reliable Tactical-Terminal (SMART-T): SMART-T is an Army led, ACAT II program. The Marine Corps SMART-T has fielded the full Authorized Acquisition Objective (AAO) of 42 terminals and 35 AN/PSQ-17 Network Planning tools and completed the Advanced Extremely High Frequency (AEHF) upgrades. Out of warranty repair for legacy components will be executed, when necessary, using the Army National Maintenance Contract. The SMART-T program will procure and field its Terminal Operating Unit (TOU) upgrades in FY17.

Terrestrial Wideband Transmission Systems (TWTS): AN/TRC-170A, the current Marine Corps troposcatter capability, was initially fielded in 1992. Next Generation Troposcatter (NGT) will replace AN/TRC-170A due to the system's obsolescence and an approved NGT Joint DOTmLPF-P Change Recommendation (DCR). The Marine Corps plans to leverage the US Army requirement and partner with their Program office.

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2275 / *Marine Corps Tactical Radio Systems* |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TCM JENM Development | SS/CPFF | ARL : Aberdeen,MD | 0.000 | 1.650 | May 2016 | 0.407 | Feb 2017 | 1.407 | Feb 2018 | - | | 1.407 | Continuing | Continuing | Continuing |
| TCM FoS LCCEs | C/IDIQ | MCSC : Quantico, VA | 0.000 | 0.000 | | 0.035 | Apr 2017 | 0.135 | Dec 2017 | - | | 0.135 | 0.000 | 0.170 | - |
| NOTM Development | C/CPFF | SSC-LANT : Charleston, SC | 2.239 | 0.000 | | 1.941 | May 2017 | 1.383 | May 2018 | - | | 1.383 | Continuing | Continuing | Continuing |
| NOTM Development | WR | SSC-Pacific : San Diego, CA | 0.473 | 0.048 | Mar 2016 | 1.038 | Feb 2017 | 0.712 | Feb 2018 | - | | 0.712 | Continuing | Continuing | Continuing |
| NOTM SWAP | MIPR | DTIC : Fort Belvoir, VA | 0.398 | 1.000 | May 2016 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 1.398 | - |
| NOTM-A | WR | SSC-Atlantic : Charleston, SC | 0.000 | 0.000 | | 1.737 | Feb 2017 | 0.000 | | - | | 0.000 | 0.000 | 1.737 | - |
| NOTM-A | C/CPFF | DTIC : Fort Belvoir, VA | 0.000 | 0.000 | | 1.000 | Jun 2017 | 1.125 | Feb 2018 | - | | 1.125 | 0.000 | 2.125 | - |
| NOTM-ITV | WR | SSC-A : Charleston, SC | 0.000 | 0.000 | | 0.000 | | 0.750 | Feb 2018 | - | | 0.750 | 0.000 | 0.750 | - |
| NOTM BMDL SATCOM | WR | ARL : Aberdeen, MD | 0.000 | 0.000 | | 0.000 | | 2.250 | Mar 2018 | - | | 2.250 | 0.000 | 2.250 | - |
| VSAT GUI Development | C/FFP | CECOM : Aberdeen, MD | 0.000 | 0.136 | Apr 2016 | 0.389 | May 2017 | 0.366 | Apr 2018 | - | | 0.366 | 0.000 | 0.891 | - |
| VSAT PdMAP Development | C/FFP | NAWC - TSD : Orlando, FL | 0.000 | 0.250 | May 2016 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.250 | - |
| TWTS NGT Architecture Development | C/FFP | MCSC : Quantico, VA | 0.000 | 0.000 | | 0.000 | | 0.200 | Nov 2017 | - | | 0.200 | Continuing | Continuing | Continuing |
| TWTS NGT LCCE | C/IDIQ | MCSC : Quantico, VA | 0.000 | 0.130 | Feb 2016 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.130 | - |
| TWTS NGT MPTA/P Initiation | C/CPFF | TBD : TBD | 0.000 | 0.000 | | 0.000 | | 1.564 | Dec 2017 | - | | 1.564 | Continuing | Continuing | Continuing |
| Prior Years Cumulative Funding | Various | Various : Various | 10.660 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 10.660 | - |
| | | **Subtotal** | 13.770 | 3.214 | | 6.547 | | 9.892 | | - | | 9.892 | - | - | - |

| Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2275 / *Marine Corps Tactical Radio Systems* |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TCM Engineering Support | C/FFP | NAVAIR : Pax River, MD | 0.108 | 0.103 | Jun 2016 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.211 | - |
| TCM Engineering Support | Various | MCSC : Quantico, VA | 0.000 | 0.000 | | 0.082 | Sep 2017 | 0.030 | Sep 2018 | - | | 0.030 | Continuing | Continuing | Continuing |
| VSAT Engineering Support | WR | SSC-PAC : San Diego, CA | 0.000 | 0.239 | Feb 2016 | 0.252 | Feb 2017 | 0.254 | Feb 2018 | - | | 0.254 | Continuing | Continuing | Continuing |
| SMART-T Engineering Support | WR | SSC-LANT : Charleston, SC | 0.177 | 0.080 | Mar 2016 | 0.055 | Mar 2017 | 0.087 | Mar 2018 | - | | 0.087 | Continuing | Continuing | Continuing |
| TWTS Engineering Support | C/CPFF | NAVAIR : Pax River, MD | 0.000 | 0.050 | Sep 2016 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.050 | - |
| TWTS NGT Safety Support | C/CPFF | NSWC : Indian Head, MD | 0.000 | 0.000 | | 0.193 | May 2017 | 0.227 | Feb 2018 | - | | 0.227 | Continuing | Continuing | Continuing |
| TWTS Program Management Support | Various | MCSC : Quantico, VA | 0.000 | 0.000 | | 0.891 | Aug 2017 | 1.339 | May 2018 | - | | 1.339 | Continuing | Continuing | Continuing |
| TWTS NGT Logistics Support | WR | TBD : TBD | 0.000 | 0.000 | | 0.000 | | 0.230 | May 2018 | - | | 0.230 | Continuing | Continuing | Continuing |
| Prior Years Cumulative Funding | Various | Various : Various | 1.062 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 1.062 | - |
| | | **Subtotal** | 1.347 | 0.472 | | 1.473 | | 2.167 | | - | | 2.167 | - | - | - |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TCM Antenna Environmental Test | WR | SSC-Lant : Charleston, SC | 0.000 | 0.032 | Jul 2016 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.032 | - |
| TCM MUOS Test Assets | C/FFP | MCSC : Quantico, VA | 0.000 | 0.100 | Mar 2016 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.100 | - |
| TCM RADHAZ PF Analysis | WR | NSWC Dahlgren : Dahlgren, VA | 0.000 | 0.000 | | 0.054 | Feb 2017 | 0.000 | | - | | 0.000 | 0.000 | 0.054 | - |
| TCM HFR II Test Assets | C/FFP | MCSC : Quantico, VA | 0.000 | 0.000 | | 0.000 | | 2.455 | Jun 2018 | - | | 2.455 | 0.000 | 2.455 | - |

| Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy | | | Date: May 2017 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | R-1 Program Element (Number/Name)<br>PE 0206313M / *Marine Corps Comms Systems* | Project (Number/Name)<br>2275 / *Marine Corps Tactical Radio Systems* | |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TCM FoS Test Activities | TBD | TBD : TBD | 0.000 | 0.000 | | 0.268 | Sep 2017 | 1.050 | Feb 2018 | - | | 1.050 | Continuing | Continuing | Continuing |
| NOTM Vehicle Integration Testing | WR | SSC-LANT : Charleston, SC | 0.828 | 0.185 | May 2016 | 0.000 | | 1.975 | Feb 2018 | - | | 1.975 | Continuing | Continuing | Continuing |
| NOTM-A Testing | C/CPFF | DTIC : Fort Belvoir, VA | 0.000 | 0.000 | | 4.113 | Jun 2017 | 1.686 | Feb 2018 | - | | 1.686 | 0.000 | 5.799 | - |
| NOTM-A Testing | WR | NSWC Crane : Crane, IN | 0.000 | 0.000 | | 0.000 | | 0.750 | Feb 2018 | - | | 0.750 | 0.000 | 0.750 | - |
| NOTM-A Testing | WR | SSC PAC : San Diego, CA | 0.000 | 0.000 | | 0.000 | | 0.750 | Feb 2018 | - | | 0.750 | 0.000 | 0.750 | - |
| NOTM EOL | C/FFP | SSC_LANT : Charleston, SC | 0.000 | 0.236 | Mar 2016 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.236 | - |
| NOTM Power Distribution Retrofit ECP | C/CPFF | DTIC : Fort Belvoir, VA | 0.000 | 0.297 | Dec 2015 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.297 | - |
| NOTM SWAP Reduction ECP | C/CPFF | SSC-LANT : Charleston, SC | 0.000 | 0.000 | | 1.757 | Feb 2017 | 0.000 | | - | | 0.000 | 0.000 | 1.757 | - |
| VSAT Testing | MIPR | TBD : TBD | 0.000 | 0.000 | | 0.000 | | 0.211 | Feb 2018 | - | | 0.211 | Continuing | Continuing | Continuing |
| TWTS T&E Support | C/FFP | Dept. of Human Health and Services : Rockville, MD | 0.000 | 0.000 | | 0.242 | Dec 2017 | 0.366 | Feb 2018 | - | | 0.366 | Continuing | Continuing | Continuing |
| TWTS NGT MILSTD c/x-band Testing | TBD | SPAWAR : TBD | 0.000 | 0.000 | | 0.000 | | 0.365 | Dec 2017 | - | | 0.365 | Continuing | Continuing | Continuing |
| TWTS NGT JTIC Certification Plan | TBD | TBD : TBD | 0.000 | 0.000 | | 0.000 | | 0.200 | Nov 2017 | - | | 0.200 | 0.000 | 0.200 | - |
| Prior Years Cumulative Funding | Various | Various : Various | 9.596 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 9.596 | - |
| | | **Subtotal** | 10.424 | 0.850 | | 6.434 | | 9.808 | | - | | 9.808 | - | - | - |

| Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2275 / *Marine Corps Tactical Radio Systems* |

**Management Services ($ in Millions)**

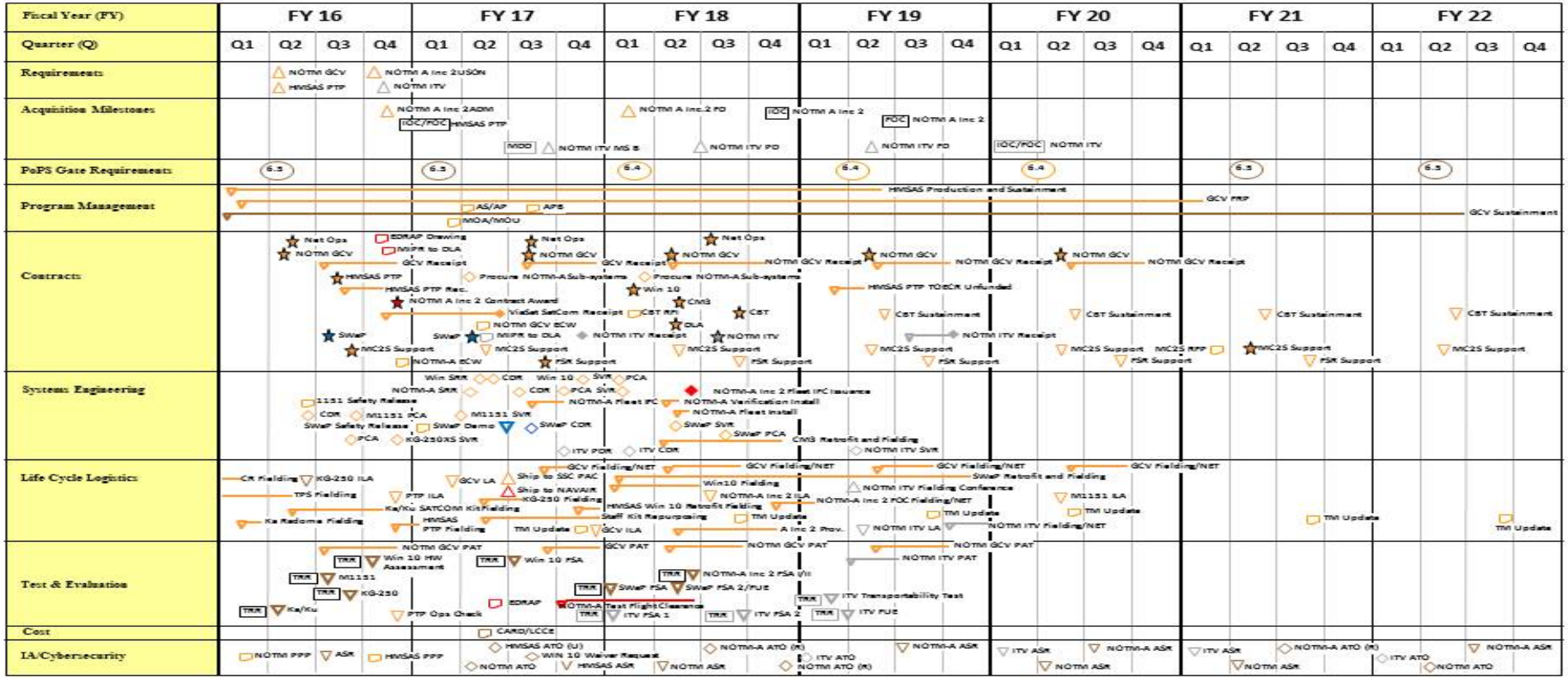
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2016 Cost | FY 2016 Award Date | FY 2017 Cost | FY 2017 Award Date | FY 2018 Base Cost | FY 2018 Base Award Date | FY 2018 OCO Cost | FY 2018 OCO Award Date | FY 2018 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TCM Engineering Support | FFRDC | US Army, MITRE : Stafford, VA | 0.237 | 0.237 | Sep 2016 | 0.142 | Feb 2017 | 0.295 | Feb 2018 | - | | 0.295 | Continuing | Continuing | Continuing |
| VSAT Engineering Support | FFRDC | US Army, MITRE : Stafford, VA | 4.953 | 0.056 | Apr 2016 | 0.061 | Feb 2017 | 0.077 | Feb 2018 | - | | 0.077 | Continuing | Continuing | Continuing |
| SMART-T Engineering Support | FFRDC | US Army, MITRE : Stafford, VA | 0.000 | 0.100 | Apr 2016 | 0.134 | Feb 2017 | 0.100 | Feb 2018 | - | | 0.100 | Continuing | Continuing | Continuing |
| TWTS Engineering Support | FFRDC | US Army, MITRE : Stafford, VA | 0.000 | 0.000 | | 0.370 | Feb 2017 | 0.383 | Feb 2018 | - | | 0.383 | Continuing | Continuing | Continuing |
| Prior Year Cumulative Funding | FFRDC | US Army, MITRE : Stafford, VA | 5.698 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| | | **Subtotal** | 10.888 | 0.393 | | 0.707 | | 0.855 | | - | | 0.855 | - | - | - |

| | 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** | 36.429 | 4.929 | | 15.161 | | 22.722 | | - | | 22.722 | - | - | - |

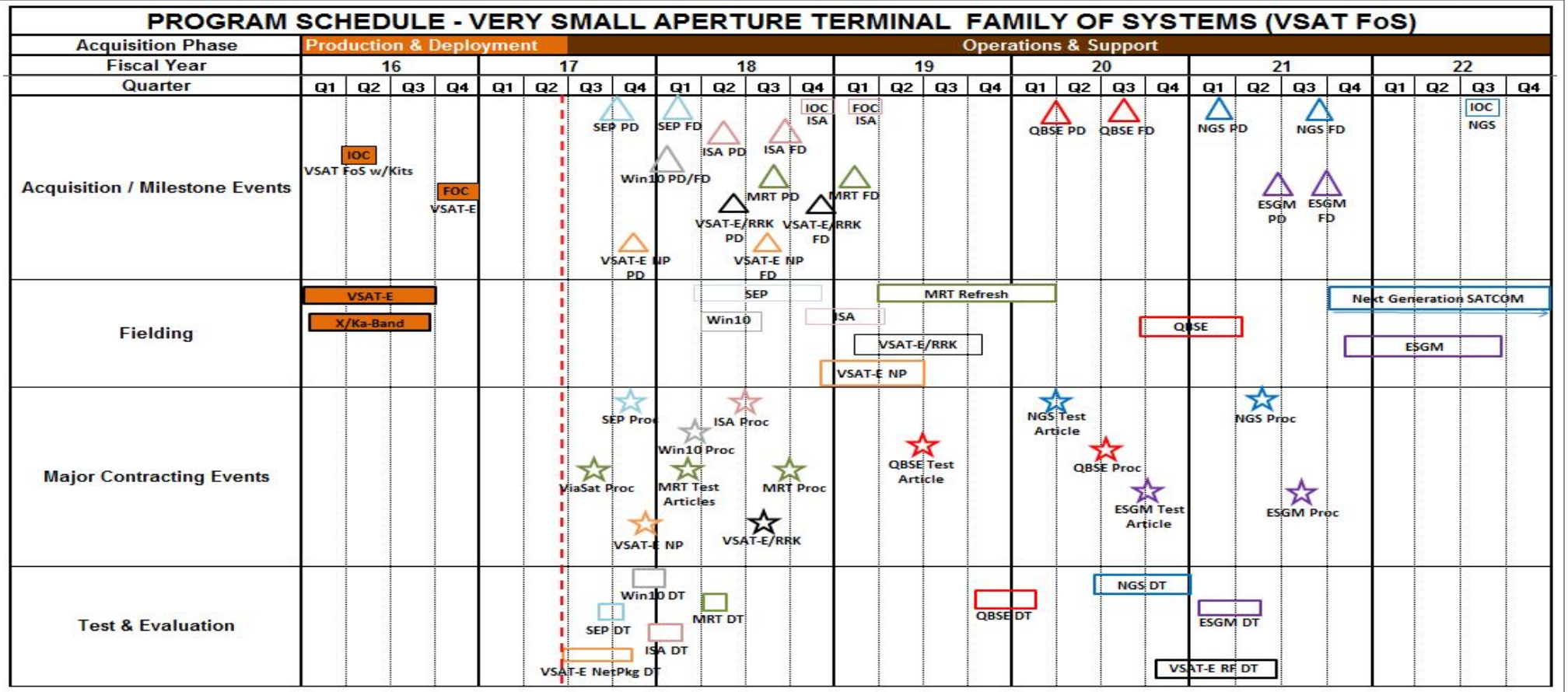
**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2275 / *Marine Corps Tactical Radio Systems* |

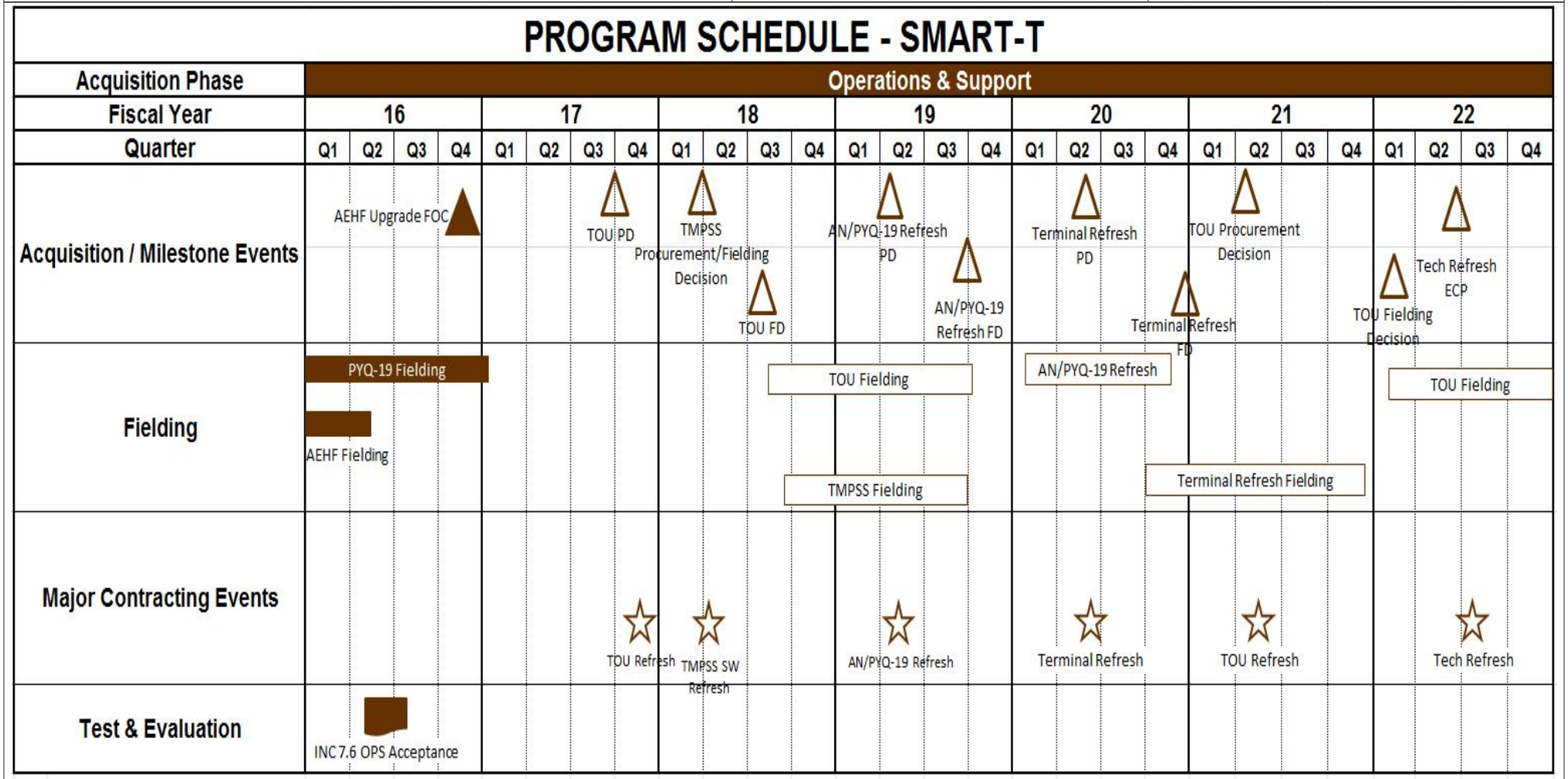
# Networking On The Move (NOTM)



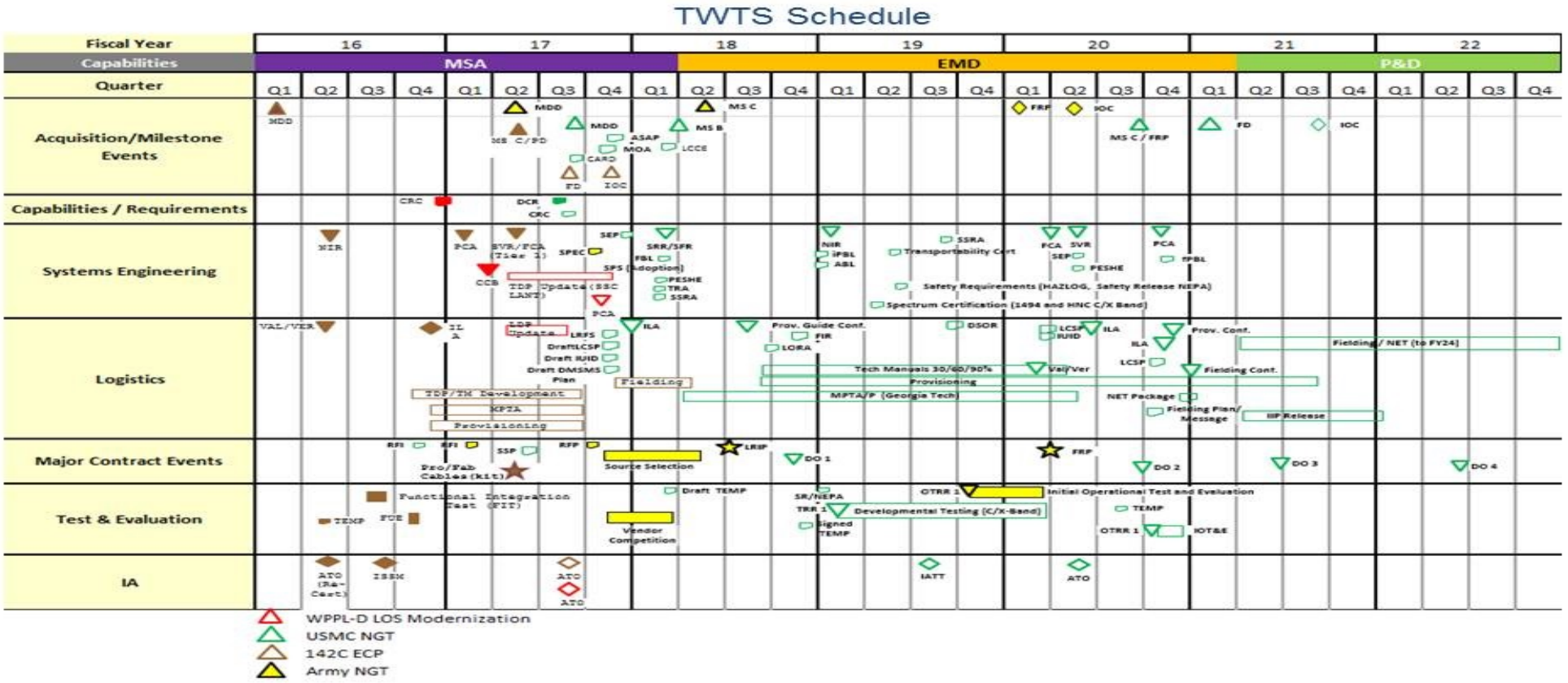
| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2275 / *Marine Corps Tactical Radio Systems* |



| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2275 / *Marine Corps Tactical Radio Systems* |

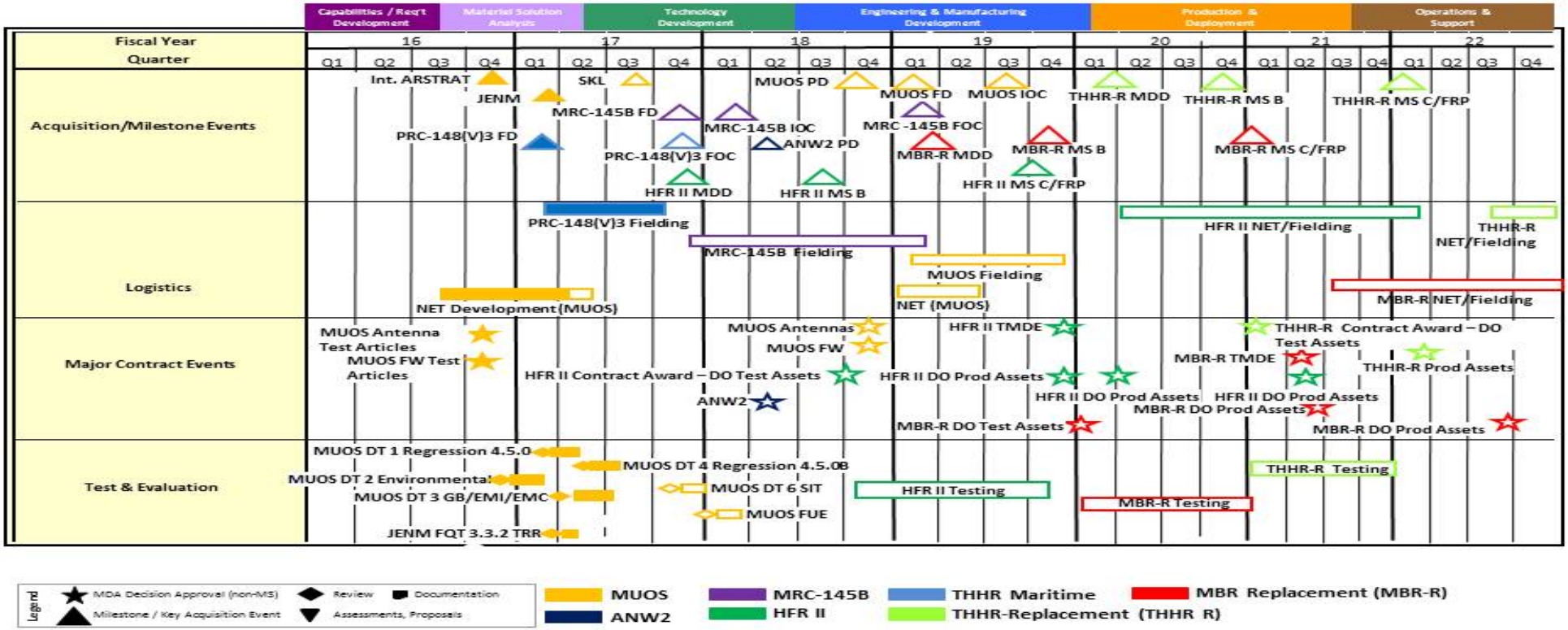


| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2275 / *Marine Corps Tactical Radio Systems* |



| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2275 / *Marine Corps Tactical Radio Systems* |

# TCM Schedule



| Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2275 / *Marine Corps Tactical Radio Systems* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***Proj 2275*** | | | | |
| TCM MRC-145B Fielding Decision | 4 | 2017 | 4 | 2017 |
| TCM PRC-148 V3 FOC | 4 | 2017 | 4 | 2017 |
| TCM MRC-145B IOC | 1 | 2018 | 1 | 2018 |
| TCM MUOS Procurement Decision | 4 | 2018 | 4 | 2018 |
| TCM MUOS Contract Award | 4 | 2018 | 4 | 2018 |
| TCM HFR II Contract Award | 4 | 2018 | 4 | 2018 |
| TCM MUOS Fielding Decision | 1 | 2019 | 1 | 2019 |
| TCM MUOS IOC | 3 | 2019 | 3 | 2019 |
| TCM HFR II-M MS C / FRP | 4 | 2019 | 4 | 2019 |
| VSAT VIASAT Procurement | 3 | 2017 | 3 | 2017 |
| VSAT Signal Entry Panel Procurement | 4 | 2017 | 4 | 2017 |
| VSAT-E RRK Network Package Refresh Procurement | 4 | 2017 | 4 | 2017 |
| VSAT Signal Entry Panel Fielding | 1 | 2018 | 4 | 2018 |
| VSAT WIN 10 Procurement | 1 | 2018 | 1 | 2018 |
| VSAT Inflatable Satellite Antenna Procurement | 2 | 2018 | 2 | 2018 |
| VSAT WIN 10 Fielding | 2 | 2018 | 3 | 2018 |
| VSAT Inflatable Satellite Antenna Fielding | 4 | 2018 | 2 | 2019 |
| VSAT-E Network Package Refresh Fielding | 4 | 2018 | 3 | 2019 |
| VSAT MRT Procurement | 4 | 2018 | 4 | 2018 |
| VSAT MRT Fielding | 2 | 2019 | 1 | 2020 |
| SMART-T WIN-T TOU Procurement | 4 | 2017 | 4 | 2017 |

| Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2275 / *Marine Corps Tactical Radio Systems* |

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| SMART-T TMPSS Procurement | 2 | 2018 | 2 | 2018 |
| SMART-T TOU Fielding | 3 | 2018 | 4 | 2019 |
| SMART-T TMPSS Fielding | 3 | 2018 | 4 | 2019 |
| TWTS MRC-142C MS C/PD | 2 | 2017 | 2 | 2017 |
| TWTS MRC-142C FD | 3 | 2017 | 3 | 2017 |
| TWTS NGT MDD | 3 | 2017 | 3 | 2017 |
| TWTS MRC-142C IOC | 4 | 2017 | 4 | 2017 |
| TWTS NGT MS B | 2 | 2018 | 2 | 2018 |
| TWTS NGT MS C/ FRP | 3 | 2020 | 3 | 2020 |
| TWTS NGT FD | 1 | 2021 | 1 | 2021 |
| TWTS NGT IOC | 3 | 2021 | 3 | 2021 |
| NOTM-A Fielding Decision | 1 | 2018 | 1 | 2018 |
| NOTM-A Inc 2 IOC | 4 | 2018 | 4 | 2018 |
| NOTM-A Inc 2 FOC | 2 | 2019 | 2 | 2019 |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | | Date: May 2017 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | R-1 Program Element (Number/Name)<br>PE 0206313M / *Marine Corps Comms Systems* | Project (Number/Name)<br>2276 / *Comms Switching and Control 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2276: *Comms Switching and Control Sys* | 40.765 | 1.938 | 2.216 | 2.799 | - | 2.799 | 2.618 | 2.748 | 2.808 | 2.663 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

**Note**

The FY 2018 funding request was increased by $0.583M to account for the redesign of the CDN systems to reduce size, weight, and power (SWaP).

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

(U) Network Planning & Management (NPM) is a portfolio of communications planning and Network Management applications for use throughout the Marine Air-Ground Task Force (MAGTF). NPM consists of items such as the Systems Planning Engineering and Evaluation Device (SPEED). NPM provides the Marine Forces (MARFOR) component planners with the ability to conduct high-level planning; detailed planning and engineering; monitoring; control and reconfiguration; and spectrum planning and management in support of Combatant Commander (COCOM) and Commander, Joint Task Force (CJTF) operations. SPEED provides High Frequency (HF) predictions, Line of Site (LOS) propagation, Radio Coverage Analysis (RCA), Satellite Planning, Command and Control Personal Computer (C2PC) track interface, interference and de-confliction analysis, spectrum management, Radio Guard Charts, Comm-On-The-Move (COTM), and T/E (training & education) and force structure management.

(U) Tactical Voice Switching System (TVSS): The TVSS is a modular Integrated Services Digital Network (ISDN) circuit switch capable system that combines voice and Voice Over Internet Protocol telecommunications, multiplexing, transmission encryption, and group modem capabilities in one system for command, control, administrative, and logistic voice communications. Facilitates secure and non-secure voice, circuit switching functions, and network routing and management functions with current fielded tactical systems of the military services. Interoperates with joint, coalition, and host nation networks, and operates in unclassified and classified environments. Decrease of $0.202M between FY17 and FY18 represents reduced requirements to support technical refreshes.

(U) Combat Data Network (CDN), formerly Data Distribution System - Modular (DDS-M): The CDN provides the commander a modular, integrated, and interoperable Internet Protocol (IP)- based LAN and WAN data networking capability that forms the data communications backbone and data communications support to organizations within a MAGTF. The CDN provides extension of the Defense Information System Network (DISN), Secret Internet Protocol Router Network (SIPRNet), Sensitive But Unclassified (SBU), Non-secure Internet Protocol Router Network (NIPRNet) as well as a Coalition networking capability and access to strategic, supporting establishments, joint and other service component tactical data networks for Marine Corps Tactical Data Systems (TDSs) and other CDN. The CDN provides Marine Corps maneuver elements with a modular and scalable IP data transport capability that will replace, supplement and be used with existing legacy data systems through the integration of computers, routers, data switches and cabling, radio net interface units, modems, link encryption devices, and patch panels. Uninterrupted Power Supplies (UPS) provide for emergency power and continuity of operations. The CDN can operate from the SBU up to the Top Secret/Sensitive Compartmented Information (TS/SCI) level and contains integral In-line Network Encryption (INE) device supporting IP Security (IPSec) and Virtual Private Networking (VPN). Increase of $0.794M from FY17 to FY18 provides for design, testing, and procurement of prototypes and test articles in support of the reconfiguration of Battalion and below CDN systems to reduce size, weight, and power (SWaP).

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|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2276 / *Comms Switching and Control Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***Title:*** NPM: Product Development | 0.935 | 0.914 | 0.905 | 0.000 | 0.905 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>Continued to provide additional enhancements and capabilities within the System Planning Engineering and Evaluation Device (SPEED) software testing. | | | | | |
| ***FY 2017 Plans:***<br>Continues to provide additional enhancements and capabilities within the System Planning Engineering and Evaluation Device (SPEED) software testing. | | | | | |
| ***FY 2018 Base Plans:***<br>Continues to provide additional enhancements and capabilities within the System Planning Engineering and Evaluation Device (SPEED) software testing. | | | | | |
| ***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** TVSS: Engineering and Program Support | 0.000 | 0.011 | 0.010 | 0.000 | 0.010 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>N/A | | | | | |
| ***FY 2017 Plans:***<br>Provides program and requirements management of technology, Information Assurance and end of life/end of component support. | | | | | |
| ***FY 2018 Base Plans:***<br>Continues program and requirements management of technology, Information Assurance and end of life/end of component support. | | | | | |
| ***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** TVSS: Test & Evaluation | 0.213 | 0.106 | 0.000 | 0.000 | 0.000 |
| ***Articles:*** | - | - | - | - | - |

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| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2276 / *Comms Switching and Control Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***Description:*** Decrease $0.106M from FY17 to FY18 reflects program transition to requirements management for end of life/end of component upgrades.<br><br>***FY 2016 Accomplishments:***<br>Funds supported testing of the session border control and program engineering support.<br><br>***FY 2017 Plans:***<br>Funds support testing and evaluation for Information Assurance and end of life/end of component upgrades.<br><br>***FY 2018 Base Plans:***<br>N/A<br><br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** TVSS: Management Services | 0.000 | 0.152 | 0.057 | 0.000 | 0.057 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** Decrease of $0.095M reflects reduced requirements as program transitions to VoIP.<br><br>***FY 2016 Accomplishments:***<br>N/A<br><br>***FY 2017 Plans:***<br>Continue engineering, testing and technical support for Information Assurance and end of life/end of component upgrades.<br><br>***FY 2018 Base Plans:***<br>Continue engineering testing and technical support and end of life support component upgrades. Reduced requirements as program transitions to VoIP.<br><br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** CDN: Product Development | 0.200 | 0.290 | 0.430 | 0.000 | 0.430 |
| ***Articles:*** | - | - | - | - | - |

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| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2276 / *Comms Switching and Control Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***Description:*** $.140 increase from FY17 to FY18 supports Network Optimization and reconfiguration efforts to reduce size, weight, and power (SWaP) requirements of the CDN systems.<br><br>***FY 2016 Accomplishments:***<br>Continued development and implementation of required hardware updates such as switches.<br><br>***FY 2017 Plans:***<br>Continue development and implementation of required hardware updates such as servers.<br><br>***FY 2018 Base Plans:***<br>Continue development and implementation of required hardware updates.<br><br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** CDN: Engineering and Program Support<br>***Articles:***<br><br>***Description:*** The increase of $.0.098M from FY17 to FY18 will support Network Optimization and reconfiguration efforts to reduce size, weight, and power (SWaP) requirements of the CDN systems.<br><br>***FY 2016 Accomplishments:***<br>N/A<br><br>***FY 2017 Plans:***<br>Initiate efforts to support engineering change proposals in support of Network Optimization.<br><br>***FY 2018 Base Plans:***<br>Continues efforts to support engineering change proposals.<br><br>***FY 2018 OCO Plans:***<br>N/A | 0.000<br>- | 0.042<br>- | 0.140<br>- | 0.000<br>- | 0.140<br>- |
| ***Title:*** CDN: Test and Evaulation<br>***Articles:***<br><br>***Description:*** $0.075M increase from FY17 to FY18 reflects transition to engineering for Network Optimization and reconfiguration efforts to reduce size, weight, and power (SWaP) requirements of the CDN systems. | 0.300<br>- | 0.535<br>- | 0.610<br>- | 0.000<br>- | 0.610<br>- |

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| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***FY 2016 Accomplishments:***<br>Supported joint interoperability test certification efforts demonstrated through DoD Interoperability Communication Exercises for equipment such as switches.<br>***FY 2017 Plans:***<br>Continues support for interoperability test certification efforts demonstrated through DoD Interoperability Communication Exercises for equipment such as servers.<br>***FY 2018 Base Plans:***<br>Continue support for joint interoperability test certification efforts demonstrated through DoD Interoperability Communication Exercises.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** CDN: Management Services<br>***Articles:***<br>***Description:*** The increase of $0.481M from FY17 to FY18 supports initiation of technology research for Network Optimization and reconfiguration efforts to reduce size, weight, and power (SWaP) requirements of the CDN systems.<br>***FY 2016 Accomplishments:***<br>Continued FFRDC systems engineering efforts, interoperability analysis, acquisition planning, support for technology research and obsolescence.<br>***FY 2017 Plans:***<br>Continues FFRDC systems engineering efforts, interoperability analysis, acquisition planning, support for technology research and obsolescence.<br>***FY 2018 Base Plans:***<br>Continue FFRDC systems engineering efforts, interoperability analysis, acquisition planning, support for technology research and obsolescence.<br>Initiate FFRDC efforts in support of Network Optimization and reconfiguration efforts to reduce size, weight, and power (SWaP) requirements of the CDN systems.<br>***FY 2018 OCO Plans:*** | 0.290<br>- | 0.166<br>- | 0.647<br>- | 0.000<br>- | 0.647<br>- |

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| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2276 / *Comms Switching and Control Sys* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| N/A | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 1.938 | 2.216 | 2.799 | 0.000 | 2.799 |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • PMC/4634-1: *TVSS* | 8.845 | 20.844 | 8.350 | - | 8.350 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| • PMC/4634-2: *CDN* | 48.965 | 43.967 | 44.628 | - | 44.628 | 43.237 | 35.956 | 36.732 | 37.506 | Continuing | Continuing |

**Remarks**

**D. Acquisition Strategy**

(U) Network Planning and Management (NPM): NPM will maximize use of existing Commercial Off-The-Shelf (COTS) and Government Off-The-Shelf (GOTS) products. NPM will continue to be upgraded as technology advances. Major focus will be on the incorporation of additional capabilities and functionality into the SPEED software to meet user requirements. R&D effort will focus on the development, integration, and testing of improved versions of existing capabilities.

(U) Tactical Voice Switching System (TVSS) (formerly Transition Switch Module (TSM)): TVSS will maximize use of existing COTS, GOTS, and Government-Furnished Equipment (GFE). TVSS hardware and software will continue to be upgraded and improved as technology advances. Major focus will be on interoperability and compatibility with existing systems and components in the Marine Corps, as well as Joint and Coalition forces. R&D effort will focus on integration and testing of improved versions of existing components.

(U) Combat Data Network (CDN), formerly Data Distribution System - Modular (DDS-M): CDN will maximize use of existing COTS, GOTS, and GFE. CDN hardware and software will continue to be upgraded and improved as technology advances. Major focus will be on interoperability and compatibility with existing systems and components in the Marine Corps, as well as Joint and Coalition forces. R&D effort will focus on integration and testing of improved versions of existing components. CDN may reuse other Services' development and utilize external contracts that satisfy requirements and analysis of alternatives.

**E. Performance Metrics**

Milestone reviews and technical reviews

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| Appropriation/Budget Activity<br>1319 / 7 | R-1 Program Element (Number/Name)<br>PE 0206313M / *Marine Corps Comms Systems* | Project (Number/Name)<br>2277 / *System Engineering and Integration* | |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2277: *System Engineering and Integration* | 38.330 | 5.013 | 4.861 | 8.314 | - | 8.314 | 5.582 | 6.079 | 6.395 | 6.402 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

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

This project provides funds for engineering, test, and evaluation activity, which ensures that the systems being developed within the Program Element (PE) employ consistent standards for interoperability and to the maximum extent feasible use of hardware and software which is uniform and standard across programs.

Expeditionary Energy Office (E2O): Energy is a top priority for the USMC and one of the six pillars of Modernization for the Corps identified by the Commandant. In 2009, the Commandant established the USMC Expeditionary Energy Office (E2O), with the mission to analyze, develop, and direct the Marine Corps' energy strategy in order to optimize expeditionary capabilities across all warfighting functions. E2O's role is to advise the Marine Requirements Oversight Council (MROC) on all energy and resource related requirements, acquisitions, and programmatic decisions. This office and funding directly support execution of the USMC Expeditionary Energy Strategy and Implementation Plan (Mar 2011), and priorities identified in the USMC Expeditionary Energy Water and Waste Initial Capabilities Document/Capabilities Based Assessment (Sep 2011), as well as Science and Technology Objectives identified in the 2012 USMC S&T Strategic Plan. The Marine Corps program aligns with the Commandant's Planning Guidance 2010, the National Defense Authorization Act 2009, DoD directives and SECNAV goals. This funding will support the achievement of the Strategy, and the activities of the USMC Expeditionary Energy Concepts process, managed by the E2O.

Joint Interoperability of Tactical Command and Control Systems (JINTACCS) is a Joint Chiefs-of-Staff (JCS)/DoD-mandated program for joint development, implementation, and testing of tactical data links and US Message Text Format (MTF) under the direction of the Defense Information Systems Agency (DISA) and Office of the Secretary of Defense/ Networks and Information Integration (OASD/NII) per the Commander Joint Chiefs of Staff (CJCSI) Instructions 6610.01C and CJCS16241.04 respectively. This effort also covers interoperability and testing of tactical message standards such as MILSTD 6017 Variable Message Format used between the US Army and USMC; and Coalition message formats the Joint Command, Control, Consultation Information Exchange Data Model (JC3IEDM). Responsible for the development of Net Centric standards (XML, Web Services) to meet requirements of USMC/DoD/Coalition Net Centric Data Strategies. Efforts in this area include NATO Coalition interoperability initiatives, Army/Marine Corps Board support, and interoperability testing and certification to include cross domain.

Systems Engineering, Integration and Coordination (SEIC) is MCSC Chief Engineer's systems engineering and integration program. SEIC provides the decision support tools and engineering analysis resources needed to assess, identify and resolve MAGTF inter-systems' SoS issues and challenges. SEIC supports DC CD&I, DC PP&O, DC A, DC I&L, DC M&RA, HQMC C4, and HQMC INT in the analysis, evaluation, and assessment of MAGTF Systems and SoS requirements. SEIC centralized management of C4ISR programs allows the implementation of systems engineering certification process in support of milestone decision approval; a requirements and functional analysis process enabling system of systems engineering and an overarching C4ISR systems architecture, and a product realization process to support budget decisions. SEIC engineering conducts functional analyses for emergent system of systems challenges and ensures seamless integration and maximum interoperability of materiel across USMC, Naval, Joint, and DoD programs consistent with the Commandant's Vision and Strategy 2025.

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Marine Civil Information Management System (MARCIMS) is a system of systems comprised of people, process and technology that operates in the full Joint, Interagency, Intergovernmental, and Multinational (JIIM) environment. It is a force multiplier for the commander that allows him to leverage the process of Planning, Collection, Consolidation, Analysis, Production, and sharing of civil information in order to support the visualization and understanding of the civil environment to the military commander's decision making process.

Public Affairs System (PAS) provides the Marine Air Ground Task Force (MAGTF) and the broader Marine Corps the capability to research, understand and affect the information environment. PA Marines and Systems enable commanders at all levels and across the range of military operations to engage domestic and foreign publics whose trust, confidence, and understanding are mission critical. The Public Affairs Systems (PAS) AAP identifies and fields materiel solutions required to research and plan communication initiatives, acquire still and video visual information, produce and disseminate communication products, and assess the effects of communication initiatives within the information environment. The program maintains an evolutionary approach to acquisitions, and leverages commercial industry-standard non-developmental items to provide the best value to the Marine Corps, while keeping PA Marines appropriately equipped to understand and affect the information environment. This effort supports research and evaluate solutions to modernize the Public Affairs Still Acquisition System into a single handheld device with the capability to acquire, edit and transmit still and video imagery and engage publics via traditional and social media.

The Military Information Support Operations (MISO)Family of Systems (FOS), which consists of the Fly-Away Broadcast System (FABS), Next-Generation Loud Speaker (NGLS), Radio-In-A-Box (RIAB), and Marine Corps SOF Integration Node (MISN), provides the Marine Air Ground Task Force (MAGTF) Commander the capability to conduct planned operations to convey selected information and indicators to foreign adversary, neutral and friendly target audiences to influence their emotions, motives, objective reasoning, providing an operational advantage. The MISO was established in response to multiple Marine Requirements Oversight Council Memorandums, and the approval of a MISO Organizational and Operational (O&O) Concept, 16 June 2015. MISO capabilities are critical to the success of the MAGTF mission, enabling commanders to shape the information environment, counter enemy propaganda, misinformation, disinformation, and adversarial narratives. The Signature Management (SIGMAN) capability will support MAGTF Operations with a baseline capability to include Own-force signature monitoring and assessment, Electromagnetic signature masking and projection, and physical decoys.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***Title:*** Expeditionary Energy Office (E2O) | 2.140 | 2.159 | 2.199 | 0.000 | 2.199 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>- Continued to support the USMC Expeditionary Energy Strategy and Implementation Plan, and priorities identified in the USMC Expeditionary Energy Water and Waste Initial Capabilities Document/Capabilities Based Assessment, as well as Science and Technology Objectives identified in the 2012 USMC S&T Strategic Plan. Using these priority roadmaps, E2O will invest in R&D programs to advance Strategy goals. Priority areas for investment include, but are not limited to: Energy harvesting; hybrid power; efficient heating and cooling of | | | | | |

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| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| people, equipment and water; energy storage; energy efficient vehicles; energy metering and monitoring and decision tools; energy efficient shelters and sustainment.<br>***FY 2017 Plans:***<br>- Continue to support the USMC Expeditionary Energy Strategy and Implementation Plan, and priorities identified in the USMC Expeditionary Energy Water and Waste Initial Capabilities Document/Capabilities Based Assessment, as well as Science and Technology Objectives identified in the 2012 USMC S&T Strategic Plan. Using these priority roadmaps, E2O will invest in R&D programs to advance Strategy goals. Priority areas for investment include, but are not limited to: Energy harvesting; hybrid power; efficient heating and cooling of people, equipment and water; energy storage; energy efficient vehicles; energy metering and monitoring and decision tools; energy efficient shelters and sustainment.<br>***FY 2018 Base Plans:***<br>- Continue to support the USMC Expeditionary Energy Strategy and Implementation Plan, and priorities identified in the<br>USMC Expeditionary Energy Water and Waste Initial Capabilities Document/Capabilities Based Assessment, as well as<br>Science and Technology Objectives identified in the 2012 USMC S&T Strategic Plan. Using these priority roadmaps, E2O<br>will invest in R&D programs to advance Strategy goals. Priority areas for investment include, but are not limited to: Energy harvesting; hybrid power; efficient heating and cooling of people, equipment and water; energy storage; energy efficient vehicles; energy metering and monitoring and decision tools; energy efficient shelters and sustainment.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** JINTACCS: JCS and DoD CIO Data Links Testing | 0.403 | 0.598 | 0.572 | 0.000 | 0.572 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** Joint Interoperability of Tactical Command and Control Systems (JINTACCS) is a United States military program for the development and maintenance of tactical information exchange configuration items (CIs) and operational procedures. It was originated to ensure that the command and control (C2 and C3) and weapons systems of all US military services and NATO forces would be interoperable. MARCORSYSCOM Systems Engineering, Interoperability Architectures, and Technology direct the JINTACCS Program. Created as a non-acquisition R&D engineering program it provides for critical engineering services in several areas. | | | | | |

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| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| JINTACCS is essential to USMC development and maintenance of tactical data exchange standards (Link 16, VMF, MTF, etc.), maintenance of C2 systems interoperability issues, development of Net Centric standards (XML, Web Services) to meet requirements of DoD/USMC Net Centric Data Strategy, and participation in Marine Corps, Joint, and Coalition Interoperability Certification testing to DoD/JCS/USMC/ NATO requirements in an ever-changing cyber environment. Requirements annotated in IT Budget Submit (NC-36). Increased involvement with the Army Marine Corps Board (AMCB, 3 Star Charter)), NATO Coalition Interoperability Assurance and Validation (CIAV) and Cross Domain Solution (CDS) certification.<br><br>***FY 2016 Accomplishments:***<br>-Initiated development of a NATO Coalition architecture to engineer interoperability of battalion and below forces to potentially expand the use of the STANAG in a Federated Mission Network (FMN)/Mission Partner Environment (MPE).<br>-Continued leading Joint Services development in the adoption of the National Information Exchange Model (NIEM) by performing the refactoring of Mil Std 6040 USMTF-XML to conform to the NIEM XML syntax and technical framework and engineering the XML translation of the Mil Std 6017 Variable Message Format (VMF) binary to XML message exchange for seamless, lossless C2 tactical data exchanges in net centric operations<br>-Continued NATO Data Management Capability Team (DM CaT). USMC supported the U.S. Head of Delegation (JCS J6) contributing to the development of the NATO Core Data Framework (NCDF) Overarching, Syntax, and Semantics Concept Papers.<br>-Continued Data engineering review of change requests on NIEM/MILOPS Domain data. The MILOPS Domain will provide a repository of reusable data components for standardization of information exchanges that meet Marine Corps IERs in a net-centric environment.<br>-Continued to coordinate NATO interoperability through as the USMC lead for the Coalition Interoperability Assurance<br>and Validation (CIAV) Working Group to identify and assess interoperability issues from current theaters of operations. A new coalition battle lab network (CFBLNET) connection was installed at MCTSSA to enable remote coalition testing and exercise participation.<br>***FY 2017 Plans:***<br>-Continue to review and update all IT Standards applicable to the USMC and maintain the architectural data environment to ensure all developed solution architectures are associated with the appropriate technical IT standards in their DoDAF Standards View. Continue to lead the Army - Marine Corps C2 interoperability Systems Engineering IPT to align the use of tactical messaging standards to create interoperability between the | | | | | |

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| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| DoD ground force systems FBCB2/JTCW (VMF), GCCS (OTH Gold), TBMCS/AFATDS (USMTF), and aviation tactical data links (Link 16/22).<br>-Continue to lead the USMC involvement in NATO forums to ensure USMC tactical C2 systems remain interoperable.<br>-Continue to participate in the development and maintenance of STANAG 4677 and associated architectures to expand interoperability to forces at battalion and below.<br>-Continue the develop and test the implementation of a Multi-Media Gateway (MMG) solution to bridge existing voice, video, and data network standards across tactical and garrison C2 networks through the continued engineering and certification of tactical cross-domain solutions.<br>-Continue to engineer and architect garrison and tactical network standards to continue the MCEN Cyber Vulnerability assessment and support the risk reduction activities to integrate tactical network data exchanges into a Cyber Common Operational Picture to support MARFORCYBER, MCNOSC, and HQMC C4 initiatives through the continued development of MCEN architectures.<br>-Continue implementation of Military Standards for VMF-XML and MTF-XML providing standardized translations of tactical data for seamless, lossless C2 information sharing in net centric operations. | | | | | |
| ***FY 2018 Base Plans:***<br>-Continue to review and update all IT Standards applicable to the USMC and maintain the architectural data environment to ensure all developed solution architectures are associated with the appropriate technical IT standards in their DoDAF Standards View.<br>-Continue to lead the Army - Marine Corps C2 interoperability Systems Engineering IPT to align the use of tactical messaging standards to create interoperability between the DoD ground force systems FBCB2/JTCW (VMF), GCCS (OTH Gold), TBMCS/AFATDS (USMTF), and aviation tactical data links (Link 16/22).<br>-Continue to lead the USMC involvement in NATO forums to ensure USMC tactical C2 systems remain interoperable.<br>-Continue to participate in the development and maintenance of STANAG 4677 and associated architectures to expand interoperability to forces at battalion and below.<br>-Continue to develop and test the implementation of a Multi-Media Gateway (MMG) solution to bridge existing voice, video, and data network standards across tactical and garrison C2 networks through the continued engineering and certification of tactical cross-domain solutions.<br>-Continue to engineer and architect garrison and tactical network standards to continue the MCEN Cyber Vulnerability assessment and support the risk reduction activities to integrate tactical network data exchanges | | | | | |

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| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| into a Cyber Common Operational Picture to support MARFORCYBER, MCNOSC, and HQMC C4 initiatives through the continued development of MCEN architectures.<br>-Continue implementation of Military Standards for VMF-XML and MTF-XML providing standardized translations of tactical data for seamless, lossless C2 information sharing in net centric operations.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** SEIC: Engineering and Technical Support | 2.135 | 1.947 | 1.973 | 0.000 | 1.973 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>- Completed Systems Operational Verifications Tests (SOVT) and System of Systems Operational Tests (SOT) on 5 CANES ships (3 LHDs and 2 LSDs). These tests verified that CANES aboard these ships were properly configured to allow embarking MAGTFs to establish their afloat C4I network and implement essential, enterprise services in support of Global Force Management Plan (GFMP) deployments.<br>- Completed 7 Deployed Group Systems Integration Test (DGSIT) events to integrate MAGTF and USN afloat C2/C4 systems for 11th, 13th, 22nd, 24th and 31st MEUs.<br>- Completed technical review for the development of the 2016 Afloat MAGTF C4 Required Capabilities (AMC4RC) Letter, as well as being the principal author of 2 of 6 Enclosures.<br>- Completed changes/updates to two Engineer Change Requests (ECRs) with PEO C4I, PMW-160, which implemented fleet-wide improvements to Navy/Marine Corps Quality of Service (QoS) afloat.<br>- Continued engineering and technical support to the development (CD&I, CDD, C2/CEWID) of the USMC brief and service position for the JCS J6 led, Joint C2 Integration Workshop for Enterprise Common Operational Picture (ECOP) and Global Command & Control System - Joint (GCCS-J) modernization.<br>- Completed five POM issues for Blue-In-Support-Of-Green (BISOG) programs.<br>- Completed analyses for MAGTF Command Element, Ground Combat Element, and Aviation Combat Element command and control systems and weapons platform integration and interoperability.<br>- Completed individual Integration Analysis plans for each MAGTF element; only USMC documents to view USMC C2 integration and interoperability from a systems of systems perspective.<br>- Completed identifying integration and interoperability gaps, overlaps, and opportunities for investment.<br>- Continued serving as the Marine Corps Service Lead to the Missile Defense Agency-led Joint Systems Engineering Team (JSET) Increment I efforts. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2277 / *System Engineering and Integration* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| - Coordinated with PEO IWS and other Services for development of joint service positions for interoperability initiatives.<br>- Represented Marine Corps and Naval equities for Joint Track Management Capability - including Link 16 and CEC - initiatives.<br>- Continued Link 16 and Variable Message Format (VMF) subject matter expertise to MCSC and PEO LS programs.<br>- Initiated operational and technical representation to the Marine Corps Technical Interoperability Standards Working Group. Provided USMC operational and systems of systems perspectives to proposed Link 16, VMF, XML, MILOPS, and Air Operations COI interface change proposals.<br>- Conducted iSMART feasibility to determine methodology for implementation across MCSC and PEO LS programs.<br>- Completed an Identification, Friend or Foe (IFF) DOTMLPF analysis for Marine Corps air command and control systems' implementation of Mode 5, Mode S, and ADS-B.<br>- Initiated and completed software licenses and training programs for configuration management toolset.<br>- Completed the data management and review of engineering competency policy.<br>- Completed a draft design documentation guidebook.<br>- Completed an acquisition system engineering division knowledge management portal. | | | | | |
| ***FY 2017 Plans:***<br>- Initiate technical and engineering support to the development of the 2017 Afloat MAGTF C4 Required Capabilities (AMC4RC) Letter.<br>- Continue to contribute to the OPNAV N9 & N2/N6 Blue-In-Support-Of-Green (BISOG) program development.<br>- Initiate engineering support and development of USMC input to OUSD AT&L's Joint C2 Capability Area FY18/19 Sustainment & Modernization Plan and JCS J-6 Joint C2 Integration Workshops.<br>- Initiate integration of MAGTF C2 systems and C4 services with shipboard C2 architectures and C4ISR infrastructures in support of 11th, 13th, 22nd, 26th and 31st MEU deployments via DGSIT.<br>- Conduct integration testing with PEO C4I & SPAWAR to integrate MCEN Services and MAGTF C2 Systems into the Navy's CANES environment aboard the LPD-17 class amphibious assault ships.<br>- Continue assessments of the GCTV portfolio in support of the FY18 GCTV Strategy Update.<br>- Continue follow-on activities to C-IED Detection Capability Analysis of Alternatives including assessments for the<br>development of a Capability Development Document (CDD). | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2277 / *System Engineering and Integration* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| - Continue to baseline and assess options to address gaps within the Information Exchange Capabilities of the MAGTF.<br>- Continue analyses of MAGTF Command Element C2 integration and analyses.<br>- Continue as Marine Corps Service Lead for JSET Increment 2 (combat identification/air defense planning tools) analyses.<br>- Continue Link 16 and VMF support to MCSC and PEO LS program offices.<br>- Continue serving as the Marine Corps Unit Reference Number (URN) Manager.<br>- Initiate and oversee iSMART implementation strategy in MCSC and PEO LS.<br>- Initiate effect of unassociated target (UAT) messages on air situational awareness for MAGTF aviation command and control systems.<br>- Initiate command wide training for CM toolsets.<br>- Initiate competency release guidebook for design documentation.<br>- Continue knowledge management portal SIAT-wide.<br>- Continue data and configuration management of divisional products.<br>***FY 2018 Base Plans:***<br>- Initiate technical and engineering support to the development of the 2018 Afloat MAGTF C4 Required Capabilities (AMC4RC) Letter.<br>- Continue to contribute to the OPNAV N9 & N2/N6 Blue-In-Support-Of-Green (BISOG) program development.<br>- Continue engineering support to the development of USMC input to OUSD AT&L's Joint C2 Capability Area FY18/19 Sustainment & Modernization Plan and Plan Build Workshop<br>- Initiate integration MAGTF C2 systems and C4 services with shipboard C2 architectures and C4ISR infrastructures in support of 11th, 13th, 22nd, 26th and 31st MEU deployments via DGSIT.<br>- Initiate integration testing with PEO C4I & SPAWAR to integrate MCEN Services and MAGTF C2 Systems into the Navy's CANES environment aboard the LPD-17 class amphibious assault ships.<br>- Continue to baseline and assess options to address gaps within the Information Exchange Capabilities of the MAGTF.<br>- Continue to manage and expand the Engineering Knowledge Management system to provide consumer focused support to the engineering competency in a configuration controlled electronic library system.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** Public Affairs System (PAS): Product Development | 0.285 | 0.091 | 0.093 | 0.000 | 0.093 |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2277 / *System Engineering and Integration* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>- Initiated research and evaluation of solutions to modernize the Public Affairs Content Creation System (PACCS) to identify a lower cost handheld device with the capability to acquire, edit and transmit still and video imagery and engage publics via traditional and social media. These actions include the evaluation of device solutions, development of specific software applications, and the attainment of required information assurance certifications and accreditations for a handheld Public Affairs System.<br>***FY 2017 Plans:***<br>- Initiate support to the research and evaluation of solutions to modernize the Public Affairs Live Media Engagement System (PALMES) with the capability to transmit imagery and engage publics via traditional and social media via Military Satellite Communications (MILSATCOM). These actions will include the evaluation of device solutions and research of information assurance requirements to accredit the Public Affairs transmission capability.<br>***FY 2018 Base Plans:***<br>- Continue the research and evaluation of solutions to modernize the Public Affairs Live Media Engagement System (PALMES) with the capability to transmit imagery and engage publics via traditional and social media via Military Satellite Communications (MILSATCOM). These actions will include the evaluation of device solutions and research of information assurance requirements to accredit the Public Affairs transmission capability.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** MARCIMS: Marine Civil Information Management System | 0.050 | 0.066 | 0.422 | 0.000 | 0.422 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>-Completed participation in the North Atlantic Treaty Organization's Coalition Warrior Interoperability Exploration, Experimentation, Examination, Exercise 2016 (CWIX16), where MARCIMS achieved successful interoperability goals with a German Civil Information Management System.<br>-Completed participation in the Joint Civil Information Management System (JCIMS) working group to establish a way forward for a joint solution for civil information management and civil military operations.<br>-Completed providing map data to the National Geospatial Agency (NGA) for incorporation into their Map of the World project. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2277 / *System Engineering and Integration* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| -Initiated transmission of MARCIMS map data from the low side to the high side using a data diode, allowing for one-way communication of data to be used by systems with a higher classification level during CWIX16.<br>-Initiated a more user friendly features that simplify the process for product development, information dissemination, and data analysis.<br>-Procured four test devices to identify final device for tech refresh in FY17.<br>***FY 2017 Plans:***<br>-Continue modernization effort to replace aging equipment that is no longer supported by the manufacturer due to changes in business policies and practices.<br>-Initiate participation in CWIX17, with a more robust interoperability goal to automate, disseminate, and incorporate civil information across multiple systems within the NATO coalition framework.<br>-Initiate integration of the Public Affairs System (PAS) newly created hub into the existing MARCIMS cloud architecture.<br>***FY 2018 Base Plans:***<br>-Continue the expansion of cloud services to accommodate additional users across the coalition (NATO, etc.) and other government agencies (NGA, etc.), and the joint service (Army Reserves)<br>-Continue maintaining existing MARCIMS database and architecture.<br>-Initiate development required for the MARCIMS 2.0 implementation and Marine Corps Force (MCF) 2025. This accounts for the funding increase of $356k from FY17 to FY18.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** Military Information Support Operations (MISO)<br>***Articles:***<br>***Description:*** The MISO Family of Systems (FOS), which consists of the Fly-Away Broadcast System (FABS), Next-Generation Loud Speaker (NGLS), Radio-In-A-Box (RIAB), and Marine Corps SOF Integration Node (MISN), provides the Marine Air Ground Task Force (MAGTF) Commander the capability to conduct planned operations to convey selected information and indicators to foreign adversary, neutral and friendly target audiences to influence their emotions, motives, objective reasoning, providing an operational advantage. Funds increase from FY17 to FY18 initiates product development of the Fly-Away Broadcast System (FABS) in preparation for a MS B decision.<br>***FY 2016 Accomplishments:*** | 0.000<br>- | 0.000<br>- | 3.055<br>- | 0.000<br>- | 3.055<br>- |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2277 / *System Engineering and Integration* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| N/A<br>***FY 2017 Plans:***<br>N/A<br>***FY 2018 Base Plans:***<br>Initiate product development of the Fly-Away Broadcast System (FABS) in preparation for a MS B decision.<br>- Complete a production design of the FABS<br>- Validate FABS production requirements<br>- Manage FABS technical risk<br>- Update cost estimates<br>- Define system support requirements<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 5.013 | 4.861 | 8.314 | 0.000 | 8.314 |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • PMC/4620a: *MARCIMS* | 0.248 | 0.297 | 0.235 | - | 0.235 | 0.221 | 0.225 | 0.230 | 0.235 | Continuing | Continuing |
| • PMC/4620b: *Public Affairs Systems* | 1.163 | 0.893 | 1.713 | 0.200 | 1.913 | 0.682 | 0.690 | 0.708 | 0.722 | Continuing | Continuing |

**Remarks**

**D. Acquisition Strategy**

MARCIMS will continue to support and sustain the current baseline system, while employing incremental changes to ensure that the system not only meets current requirements per the Letter of Clarification, but also allows for a more user friendly system. MARCIMS plans to begin development of MARCIMS 2.0 in a partnership with ONR, while simultaneously maintaining the current and approved version of the system.

Public Affairs System will maximize the utilization of commercial-off-the-shelf devices and software to provide best overall performance solutions to the warfighter with minimal developmental cost and schedule investments.

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>*2277 / System Engineering and Integration* |

MISO will complete a production design of the FABS, validate production requirements, manage FABS technical risk and define system support requirements in FY18, leading to a MS B decision in Q2 FY18, MS C decision in Q3 FY19, and an FRP decision in Q2 FY20.

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | | Date: May 2017 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | R-1 Program Element (Number/Name)<br>PE 0206313M / *Marine Corps Comms Systems* | Project (Number/Name)<br>2278 / *Air Defense Weapons System* | |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2278: *Air Defense Weapons System* | 44.734 | 1.635 | 35.009 | 24.214 | - | 24.214 | 6.237 | 6.081 | 6.074 | 6.065 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

**Note**

New sub-title: Ground Based Air Defense-Stinger Sustainment (GBAD-SS) efforts were titled GBAD-Transformation in PB17.

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

Ground Based Air Defense-Stinger Sustainment (GBAD-SS) - Based upon the deployment of the Low Altitude Air Defense (LAAD) Battalions and their employment of the Stinger Missile, GBAD-SS transforms Air Defense equipment through technology insertion and equipment repackaging to address capability gaps as the result of equipment obsolescence and the emergent and evolving threats to the Marine Air Ground Task Force (MAGTF). GBAD-SS consists of four efforts: 1) systems engineering support of currently fielded LAAD equipment/assets to include the Stinger Mounted Optic and Mode 5/S Identification Friend or Foe (IFF); 2) redesign and integration of the Advanced Man-Portable Air Defense System (A-MANPADS) Increment 1 Fire Unit Vehicle (FUV) which consists of a M1114 (HMMWV), into an operationally capable vehicle configuration; 3) design, test, and integration of new systems for the Fire Unit Vehicle (FUV) to replace aging and failing technology. The replacement technology is required to retain interfaces with, and be capable of receiving, a Common Aviation Command and Control System (CAC2S) broadcasted link. It will also be capable of interfacing with legacy Marine Air Command and Control System (MACCS) equipment; 4) Redesign and re-integration of Section Leader Vehicle (SLV) equipment from the shelter on a M1165 configuration to M1114 configuration, providing a common platform with greater mobility, force protection and maneuverability increasing overall operational capability.

GBAD Future Weapons System (GBAD-FWS) is a development effort consisting of a kinetic and non-kinetic capability to defeat the full spectrum of Low-Altitude Low Observable/Low Radar Cross Section threats. The budget reflects the GBAD Future Weapons System and the Commandant of the Marine Corps (CMC) directed Counter-UAS (C-UAS) assessment, engineering and acquisition efforts to determine and pursue technology solutions required to defeat the full spectrum of threats associated with the Marine Corps Low-Altitude Air Defense mission to include C-UAS. Efforts will include assessment, engineering analysis and prototype procurement necessary to evaluate various direct energy, electronic attack, projectile, and missile capabilities to determine the right mix of technologies required to negate aerial threats and provide the MAGTF, as well as, Bases, Posts and Stations, force protection against such threats. With the proliferation of both military and commercial UAS platforms, the program will pursue and acquire a GBAD-FWS platform with a C-UAS capability.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***Title:*** GBAD STINGER SUSTAINMENT: Product Development | 0.827 | 1.016 | 1.420 | 0.000 | 1.420 |
| ***Articles:*** | - | - | - | - | - |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2278 / *Air Defense Weapons System* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***Description:*** The increase in funding from FY17 to FY18 of $.404M supports the system engineering efforts associated with the Missile Mounted Optic (AN/PAS-18) replacement development and Mode 5 replacement development.<br><br>***FY 2016 Accomplishments:***<br>-Initiated Stinger Missile Mounted Optic (AN/PAS-18) replacement development.<br>***FY 2017 Plans:***<br>-Complete Section Leader Vehicle redesign and re-integration of Section Leader Vehicle equipment from the shelter on a M1165 configuration to M1114 configuration.<br>-Continue Stinger Missile Mounted Optic (AN/PAS-18) replacement development.<br>-Initiate Mode 5 replacement development.<br>***FY 2018 Base Plans:***<br>-Continue Stinger Missile Mounted Optic (AN/PAS-18) replacement development.<br>-Continue Mode 5 replacement development.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** GBAD STINGER SUSTAINMENT: Support Costs | 0.403 | 0.364 | 0.462 | 0.000 | 0.462 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>-Continued development of both Stinger Missile Mounted Optic (AN/PAS-18) replacement and M1114 (HMMWV)/FUV Replacement documentation.<br>-Initiated an A-MANPADS Engineering Change Proposal (ECP) Readiness Analysis.<br>***FY 2017 Plans:***<br>-Continue A-MANPADS Engineering Change Proposal (ECP) Readiness Analysis.<br>***FY 2018 Base Plans:***<br>-Completes A-MANPADS Engineering Change Proposal (ECP) Readiness Analysis.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** GBAD STINGER SUSTAINMENT: Test and Evaluation | 0.255 | 0.175 | 0.737 | 0.000 | 0.737 |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2278 / *Air Defense Weapons System* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** The increase in funding from FY17 to FY18 of $0.562M supports the Mode 5 redesign and integration of the Advanced Man-Portable Air Defense System (A-MANPADS)<br><br>***FY 2016 Accomplishments:***<br>-Initiated support of Stinger Missile Mounted Optic (AN/PAS-18) replacement Developmental Test.<br><br>***FY 2017 Plans:***<br>-Continue Section Leader Vehicle redesign transportability testing.<br>-Initiate support of Mode 5 replacement preparations for Field User Evaluation (FUE).<br>-Initiate support of Stinger Missile Mounted Optic (AN/PAS-18) replacement Developmental Test and preparations for Operational Test/Field User Evaluation (OT/FUE).<br><br>***FY 2018 Base Plans:***<br>-Complete Stinger Missile Mounted Optic (AN/PAS-18) Field User Evaluation (FUE).<br>-Complete Mode 5 replacement Field User Evaluation (FUE).<br>-Complete Section Leader Vehicle redesign transportability testing.<br>-The increase in funding from FY17 to FY18 of $0.562M supports the Mode 5 redesign and integration of the Advanced Man-Portable Air Defense System (A-MANPADS)<br><br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** GBAD STINGER SUSTAINMENT: Program Management Support | 0.150 | 0.240 | 0.664 | 0.000 | 0.664 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** The increase in funding from FY17 to FY18 of $0.424M supports the completion of the Stinger Identification Friend or Foe (IFF) replacement acquisition documentation efforts.<br><br>***FY 2016 Accomplishments:***<br>-Continue with Stinger Night Replacement acquisition documentation.<br>-Initiate development of acquisition documentation in support of Stinger Identification Friend or Foe (IFF) replacement system.<br><br>***FY 2017 Plans:***<br>-Complete Stinger Night Replacement acquisition documentation. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2278 / *Air Defense Weapons System* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| -Continue development of acquisition documentation in support of Stinger Identification Friend or Foe (IFF) replacement system.<br>***FY 2018 Base Plans:***<br>-Complete development of acquisition documentation in support of Stinger Identification Friend or Foe (IFF) replacement system.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** GBAD FWS/COUNTER UAS Product Development<br>***Articles:*** | 0.000<br>- | 28.355<br>- | 18.069<br>- | 0.000<br>- | 18.069<br>- |
| ***Description:*** NOTE: The decrease of $10.286M from FY17 to FY18 reflects the Marine Corps assessment to address emergency war fighting requirements for a GBAD Future Weapons System and the Commandant of the Marine Corp (CMC) directed Counter-UAS (C-UAS) assessment, engineering and acquisition efforts to determine and pursue technology solutions required to defeat the full spectrum of threats associated with the Marine Corps Low-Altitude Air Defense mission to include C-UAS. Efforts will include assessment, engineering analysis and prototype procurement necessary to evaluate various direct energy, electronic attack, missile and projectile capabilities to determine the right mix of technologies required to negate aerial threats and provide the MAGTF, as well as, Bases, Posts and Stations, Force Protection against such threats. With the proliferation of both military and commercial UAS platforms, the program will pursue and acquire GBAD-FWS platforms with a C-UAS capability.<br>***FY 2016 Accomplishments:***<br>N/A<br>***FY 2017 Plans:***<br>-Initiation of prototype procurement, development, and operational assessment of the Man-Portable Anti-Drone Defeat System Kit (MADS-K). This system will be used to detect, track, identify, and neutralize the emergent small UAS threat.<br>-Initiation of CMC directed Counter UAS efforts to determine technology solutions required to defeat threats associated with the Marine Corps Low-Altitude Air Defense mission. Includes the procurement and integration of prototype systems and operational assessments. Systems will provide capabilities such as detect, track, | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2278 / *Air Defense Weapons System* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| identify, threat negation and lethal destruction, to include utilizing a slew-to-cue optic for a high energy laser engagement.<br>***FY 2018 Base Plans:***<br>-Continuation of GBAD Future Weapons System/Counter-UAS engineering and prototype development efforts to determine the technology solutions required to defeat the full spectrum of threats to include UAS's associated with the Marine Corps Low-Altitude Air Defense mission. Includes the procurement and integration of prototype systems and operational assessments. Systems will provide capabilities such as detect, track, identify, threat negation and lethal destruction, to include utilizing a slew-to-cue optic for a high energy laser engagement.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** GBAD FWS/COUNTER UAS: Support Costs<br>***Articles:***<br>***FY 2016 Accomplishments:***<br>N/A<br>***FY 2017 Plans:***<br>-Initiation of systems engineering and training for the Man-Portable Anti-Drone System Kit (MADS-K) development.<br>-Initiation of CMC directed Counter UAS efforts to determine technology solutions required to defeat threats associated with the Marine Corps Low-Altitude Air Defense mission. Includes systems engineering, safety review boards, prototype system maintenance, support and training.<br>***FY 2018 Base Plans:***<br>-Continuation of GBAD Future Weapons System and Counter UAS acquisition, engineering, and assessment efforts to determine the technology solutions required to defeat UAS threats associated with the Marine Corps Low-Altitude Air Defense mission. Includes systems engineering, safety review boards, prototype system maintenance, support and training.<br>***FY 2018 OCO Plans:***<br>N/A | 0.000<br>- | 3.095<br>- | 1.660<br>- | 0.000<br>- | 1.660<br>- |
| ***Title:*** GBAD FWS/COUNTER UAS: Program Management Support<br>***Articles:*** | 0.000<br>- | 1.764<br>- | 1.202<br>- | 0.000<br>- | 1.202<br>- |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2278 / *Air Defense Weapons System* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***FY 2016 Accomplishments:***<br>N/A<br>***FY 2017 Plans:***<br>-Initiation of GBAD Future Weapons System and Counter UAS acquisition documentation and assessment efforts to determine the technology solutions required to defeat the full spectrum or threats associated with the Marine Corps Low-Altitude Air Defense mission.<br>***FY 2018 Base Plans:***<br>-Continuation of GBAD Future Weapons System and Counter UAS acquisition documentation and assessment efforts to determine the technology solutions required to defeat the full spectrum or threats associated with the Marine Corps Low-Altitude Air Defense mission.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 1.635 | 35.009 | 24.214 | 0.000 | 24.214 |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • PMC/3006: *GBAD-SS* | 6.642 | 9.170 | 9.432 | - | 9.432 | 15.922 | 16.501 | 16.825 | 15.513 | Continuing | Continuing |

**Remarks**

**D. Acquisition Strategy**

GBAD-Stinger Sustainment: A-MANPADS Increment I is an Abbreviated Acquisition Program (AAP), GBAD-SS enables the rapid transition from the Avenger/MANPADS weapon system to the more mobile, flexible and maintainable Advanced MANPADS. The AAP is principally comprised of integrating Government Off The Shelf (GOTS) equipment and Non-Developmental Items (NDI).

GBAD Future Weapons System: The GBAD Program is rapidly approaching the out of production phase for the A-MANPADS Increment I and the end of life for the Stinger missile. The Stinger missile is a reliable but older technology. Consequently, the GBAD Program is planning for a GBAD Future Weapon System to replace the Stinger missile and the weapon system platform. The GBAD Future Weapon System will require an update to the Analysis of Alternatives (AoA) and a Material Development Decision, followed by the development and approval of a Capability Development Document (CDD). The GBAD Future Weapon System may consist of a multiple weapons system platforms to defeat current and emerging threats for UAS, FW/RW aircraft, and cruise missiles.

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2278 / *Air Defense Weapons System* |

**E. Performance Metrics**

N/A

| Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy | | | Date: May 2017 |
|---|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2278 / *Air Defense Weapons System* | |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GBAD-SS | WR | NSWC : Dahlgren, VA | 0.467 | 0.230 | Feb 2016 | 0.110 | Dec 2016 | 0.356 | Oct 2017 | - | | 0.356 | Continuing | Continuing | Continuing |
| GBAD-SS | WR | NSWC : Crane.IN | 4.590 | 0.000 | | 0.411 | Dec 2016 | 0.421 | Nov 2017 | - | | 0.421 | Continuing | Continuing | Continuing |
| GBAD-SS | Various | VARIOUS : VARIOUS | 6.268 | 0.597 | Jul 2016 | 0.495 | Jul 2017 | 0.643 | Mar 2018 | - | | 0.643 | Continuing | Continuing | Continuing |
| GBAD FWS/Counter UAS | MIPR | CTTSO : Washington, DC | 0.000 | 0.000 | | 14.265 | Jun 2017 | 1.528 | Jan 2018 | - | | 1.528 | 0.000 | 15.793 | - |
| GBAD FWS/Counter UAS | MIPR | DOTC : Picatinny, NJ | 0.000 | 0.000 | | 14.090 | Jun 2017 | 16.541 | Feb 2018 | - | | 16.541 | 0.000 | 30.631 | - |
| Prior Years Cumulative Funding | Various | N/A : N/A | 15.932 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 15.932 | - |
| | | **Subtotal** | 27.257 | 0.827 | | 29.371 | | 19.489 | | - | | 19.489 | - | - | - |

**Remarks**

GBAD SS - Increase in funding from FY17 to FY18 of $.404M supports the system engineering efforts associated with the Missile Mounted Optic (AN/PAS-18) replacement development and Mode 5 replacement development.
C-UAS CTTSO - Decrease in funding of $12.737M from FY17 to FY18 reflects the FY17 C-UAS efforts executed in support of the Marine Corps addressing emergent war fighting requirements for a GBAD Future Weapons System with a C-UAS capability, including the procurement of MADS-K systems. Funding supports continued engineering and prototyping efforts with the Man-Portable Anti-Drone Defeat System Kit (MADS-K) systems.
C-UAS DOTC - Increase in funding from FY17 to FY18 of $2.451M supports continued GBAD Future Weapons System/Counter-UAS engineering and prototyping efforts.

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GBAD-SS | WR | NSWC : Crane, IN | 2.241 | 0.403 | Nov 2015 | 0.364 | Dec 2016 | 0.366 | Jan 2018 | - | | 0.366 | Continuing | Continuing | Continuing |
| GBAD-SS | Various | VARIOUS : VARIOUS | 0.000 | 0.000 | | 0.000 | | 0.096 | Dec 2017 | - | | 0.096 | 0.000 | 0.096 | - |
| GBAD FWS/Counter UAS | Various | NWCS : Dahlgren | 0.000 | 0.000 | | 3.095 | Apr 2017 | 1.660 | Dec 2017 | - | | 1.660 | 0.000 | 4.755 | - |
| Prior Years Cumulative Funding | Various | N/A : N/A | 4.388 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 4.388 | - |
| | | **Subtotal** | 6.629 | 0.403 | | 3.459 | | 2.122 | | - | | 2.122 | - | - | - |

| Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy | | | Date: May 2017 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | R-1 Program Element (Number/Name)<br>PE 0206313M / *Marine Corps Comms Systems* | Project (Number/Name)<br>2278 / *Air Defense Weapons System* | |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GBAD-SS | MIPR | NSWC Crane : Crane, IN | 0.940 | 0.164 | Jan 2016 | 0.175 | Mar 2017 | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| GBAD-SS | MIPR | ARMY : VARIOUS | 0.000 | 0.000 | | 0.000 | | 0.737 | Mar 2018 | - | | 0.737 | 0.000 | 0.737 | - |
| Prior Years Cumulative Funding | Various | N/A : N/A | 4.994 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 4.994 | - |
| | | **Subtotal** | 5.934 | 0.164 | | 0.175 | | 0.737 | | - | | 0.737 | - | - | - |

**Remarks**

-Overall T&E funding increase ($0.562M) from FY17 to FY18 supports both the Mode 5 IFF redesign and integration of the Advanced Man-Portable Air Defense System (A-MANPADS).

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GBAD-SS | C/FP | MCSC : Quantico, VA | 2.965 | 0.000 | | 0.050 | Jul 2017 | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| GBAD-SS | Various | MCSC Travel : Quantico, VA | 0.122 | 0.076 | Sep 2016 | 0.100 | Sep 2017 | 0.098 | Sep 2018 | - | | 0.098 | Continuing | Continuing | Continuing |
| GBAD-SS | WR | NSWC : Dahlgren, VA | 0.509 | 0.165 | Oct 2015 | 0.090 | Jan 2017 | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| GBAD-SS | C/FP | Alexandria Insights : Quantico, VA | 0.000 | 0.000 | | 0.000 | | 0.566 | Dec 2017 | - | | 0.566 | 0.000 | 0.566 | - |
| GBAD FWS/COUNTER UAS | Various | VARIOUS : VARIOUS | 0.000 | 0.000 | | 1.764 | Jan 2017 | 1.202 | Dec 2017 | - | | 1.202 | 0.000 | 2.966 | - |
| Prior Years Cumulative Funding | Various | N/A : N/A | 1.318 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 1.318 | - |
| | | **Subtotal** | 4.914 | 0.241 | | 2.004 | | 1.866 | | - | | 1.866 | - | - | - |

**Remarks**

-Alexandria Insights funding increases ($0.566M) from FY17 to FY18 provides dedicated support necessary to complete acquisition documentation for Stinger Identification, Friend or Foe (IFF) replacement efforts.

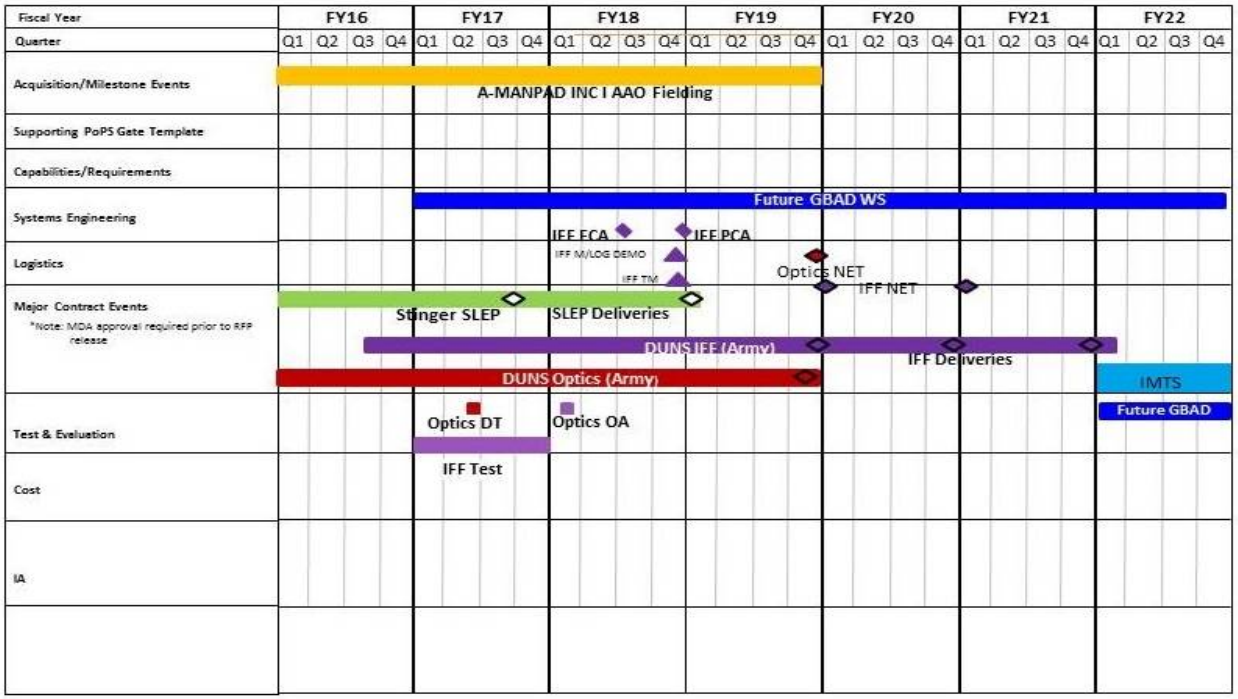
| Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy | | | Date: May 2017 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | R-1 Program Element (Number/Name)<br>PE 0206313M / *Marine Corps Comms Systems* | Project (Number/Name)<br>2278 / *Air Defense Weapons System* | |

| | 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** | 44.734 | 1.635 | | 35.009 | | 24.214 | | - | | 24.214 | - | - | - |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2278 / *Air Defense Weapons System* |

# GBAD Integrated Program Plan



| Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2278 / *Air Defense Weapons System* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***GBAD-T*** | | | | |
| STINGER SLEP: STINGER SLEP DELIVERY | 4 | 2017 | 4 | 2018 |
| AMANPADS: AMANDPADS INC 1 FIELDING | 2 | 2016 | 4 | 2019 |
| OPTICS: OPTICS OT/FUE (OPERATIONAL TEST/FIELD USER EVALUATION) | 1 | 2018 | 1 | 2018 |
| OPTICS: OPTICS DELIVERY | 1 | 2019 | 1 | 2020 |
| IFF: IFF OT/FUE | 1 | 2019 | 1 | 2019 |
| IFF: IFF DELIVERIES | 4 | 2019 | 4 | 2021 |
| GBAD FUTURE WEAPONS SYSTEM: GBAD FUTURE WEAPONS SYSTEM | 1 | 2017 | 4 | 2022 |
| IMTS PROCUREMENT: IMTS PROCUREMENT | 1 | 2022 | 4 | 2022 |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | | | | | | | | | Date: May 2017 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | | | | | R-1 Program Element (Number/Name)<br>PE 0206313M / *Marine Corps Comms Systems* | | | | Project (Number/Name)<br>2510 / *MAGTF CSSE & SE* | | | |
| **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** |
| 2510: *MAGTF CSSE & SE* | 281.492 | 13.040 | 2.345 | 1.518 | - | 1.518 | 1.340 | 1.369 | 1.488 | 1.508 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

**Note**

ELECTRONIC MAINTENANCE SUPPORT SYSTEM (EMSS): Re-named MAGTF LOGISTICS SUPPORT SYSTEMS (MLS2) beginning in FY16.
TRANSPORTATION SYSTEMS PORTFOLIO (TSP): Re-named Enterprise Logistics Support Systems (ELSS) beginning in FY16.

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

(U) The Marine Air Ground Task Force (MAGTF) Combat Service Support Element & Supporting Establishment (CSSE & SE) consists of mutually supporting Logistics Information Technology (IT) programs that support force deployment, planning, and execution; sustainment and distribution; and contributes to the Combatant Commander's Common Operating Picture to support rapid accurate decision making.

GLOBAL COMBAT SUPPORT SYSTEM-MARINE CORPS/ Logistics Chain Management (GCSS-MC/LCM) ) family of systems (FoS) serves as primary technology enabler for the Marine Corps Logistics Modernization strategy. GCSS-MC/LCM provides the backbone for all logistics information required by the Marine Forces and the Supporting Establishment. The core for GCSS-MC/LCM Increment 1 is a modern, commercial-off-the-shelf enterprise resource planning software (Oracle e-Business Suite). The Increment 1 design focused on enabling the warfighter to operate while deployed with reach back from the battlefield. Increment 1 replaced 5 legacy supply and maintenance information technology systems and currently supports ~22,000 users world-wide. The focus of future functions will be enhancing capabilities in the areas of warehousing, distribution, logistics planning, decision support, depot maintenance, and integration with emerging technologies to improve asset visibility.The Tactical-Warehouse Management System (T-WMS) capability development is support by these funds.in GCSS-MC, RDTE PE 0206313M, project 2510 will transition to PE 0219902M Project C5503 commencing in FY2017.

JOINT FORCE REQUIREMENTS GENERATOR II (JFRG II)) is an Automated Information System (AIS) that provides the Marine Corps' the capability to plan and execute strategic force deployments in support of Joint contingency and crisis action operations and plans. It serves as the single link between Service operational force requirements and validated/sourced unit personnel and cargo data. JFRG II permits multi-level planning with entry of equipment and personnel data, transportation/ movement data, and the phasing of the total force throughout the entire movement timeline. JFRG II interfaces with the Joint Operation Planning and Execution System (JOPES) to register update and validate Time Phased Force and Deployment Data (TPFDD) within the Department of Defense chain of command. Validated deployment information is then used by U.S. Transportation Command for the scheduling of strategic transportation assets. JFRG II interfaces with the MAGTF Deployment Support System II (MDSS II) for unit cargo information and the War Reserve System (WRS) in order to register sustainment requirements. JFRG II can generate standard, executive, and ad hoc reports and perform database queries to support information requirements. JFRG II operates and functions in a classified environment.

BASE TELECOMMUNICATIONS INFRASTRUCTURE (BTI) provides all Marine Corps installations with the base area network communications infrastructure that connects the end-user to the Defense Information Systems Agency (DISA) network. BTI sustains upgrades and enhances the telecommunications systems infrastructure for all Marine Corps Installations in order to meet the demands required to support the 5th Element of the Marine Air Ground Task Force (MAGTF). BTI

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2510 / *MAGTF CSSE & SE* |

is designed to maintain industry currency as it relates to technological capabilities for all voice, video and data transport services via each installation's infrastructure. These data services include support for, but are not limited to: telephony (including voice over internet protocol), video-teleconferencing, integrated services digital network, Marine Corps enterprise network, energy monitoring control systems, intrusion detection systems, access control systems, fire alarm control networks and fleet training systems. This includes supporting systems such as optical networks, telecommunications management systems, primary power, voice mail and teleconferencing.

ENTERPRISE LOGISTICS SUPPORT SYSTEMS (ELS2): Provides funding that supports the USMC Deployment and Execution Support Systems and the Distribution Management Support Systems, and fair share cost to the joint program management office systems. These systems and applications support the planning, deployment, distribution, sustainment and redeployment of supplies, equipment and personnel. The ELS2 applications utilize Automated Information Technology (AIT) read/write devices, active radio frequency identification (aRFID) tags and satellite tracking systems. ELS2 applications support In-Transit Visibility (ITV) and Total Asset Visibility (TAV) initiatives to provide commanders with timely and accurate near real-time data on the location and movement of personnel, equipment and supplies that are in-process, in-transit and in-theater. This developmental effort completed in FY17 and requires no FY18 funding.

MAGTF LOGISTICS SUPPORT SYSTEMS (MLS2): Composed of several main components including Electronic Maintenance Devices (EMD). It is a rugged organizational-level (O-level), light-weight, one-man portable maintenance device capable of supporting multiple platforms and systems across maintenance communities. It provides a Commercial Off-The-Shelf (COTS) hardware device equipped with Built-In-Test/Built-In-Test Equipment (BIT/BITE) interfaces, and Software Defined Test Instrument (SDTI) General Purpose Electronic Test Equipment (GPETE) capabilities. These hardware capabilities will enable commercial or custom DoD and USMC software capabilities including Interactive Electronic Technical Manuals (IETMs), Computer Based Training (CBT), and other maintenance applications to be hosted on EMD platforms. EMSS also has the capability to connect to the Marine Corps Enterprise Network (MCEN) and access sites like Global Combat Support System - Marine Corps (GCSS-MC) in order to facilitate maintenance and supply transactions. With these capabilities, maintainers will make more informed decisions, thereby sustaining force readiness over time. The increase in funding from FY17 to FY18 of $267K continues technical support towards wireless connectivity of host application to maintenance platform tools for the following MOSs: AAV mechanics, Ordnance mechanics, Motor-T mechanics, and LAV mechanics.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***Title:*** JOINT FORCES REQUIREMENT GENERATION II (JFRG II) | 1.310 | 0.202 | 0.206 | 0.000 | 0.206 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>-Completed Development, Testing, Information Security and Interoperability testing/certification<br>-Completed deployment of the Information System and began transition to Post Deployment Software Support (PDSS). | | | | | |
| ***FY 2017 Plans:***<br>-Initiate, Conduct, and support Government Acceptance Testing. | | | | | |
| ***FY 2018 Base Plans:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2510 / *MAGTF CSSE & SE* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| -Initiate Engineering Change Proposals (ECPs).<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** BASE TELECOM (BTI)<br>***Articles:***<br>***FY 2016 Accomplishments:***<br>Continued test and evaluation (T&E) engineering support for Defense Information Systems Agency (DISA) Unified Capabilities (UC) (voice, video, collaboration, and data) implementation.<br>***FY 2017 Plans:***<br>Continue test and evaluation (T&E) engineering support for Defense Information Systems Agency (DISA) Unified Capabilities (UC) (voice, video, collaboration, and data) implementation.<br>***FY 2018 Base Plans:***<br>Continue test and evaluation (T&E) engineering support for Defense Information Systems Agency (DISA) Unified Capabilities (UC) (voice, video, collaboration, and data) implementation.<br>***FY 2018 OCO Plans:***<br>N/A | 0.271<br>- | 0.490<br>- | 0.500<br>- | 0.000<br>- | 0.500<br>- |
| ***Title:*** Global Combat Suport Systems-Marine Corps<br>***Articles:***<br>***FY 2016 Accomplishments:***<br>Continued development of the GCSS-MC/LCM Increment 1 baseline upgrade from Oracle eBusiness Suite Release 11i to R12<br>***FY 2017 Plans:***<br>N/A<br>***FY 2018 Base Plans:***<br>N/A<br>***FY 2018 OCO Plans:***<br>N/A | 9.163<br>- | 0.000<br>- | 0.000<br>- | 0.000<br>- | 0.000<br>- |
| ***Title:*** ENTERPRISE LOGISTICS SUPPORT SYSTEMS (ELS2) | 1.678 | 1.112 | 0.000 | 0.000 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2510 / *MAGTF CSSE & SE* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>Initiated subsequent increment of ICODES SSDM development as necessary and continue functional testing and validation.<br>***FY 2017 Plans:***<br>Initiate third increment of SSDM for Maritime Repositioning Force (MPF) operations.<br>***FY 2018 Base Plans:***<br>N/A<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** MAGTF LOGISTICS SUPPORT SYSTEMS (MLS2) | 0.618 | 0.541 | 0.812 | 0.000 | 0.812 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>-Completed investigation of software defined test instruments (SDTI) and software applications.<br>-Completed investigation of advanced Interactive Electronic Technical Manual software to incorporate advanced diagnostics.<br>-Completed information security and interoperability testing/certification.<br>-Completed software applications which support enhanced maintenance capabilities on existing weapon system platforms.<br>***FY 2017 Plans:***<br>-Continue to investigate software defined test instruments (SDTI) and software applications.<br>-Continue to investigate advanced Interactive Electronic Technical Manual software to incorporate advanced diagnostics.<br>-Continue information security and interoperability testing/certification.<br>-Continue software applications which support enhanced maintenance capabilities on existing weapon system platforms.<br>-Initiate efforts to evaluate downsized testers for tablet applications.<br>-Initiate efforts to investigate instrument modules for on system testing.<br>***FY 2018 Base Plans:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2510 / *MAGTF CSSE & SE* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| -Initiate efforts to investigate software defined test instruments (SDTI) and software applications for the Health Management System (formerly called Next Generation Operation Management Systems).<br>-Initiate efforts to develop Wireless Access Module (WAM) of host application to maintenance platform tools for the following MOSs: AAV mechanics, Ordnance mechanics, Motor-T mechanics and LAV mechanics.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| **Accomplishments/Planned Programs Subtotals** | 13.040 | 2.345 | 1.518 | 0.000 | 1.518 |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • PMC/BLI 463500 BTI: *BTI* | 42.372 | 22.964 | 38.493 | - | 38.493 | 65.074 | 49.012 | 66.451 | 81.063 | Continuing | Continuing |
| • PMC/BLI 418100: *MAGTF Logistics Support Systems* | 3.570 | 3.829 | 11.263 | - | 11.263 | 12.321 | 12.421 | 12.474 | 7.692 | Continuing | Continuing |
| • PMC/BLI 461700: *TSP/Enterprise Logistics Support Systems* | 0.392 | 0.000 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| • PMC/BLI 462000: *TSP/Enterprise Logistics Support Systems* | 0.000 | 0.594 | 0.253 | - | 0.253 | 0.259 | 0.264 | 0.269 | 0.275 | Continuing | Continuing |
| • PMC/4616: *GCSS-MC* | 0.000 | 1.089 | 1.990 | - | 1.990 | 9.594 | 9.205 | 1.230 | 1.256 | Continuing | Continuing |
| • PMC/4617: *Combat Support Systems* | 0.392 | 0.000 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 63.324 |
| • RDTE/0219902M: *GCSS-MC* | 0.000 | 9.128 | 4.476 | - | 4.476 | 2.695 | 0.000 | 0.000 | 0.000 | 0.000 | 16.299 |

**Remarks**

**D. Acquisition Strategy**

GLOBAL COMBAT SUPPORT SYSTEM-MARINE CORPS/LOGISTICS CHAIN MANAGEMENT (GCSS-MC/LCM) The Acquisition Strategy for GCSS-MC/LCM Increment 1 and the documentation for the GCSS-MC/LCM capabilities is building an acquisition approach in the family of systems for Logistics Chain Management (LCM) that continues to modernizing Logistics Systems. The goal is to field operationally suitable and supportable capabilities in the shortest time possible that meets the logistics advocate goals. The GCSS-MC Program Management Office will deliver capabilities as defined in the DoDi 5000.02. Each sustaining capability will follow the acquisition model for software intensive systems. Increment 1 provided supply, maintenance, asset visibility, financial information and systems admin. Future sustaining capabilities first apply to warehousing.

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>2510 / *MAGTF CSSE & SE* |

JOINT FORCES REQUIREMENT GENERATOR II (JFRG II) is required to modernize in order to implement Joint Requirements Oversight Counsel (JROC) mandates in support of Adaptive Planning and Execution (APEX) including the inclusion of Global Force Management - Data Initiative (GFM-DI) data elements and Joint Command and Control (JC2) Capabilities Development Document (CDD) requirements. The JFRG II legacy software application will remain supported until end of life (EOL) in FY17 when it will be replaced by the modernized version. Future capability improvements as identified in the JC2 CDD will be implemented through the configuration management process.

BASE TELECOMMUNICATIONS INFRASTRUCTURE (BTI) provides all Marine Corps installations with the base area network communications infrastructure that connects the end-user to the DISA network. BTI sustains upgrades and enhances the telecommunications systems infrastructure for all Marine Corps Installations in order to meet the demands required to support the 5th Element of the Marine Air Ground Task Force (MAGTF). Participation in the DISA Unified Capabilities (voice, video, collaboration, and data) pilot is critical to BTI modernization strategy. The RDT&E funds will be utilized for analysis, research and evaluation of Unified Capabilities (UC) (voice, video, collaboration, and data) implementation efforts.

ENTERPRISE LOGISTICS SUPPORT SYSTEM (ELS2): The acquisition strategy is to develop the functional elements of the MAGTF Deployment Support System II (MDSS II) into a Sea Service Deployment Module (SSDM) of the Integrated Computerized Deployment System (ICODES). ICODES is a Joint Program currently managed by the Surface Deployment and Distribution Command (SDDC) of USTRANSCOM. The development of the SSDM was instituted as a CLIN to the SDDC JPMO contract for ICODES awarded in December 2015. The development will follow an evolutionary acquisition approach that allows for continued development based on functional transition and changing user need requirements as well as information assurance requirements. The JPMO will determine the contracting strategy and this PMO will acknowledge and approve strategies prior to funding development.

MAGTF LOGISTICS SUPPORT SYSTEMS (MLS2) is pursuing an evolutionary acquisition strategy in order to sustain operationally suitable and supportable capability across the Marine Corps as a maintenance aid. Electronic Maintenance Devices must evolve in concert with the supported platforms maintenance philosophy to provide extended functionality and access to network connectivity.

**E. Performance Metrics**

N/A

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | | Date: May 2017 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | R-1 Program Element (Number/Name)<br>PE 0206313M / *Marine Corps Comms Systems* | Project (Number/Name)<br>3099 / *Radar System* | |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3099: *Radar System* | 184.963 | 3.972 | 13.423 | 14.015 | - | 14.015 | 22.378 | 17.130 | 16.718 | 18.032 | Continuing | Continuing |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

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

Long Range Radar (AN/TPS-59) - The AN/TPS-59A(V)3 is a transportable, three dimensional, tactical radar system that provides the Marine Air Ground Task Force (MAGTF) with long-range surveillance. It is the MAGTF's only ground based long range sensor that provides the capability to detect and report Air Breathing Targets (ABT) and track Theater Ballistic Missiles (TBM). The AN/TPS-59A(V)3 Radar System is connected to the AN/TSQ-269 Mobile - TAOM (M-TAOM) or the Common Aviation Command and Control Systems (CAC2S). It provides the air defense controllers data and may be used autonomously to conduct Ground Control Intercept, tactical en-route Air Traffic Control (ATC), or TBM alert operations via the Joint Integrated Air Missile Defense (IAMD) encrypted Link-16. The USMC extended the AN/TPS-59 service life through 2035; therefore, in order to maintain its operational relevance on the battlefield, a number of modernization efforts are initiated starting in FY17. The Digital Receiver and Exciter (DREX) upgrade will convert the analog receivers and exciters to digital to address Diminishing Manufacturing Sources and Material Shortages (DMSMS) issues, enable spectral agility, reduce noise, reduce false alarms, and enhance Electronic Counter-Countermeasures (ECCM) capability. This effort will include an essential simulation and test environment capability. The AN/TPS-59 radar has been continuously deployed in support of Operation Freedom Sentinel (OFS) and other contingencies.

Family of Target Acquisition Systems (FTAS) - The FTAS provides the MAGTF the capability to locate, identify, and attack enemy indirect fire weapons systems and observe and direct friendly artillery fire. The FTAS consists of the AN/TPQ-46 Firefinder Radar, the AN/TPQ-49 Lightweight Counter Mortar Radar, and the AN/TSQ-267 Target Processing Set. The FTAS is critical in the execution of counterfire and the integration of target acquisition information enabling attack by MAGTF assets. The FTAS also provides artillery firing units the ability to conduct artillery registration and other friendly fire missions. The FTAS encompasses the equipment required to support target acquisition within the target acquisition platoon and is resident in the headquarters battery of each artillery regiment. The program will continue to address system issues that arise due to DMSMS items within the FTAS. The USMC assumed the role of Primary Inventory Control Activity (PICA) for the AN/TPQ-49 in FY15 when the Army divested itself from the system.

Short/Medium Range Air Defense Radar (SHORAD or AN/TPS-63) - The AN/TPS-63 is a two-dimensional, medium-range, medium altitude, transportable radar system, which is doctrinally employed as a tactical gap-filler or as an early warning system for early deployment into the operational area. It has a 360-degree air surveillance capability at a range of 160 miles and complements the co-employed AN/TPS-59 three-dimensional, long-range, air surveillance radar system. The program will use Other Government Agencies (OGAs) to develop engineering change proposals related to DMSMS for improved system reliability with the specific purpose of meeting increased fleet operational requirements. This system will be replaced by Ground/Air Task Oriented Radar (G/ATOR AN/TPS-80).

Virtual Warfare Center (VWC) Support - The project team conducts fully interactive simulated war games at the Virtual Warfare Center (VWC) in St. Louis, MO, in order to quantify family of systems performance and how it impacts effectiveness in the Integrated Air and Missile Defense (IAMD) mission area. The VWC provides a venue for the exploration of advanced engagement concepts focused on persistent forward naval engagements in support of the MAGTF and the development of associated

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>3099 / *Radar System* |

Joint and Service specific tactics, techniques, and procedures (TTPs). VWC support encompasses a set of integrated fire control (IFC) activities that also includes concept/CONOPS development, family of systems architecture development, and systems engineering/integration efforts.

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| ***Title:*** AN/TPS-59 : Product Development | 0.086 | 7.229 | 6.628 | 0.000 | 6.628 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** NOTE: The decrease of $601K from FY17 to FY18 is a result of the decrease in product development that addresses DMSMS issues. Product development for Digital Receiver and Exciter (DREX) critical design increased during this same period, but overall it was a net decrease.<br><br>***FY 2016 Accomplishments:***<br>-Continued Engineering Change Proposal (ECP) Developmental Studies to address DMSMS issues.<br><br>***FY 2017 Plans:***<br>-Completed Engineering Change Proposal (ECP) Developmental Studies to address DMSMS issues.<br>-Initiate product development for Digital Receiver and Exciter (DREX) with Electronic Counter-Counter Measure and Radar Environmental Simulator.<br><br>***FY 2018 Base Plans:***<br>-Continue product development for Digital Receiver and Exciter (DREX) which is critical to address congested spectral environment and enable all future enhancements to include Tactical Ballistic Missile (TBM).<br>-Initiate DREX Engineering Design Model (EDM).<br><br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** AN/TPS-59 : Support | 1.094 | 2.631 | 3.823 | 0.000 | 3.823 |
| ***Articles:*** | - | - | - | - | - |
| ***Description:*** The increase of $1.192M from FY17 to FY18 is for Product Development support of Digital Receiver and Exciter (DREX) critical design and Testing Support of Identification Friend or Foe (IFF) Antenna and Spectrum Testing and Analysis.<br><br>***FY 2016 Accomplishments:***<br>-Continued Developmental Engineering Support for Mode5 Software Enhancement.<br><br>***FY 2017 Plans:***<br>-Continued Developmental Engineering Support for Mode 5 Level 1 (M5L1) Software Enhancement. | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>3099 / *Radar System* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| -Initiate developmental engineering support for Digital Receiver and Exciter (DREX).<br>***FY 2018 Base Plans:***<br>-Continue Developmental Engineering Support for Mode 5 Level 1 (M5L1) Software Enhancement.<br>-Continue developmental engineering support for DREX and initiate developmental engineering support for Array Erection.<br>-Initiate Identification Friend or Foe (IFF) testing support.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** AN/TPS-59: Test and Evaluation<br>***Articles:***<br>***FY 2016 Accomplishments:***<br>N/A<br>***FY 2017 Plans:***<br>-Initiate Blackdart and Boldquest Testing Support, Mode 5 Level 1 (M5L1) Testing, and System of System Modernization Testing.<br>***FY 2018 Base Plans:***<br>-Continue Blackdart and Boldquest Testing Support, Mode 5 Level 1 (M5L1) Testing, and System of System Modernization Testing.<br>-Continue Moving Target Generator testing which will drastically reduce future test costs for Tactical Ballistic Missile (TBM) testing and System of System Capability testing.<br>-Initiate Identify Friend or Foe (IFF) Testing.<br>***FY 2018 OCO Plans:***<br>N/A | 0.000<br>- | 0.373<br>- | 0.340<br>- | 0.000<br>- | 0.340<br>- |
| ***Title:*** FTAS: Product Development<br>***Articles:***<br>***Description:*** The overall FTAS effort has a total increase of $0.062 from FY17 to FY18 which is due to economic adjustments. However, Product Development increases by $798K as described below.<br>***FY 2016 Accomplishments:*** | 0.145<br>- | 0.448<br>- | 1.246<br>- | 0.000<br>- | 1.246<br>- |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>3099 / *Radar System* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| -Initiated development of Lightweight Counter Mortar Radar (LCMR) Mobile and Target Processing System (TPS).<br>***FY 2017 Plans:***<br>-Complete development of Lightweight Counter Mortar Radar (LCMR) Mobile and Target Processing System (TPS).<br>***FY 2018 Base Plans:***<br>-Initiate development of Lightweight Counter Mortar Radar (LCMR) tech refresh system.<br>-Initiate development of the Target Processing System (TPS) Kits for use within the Mobile Tactical Shelter (MTS).<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** FTAS: Support | 0.052 | 0.397 | 0.000 | 0.000 | 0.000 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>-Completed Developmental Safety Support.<br>***FY 2017 Plans:***<br>-Continue Tobyhanna Army Depot (TYAD)- ECP development on the AN/TSQ-267 and ECP development on the AN/TPQ-49.<br>***FY 2018 Base Plans:***<br>-Complete ECP development for AN/TSQ-267 and AN/TPQ-49.<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** FTAS: Test and Evalution | 0.158 | 0.730 | 0.391 | 0.000 | 0.391 |
| ***Articles:*** | - | - | - | - | - |
| ***FY 2016 Accomplishments:***<br>-Initiated the interoperability testing for the Family of Target Acquisition Systems (FTAS) integration within the Marine Air-Ground Task Force (MAGTF).<br>***FY 2017 Plans:*** | | | | | |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>3099 / *Radar System* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| -Continue the interoperability testing for the Family of Target Acquisition Systems (FTAS) integration within the Marine Air-Ground Task Force (MAGTF).<br>***FY 2018 Base Plans:***<br>-Continue interoperability testing for the Family of Target Acquisition Systems (FTAS) integration within the Marine Air-Ground Task Force (MAGTF).<br>***FY 2018 OCO Plans:***<br>N/A | | | | | |
| ***Title:*** SHORAD: Product Development<br>***Articles:***<br>***FY 2016 Accomplishments:***<br>-Initiated Tactical Air Operations Module (TAOM) Interface Group (TIG) Development.<br>***FY 2017 Plans:***<br>N/A<br>***FY 2018 Base Plans:***<br>N/A<br>***FY 2018 OCO Plans:***<br>N/A | 0.060<br>- | 0.000<br>- | 0.000<br>- | 0.000<br>- | 0.000<br>- |
| ***Title:*** SHORAD: Support<br>***Articles:***<br>***FY 2016 Accomplishments:***<br>-Completed developmental safety support through NSWC Indian Head.<br>***FY 2017 Plans:***<br>-Continue Diminishing Manufacturing Sources and Material Shortages (DMSMS) Engineering Change Proposal (ECP) Efforts at Other Government Agencies (OGAs).<br>***FY 2018 Base Plans:***<br>-Continue ECP Development Support at OGAs.<br>***FY 2018 OCO Plans:*** | 0.017<br>- | 0.194<br>- | 0.198<br>- | 0.000<br>- | 0.198<br>- |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>3099 / *Radar System* |

| B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each) | FY 2016 | FY 2017 | FY 2018 Base | FY 2018 OCO | FY 2018 Total |
|---|---|---|---|---|---|
| N/A | | | | | |
| ***Title:*** VWC: Support<br>***Articles:***<br>***FY 2016 Accomplishments:***<br>-Continued to simulate war games at the Virtual Warfare Center (VWC) in St. Louis, MO, in order to quantify family of systems performance and how it impacts effectiveness in the Integrated Air and Missile Defense (IAMD) mission area.<br>***FY 2017 Plans:***<br>-Continue to simulate war games at the VWC in St. Louis, MO, in order to quantify family of systems performance and how it impacts effectiveness in the IAMD mission area.<br>***FY 2018 Base Plans:***<br>-Continue to simulate war games at the VWC in St. Louis, MO, in order to quantify family of systems performance and how it impacts effectiveness in the IAMD mission area.<br>***FY 2018 OCO Plans:***<br>N/A | 1.652<br>- | 1.421<br>- | 1.389<br>- | 0.000<br>- | 1.389<br>- |
| ***Title:*** VWC: Test & Evaluation<br>***Articles:***<br>***FY 2016 Accomplishments:***<br>-Initiated System Of System (SOS) Modernization for increased capabilities through modeling and simulation for the Marine Air Command and Control System (MACCS).<br>***FY 2017 Plans:***<br>N/A<br>***FY 2018 Base Plans:***<br>-N/A<br>***FY 2018 OCO Plans:***<br>N/A | 0.708<br>- | 0.000<br>- | 0.000<br>- | 0.000<br>- | 0.000<br>- |
| **Accomplishments/Planned Programs Subtotals** | 3.972 | 13.423 | 14.015 | 0.000 | 14.015 |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>3099 / *Radar System* |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • PMC/465003: *AN/TPS-59* | 19.155 | 14.076 | 8.956 | - | 8.956 | 13.381 | 15.970 | 16.125 | 16.453 | Continuing | Continuing |
| • PMC/465005: *FTAS* | 2.844 | 2.984 | 2.735 | - | 2.735 | 2.871 | 2.953 | 3.010 | 3.070 | Continuing | Continuing |
| • PMC/465007: *SHORAD (AN/TPS-63)* | 0.465 | 0.712 | 0.720 | - | 0.720 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| • PMC/463000: *AN/TPS-59 MCHS* | 0.000 | 0.142 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |

**Remarks**

**D. Acquisition Strategy**

Long Range Radar (AN/TPS-59) - The AN/TPS-59 is a three dimensional ground-based sensor that can detect and track long range Air Breathing Targets (ABT) at ranges of 300 nautical miles and Tactical Ballistic Missiles (TBM) at ranges of 400 nautical miles. The system is experiencing increasing Obsolescence and Diminishing Manufacturing Sources and Material Shortages (DMSMS) issues. The program will use a support contract with the original equipment manufacturer (OEM) as well as Other Government Agencies (OGAs) to develop engineering changes to resolve DMSMS and incorporate Mode 5 Identification Friend or Foe (IFF) per DOD mandate.

Family of Target Acquisition Systems (FTAS) - The Family of Target Acquisition Systems consists of 3 major components: AN/TPQ-46, AN/TPQ-49 and the AN/TSQ-267. Of these 3 systems, the AN/TPQ-46 is due to be replaced by the Ground/Air Task Oriented Radar (G/ATOR) beginning in 2019. Sustainment activities during 2016 and beyond will be limited to maintain the authority to operate (ATO) creditation. Sustainment activities on the AN/TPQ-49 are escalating due to the fact the US Army divested from the AN/TPQ-49, the USMC has assumed the responsibilities of the primary inventory control activity (PICA). Program Office will conduct an engineering change to the AN/TPQ-49 to provide the operating forces with a mobile, stand-alone configuration. Sustainment activities on the AN/TPQ-46 will begin to escalate due to the US Army divestiture from the AN/TPQ-36. The USMC will assume some sustainment responsibilities for the AN/TPQ-46 until replaced by G/ATOR. Additionally, the AN/TSQ-267 requires hardware updates in order to continue housing the suite of equipment that supports the Target Processing Center (TPC) activities.

Short/Medium Range Air Defense Radar (SHORAD or AN/TPS-63) - The AN/TPS-63 is experiencing increasing Obsolescence and Diminishing Manufacturing Sources and Material Shortages (DMSMS) issues. The program will use Other Government Agencies (OGAs) to develop engineering changes to resolve DMSMS issues.

Virtual Warfare Center (VWC) Support - The project team conducts fully interactive simulated war games at the Virtual Warfare Center (VWC) in St. Louis, MO, in order to quantify family of systems performance and how it impacts effectiveness in the Integrated Air and Missile Defense (IAMD) mission area. VWC support encompasses a set of integrated fire control (IFC) activities that also includes concept/CONOPS development, family of systems architecture development, and systems engineering/integration efforts. The Office of Naval Research (ONR) is the lead for all VWC contracting actions.

**E. Performance Metrics**

Milestone Reviews

| Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>3099 / *Radar System* |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AN/TPS-59 | SS/CPFF | LMC : SYRACUSE, NY | 4.390 | 0.000 | | 2.406 | Jun 2017 | 0.000 | | - | | 0.000 | 0.000 | 6.796 | - |
| AN/TPS-59 | WR | NSWC : CRANE, IN | 3.425 | 0.086 | Dec 2015 | 0.954 | Jun 2017 | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| AN/TPS-59 - DREX EDM Development | SS/CPFF | LMC : SYRACUSE, NY | 0.000 | 0.000 | | 2.326 | Aug 2017 | 4.500 | Dec 2017 | - | | 4.500 | 0.000 | 6.826 | - |
| AN/TPS-59 | C/FFP | NSWC Crane : CRANE, IN | 0.000 | 0.000 | | 0.243 | Feb 2017 | 0.000 | | - | | 0.000 | 0.000 | 0.243 | - |
| AN/TPS-59 - DREX Test Enviornment | SS/CPFF | LMC : SYRACUSE, NY | 0.000 | 0.000 | | 1.300 | Aug 2017 | 2.128 | Dec 2017 | - | | 2.128 | 0.000 | 3.428 | - |
| FTAS | MIPR | TYAD : TOBYHANNA, PA | 0.000 | 0.145 | Jul 2016 | 0.448 | Mar 2017 | 1.246 | Mar 2018 | - | | 1.246 | 0.000 | 1.839 | - |
| AN/TPS-63 | TBD | TBD : TBD | 0.000 | 0.060 | Jul 2017 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.060 | - |
| Prior Year Cumulative Funding | Various | VARIOUS : VARIOUS | 76.377 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 76.377 | - |
| | | **Subtotal** | 84.192 | 0.291 | | 7.677 | | 7.874 | | - | | 7.874 | - | - | - |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AN/TPS-59 | MIPR | MITRE : BEDFORD, MA | 7.784 | 0.202 | Feb 2016 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| AN/TPS-59 | Various | MCSC : QUANTICO, VA | 1.994 | 0.000 | | 1.651 | Feb 2017 | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| AN/TPS-59 | C/CPFF | LOCKHEED MARTIN : SYRACUSE, NY | 8.789 | 0.000 | | 0.980 | Jun 2017 | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| AN/TPS-59 | Various | MCSC COMP : QUANTICO, VA | 6.288 | 0.026 | May 2016 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| AN/TPS-59 - Engineering Support | C/FFP | MCSC : QUANTICO, VA | 0.000 | 0.000 | | 0.000 | | 3.223 | Nov 2017 | - | | 3.223 | 0.000 | 3.223 | - |

| Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy | | | Date: May 2017 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | R-1 Program Element (Number/Name)<br>PE 0206313M / *Marine Corps Comms Systems* | Project (Number/Name)<br>3099 / *Radar System* | |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AN/TPS-59 - Array Erection Development Support | WR | NSWC : Crane, IN | 0.000 | 0.000 | | 0.000 | | 0.600 | Feb 2018 | - | | 0.600 | 0.000 | 0.600 | - |
| AN/TPS-59 | WR | NSWC : PORT HUENEME, VA | 0.000 | 0.866 | Feb 2016 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.866 | - |
| FTAS | C/FFP | NSWC : Indian Head, MD | 7.579 | 0.052 | Feb 2017 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| FTAS | MIPR | TYAD : TOBYHANNA, PA | 0.693 | 0.000 | | 0.397 | Mar 2017 | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| FTAS | Various | MCSC : QUANTICO, VA | 2.188 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | Continuing |
| VWC | C/CPFF | ONR : ST. LOUIS, MO | 15.679 | 1.652 | May 2016 | 1.421 | Feb 2017 | 0.945 | Feb 2018 | - | | 0.945 | Continuing | Continuing | Continuing |
| AN/TPS-63 | WR | NSWC : CRANE, IN | 0.130 | 0.000 | | 0.194 | May 2017 | 0.198 | Mar 2018 | - | | 0.198 | 0.000 | 0.522 | - |
| AN/TPS-63 | C/FFP | NSWC : Indian Head, MD | 0.000 | 0.017 | Apr 2016 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.017 | - |
| Prior Year Cumulative Funding | Various | VARIOUS : VARIOUS | 20.171 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 20.171 | - |
| | | **Subtotal** | 71.295 | 2.815 | | 4.643 | | 4.966 | | - | | 4.966 | - | - | - |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AN/TPS-59 | C/FFP | NSWC : CRANE, IN | 0.000 | 0.000 | | 0.373 | Feb 2017 | 0.000 | | - | | 0.000 | 0.000 | 0.373 | - |
| AN/TPS-59 -Testing Travel | Various | VARIOUS : VARIOUS | 0.000 | 0.000 | | 0.000 | | 0.090 | Dec 2017 | - | | 0.090 | 0.000 | 0.090 | - |
| AN/TPS-59 - IFF Antenna Testing | WR | NSWC : CRANE, IN | 0.000 | 0.000 | | 0.000 | | 0.250 | Nov 2017 | - | | 0.250 | 0.000 | 0.250 | - |
| FTAS | C/FFP | MCTSSA : CAMP PENDLETON, CA | 0.000 | 0.110 | Sep 2016 | 0.730 | Mar 2017 | 0.391 | Mar 2018 | - | | 0.391 | 0.000 | 1.231 | - |

| Exhibit R-3, RDT&E Project Cost Analysis: FY 2018 Navy | | | Date: May 2017 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | R-1 Program Element (Number/Name)<br>PE 0206313M / *Marine Corps Comms Systems* | Project (Number/Name)<br>3099 / *Radar System* | |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FTAS | MIPR | APG : Aberdeen, MD | 0.000 | 0.048 | Feb 2016 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.048 | - |
| VWC | C/CPFF | ONR : St Louis, MO | 0.000 | 0.708 | Aug 2016 | 0.000 | | 0.444 | May 2018 | - | | 0.444 | 0.000 | 1.152 | - |
| Prior Year Cumulative Funding | Various | VARIOUS : VARIOUS | 3.495 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 3.495 | - |
| | | **Subtotal** | 3.495 | 0.866 | | 1.103 | | 1.175 | | - | | 1.175 | 0.000 | 6.639 | - |

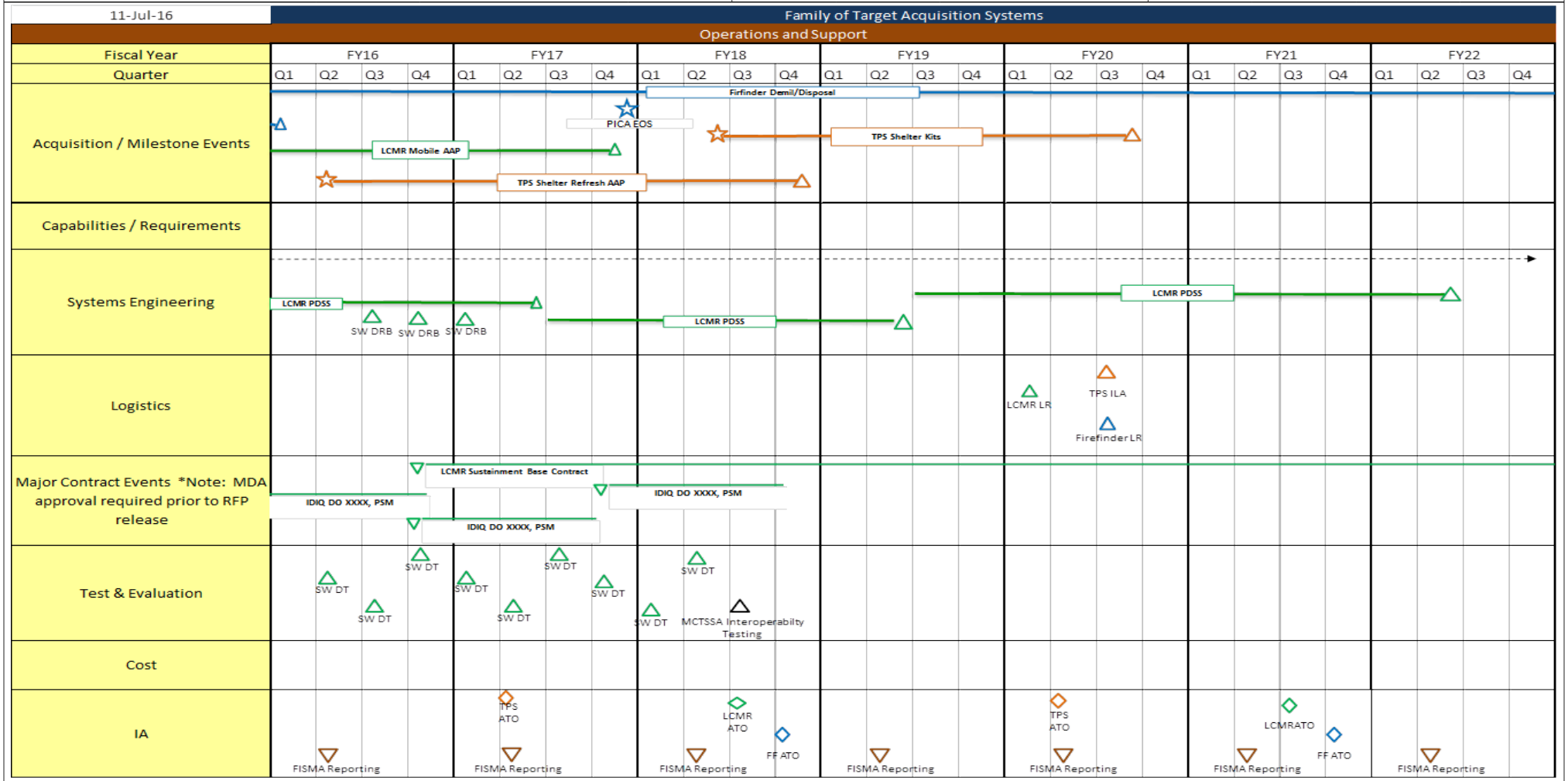
**Management Services ($ in Millions)**

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Prior Year Cumulative Funding | C/CPFF | MCSC: GENERAL DYNAMICS : QUANTICO, VA | 25.981 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 25.981 | - |
| | | **Subtotal** | 25.981 | 0.000 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 25.981 | - |

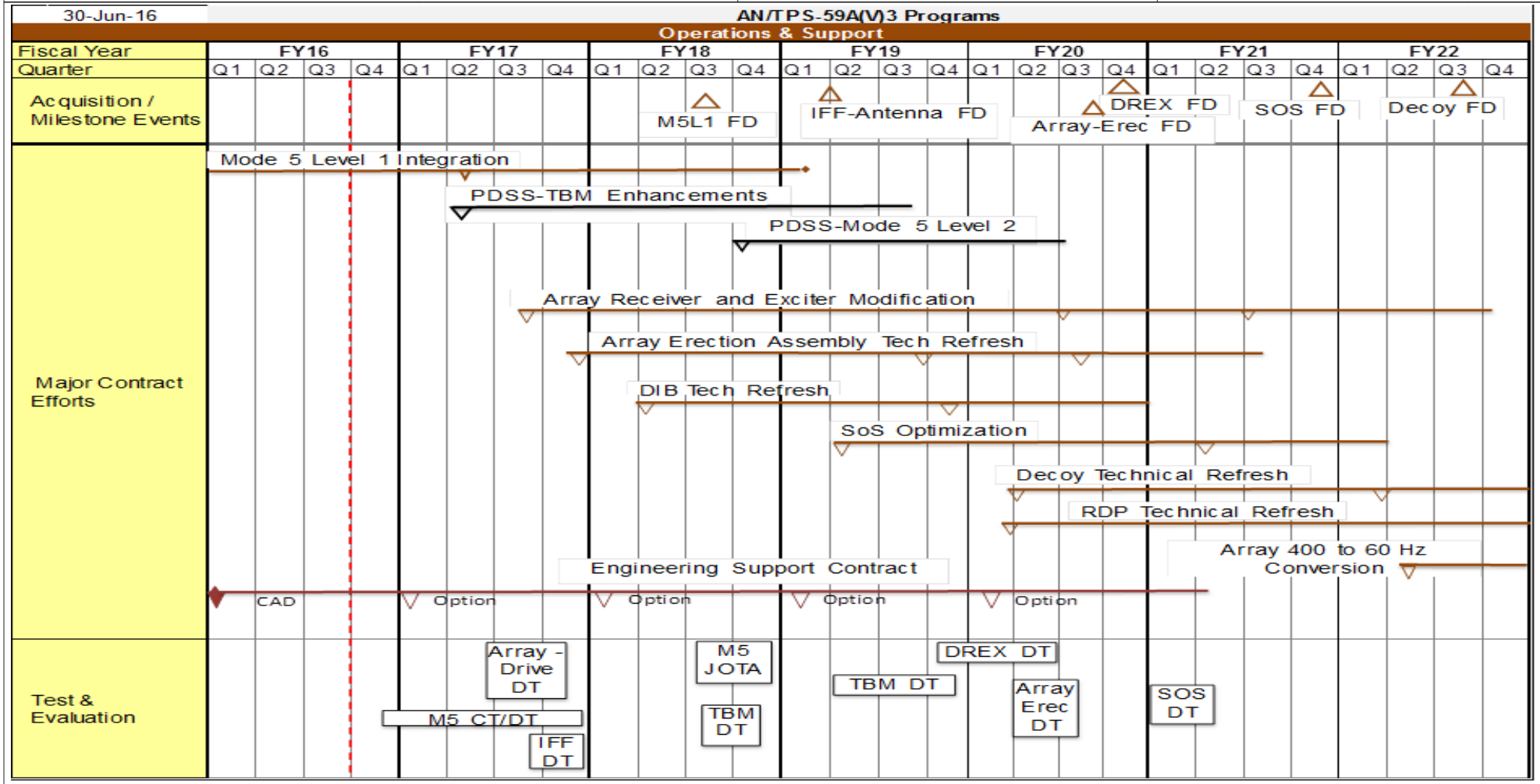
| | Prior Years | FY 2016 | | FY 2017 | | FY 2018 Base | | FY 2018 OCO | | FY 2018 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 184.963 | 3.972 | | 13.423 | | 14.015 | | - | | 14.015 | - | - | - |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>3099 / *Radar System* |



| Exhibit R-4, RDT&E Schedule Profile: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>3099 / *Radar System* |



| Exhibit R-4A, RDT&E Schedule Details: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>3099 / *Radar System* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events by Sub Project** | **Quarter** | **Year** | **Quarter** | **Year** |
| ***Proj 3099*** | | | | |
| AN/TPS-59 - Mode 5 Joint Operational Test Event | 3 | 2018 | 4 | 2018 |
| AN/TPS-59 - Identify Friend Foe Antenna Fielding Decision | 1 | 2019 | 1 | 2019 |
| AN/TPS-59 - Digital Exciter and Receiver Fielding Decision | 4 | 2020 | 4 | 2020 |
| FTAS - LCMR Mobile FOC | 4 | 2017 | 4 | 2017 |
| FTAS - TPS Shelter Refresh FOC | 4 | 2018 | 4 | 2018 |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | | Date: May 2017 |
|---|---|---|---|
| Appropriation/Budget Activity<br>1319 / 7 | R-1 Program Element (Number/Name)<br>PE 0206313M / *Marine Corps Comms Systems* | Project (Number/Name)<br>9999 / *Congressional Adds* | |

| 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 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9999: *Congressional Adds* | 0.000 | 12.552 | 0.000 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 12.552 |
| Quantity of RDT&E Articles | | - | - | - | - | - | - | - | - | - | | |

**Note**

Congressional Add, not required for BES/PB-18

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

Long Range Radar (AN/TPS-59) - The AN/TPS-59A(V)3 is a transportable, three dimensional, tactical radar system that provides the Marine Air Ground Task Force (MAGTF) with long-range surveillance. It is the MAGTF's only ground based long range sensor that provides the capability to detect and report Air Breathing Targets (ABT) and track Theater Ballistic Missiles (TBM). The AN/TPS-59A(V)3 Radar System is connected to the AN/TSQ-269 Mobile -TAOM (M-TAOM) or the Common Aviation Command and Control Systems (CAC2S). It provides the air defense controllers data and may be used autonomously to conduct Ground control Intercept, tactical en-route Air Traffic Control (ATC), or TBM alert operations via the joint Integrated Air Missile Defense (IAMD) encrypted Link-16. The USMC extended the AN/TPS-59 service life through 2035; therefore, in order to maintain its operational relevance on the battlefield, a number of modernization efforts are being initiated. The Digital Receiver and Exciter (DREX) upgrade will convert the analog receivers and exciters to digital to address Diminishing Manufacturing Sources and Material Shortages (DMSMS) issues, enable spectral agility, reduce noise, reduce false alarms, and enhance electronic counter-countermeasures (ECCM) capability. This effort will include an essential simulation and test environment capability. The AN/TPS-59 radar has been continuously deployed in support of Operation Freedom Sentinel (OFS) and other contingencies.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2016 | FY 2017 |
|---|---|---|
| ***Congressional Add:*** Radar Enhancements | 12.552 | 0.000 |
| ***FY 2016 Accomplishments:*** - Completed "Identify Friend or Foe" (IFF) Engineering Change Proposal (ECP) development.<br>- Initiated development of Theater Ballistic Missile (TBM), Tactical Air Operations Module (TAOM) Interface Group (TIG), Modular Azimuth Positioning System (MAPs) Reader, and Uninterruptible Power Supply (UPS) ECPs, and Mode 5 Testing. | | |
| ***FY 2017 Plans:*** N/A | | |
| **Congressional Adds Subtotals** | 12.552 | 0.000 |

| Exhibit R-2A, RDT&E Project Justification: FY 2018 Navy | | Date: May 2017 |
|---|---|---|
| **Appropriation/Budget Activity**<br>1319 / 7 | **R-1 Program Element (Number/Name)**<br>PE 0206313M / *Marine Corps Comms Systems* | **Project (Number/Name)**<br>9999 / *Congressional Adds* |

**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 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • PMC/465000: *AN/TPS-59 Mods* | 19.155 | 14.076 | 8.956 | - | 8.956 | 13.381 | 15.970 | 16.125 | 16.453 | Continuing | Continuing |
| • PMC/463000: *AN/TPS-59 MCHS* | 0.000 | 0.142 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |
| • RDTE/0206313M/ C3099: *AN/TPS-59 Mods* | 1.180 | 10.233 | 10.791 | - | 10.791 | 19.336 | 14.066 | 13.586 | 14.847 | Continuing | Continuing |

**Remarks**

**D. Acquisition Strategy**

Long Range Radar (AN/TPS-59) - The AN/TPS-59 is a three dimensional ground-based sensor that can detect and track long range Air Breathing Targets (ABT) at ranges of 300 nautical miles and Tactical Ballistic Missiles (TBM) at ranges of 400 nautical miles. The system is experiencing increasing Obsolescence and Diminishing Manufacturing Sources and Material Shortages (DMSMS) issues. The program will use a support contract with the original equipment manufacturer (OEM) as well as Other Government Agencies (OGAs) to test Mode 5 Identification Friend or Foe (IFF) and develop Theater Ballistic Missile (TBM), Modular Azimuth Positioning System (MAPS) Reader, and Tactical Air Operations Module (TAOM) Interface Group (TIG) Engineering Change Proposals (ECPs).

**E. Performance Metrics**

Milestone Reviews