Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy											Date: February 2016	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0205604N / *Tactical Data Links*							
COST ($ in Millions)	**Prior Years**	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**Cost To Complete**	**Total Cost**
Total Program Element	793.531	135.583	142.361	124.785	-	124.785	60.197	42.557	43.543	44.491	Continuing	Continuing
2126: *ATDLS Integration*	663.778	51.219	45.027	37.995	-	37.995	22.990	24.723	25.424	25.996	Continuing	Continuing
3020: *MIDS/JTRS*	112.827	70.117	70.241	57.406	-	57.406	21.088	17.834	18.119	18.495	Continuing	Continuing
3341: *Network Tactical Common Data Link*	16.926	14.247	27.093	29.384	-	29.384	16.119	0.000	0.000	0.000	0.000	103.769
Program MDAP/MAIS Code: **Project MDAP/MAIS Code(s):** 554												

A. Mission Description and Budget Item Justification

Tactical Data Link (TDL) systems includes the Advanced Tactical Data Link Systems (ATDLS) Integration Programs, specifically Link 16 Network, Command and Control Processor (C2P) and Link Monitoring and Management Tool (LMMT); and Network Tactical Common Data Link (NTCDL) Program which provides the ability to transmit/receive real-time Intelligence, Surveillance, and Reconnaissance (ISR) data simultaneously from multiple sources (surface, air, sub-surface, man-portable), and exchange command and control information (voice, data, imagery, and Full Motion Video (FMV)) across dissimilar Joint, Service, Coalition, and civil networks. The Program Element also develops and tests tactical data link capability to distribute other data types to new and existing platforms.

JUSTIFICATION FOR BUDGET ACTIVITY: This program is funded under Operational Systems Development because it encompasses engineering and manufacturing development for upgrade of existing operational systems.

Network Tactical Common Data Link (NTCDL) provides the ability to transmit/receive real-time Intelligence, Surveillance, and Reconnaissance (ISR) data simultaneously from multiple sources (surface, airborne, sub-surface, man-portable), and exchange command and control information (voice, data, imagery, and Full Motion Video) across dissimilar Joint, Service, Coalition, and civil networks. NTCDL provides warfighters with the capability to support multiple, simultaneous, networked operations with currently fielded Common Data Link (CDL)-equipped platforms (e.g. F/ A-18, P-3, and MH-60R), in addition to next generation manned and unmanned platforms (e.g., P-8, Triton, UCLASS, and Fire Scout). NTCDL is an incremental capability (surface, airborne, sub-surface, man-portable) providing a modular, scalable, multiple-link networked communications. NTCDL benefits the fleet by providing horizon extension for line-of-sight sensor systems for use in time critical strike missions. NTCDL counters Anti-Access/Area Denial (A2/AD) through its relay capability, and supports Tasking Collection Processing Exploitation Dissemination (TCPED) through its ISR networking capability. Additionally, NTCDL supports Humanitarian Assistance/Disaster Relief (HA/DR) efforts through its ability to share ISR data across dissimilar Joint, Service, Coalition, and Civil organizations.

Joint Aerial Layer Network-Maritime (JALN-M) is the Navy implementation of the JALN architecture which provides assured communications in any environment, especially A2/AD. With disruption or loss of Space tier communications, JALN-M establishes and/or restores connectivity with the High Capacity Backbone (HCB) tier, the Distribution Access Range Extension (DARE) tier, and the Transition tier in accordance with the JALN-M Initial Capabilities Document (ICD) and the JALN-M Analysis of Alternatives (AoA) Final Report. JALN-M is a robust, assured communications capability providing joint connectivity via the HCB and Navy platform

connectivity via a pseudo satellite DARE capability. JALN-M will use the Extended Data Rate (XDR) waveform (Navy Multiband Terminal (NMT)) for intra-battle group DARE communications, a CDL waveform for the HCB cross-link capability, and will leverage enhanced Ultra High Frequency/High Frequency (UHF/HF) waveforms for coalition connectivity. Furthermore, Positioning, Navigation, and Timing (PNT) efforts related to the JALN-M Pod will develop a prototype PNT subsystem that will be integrated into the JALN-M Pod, and will provide position and timing data to other Pod subsystems, both with and without Global Positioning System (GPS) connectivity. Because the Pod is being designed to operate in an A2/AD environment, the Pod HCB and XDR (i.e. NMT) subsystems need to be provided with PNT data in the absence of GPS, and the assured PNT subsystem will provide that data.

Link 16 Network Program provides high power shipboard and shore integrated Link 16 capability through the fielding of Joint Tactical Information Distribution System (JTIDS), Multifunctional Information Distribution System (MIDS) on Ships (MOS) and MOS Modernization (MOS Mod) including transmit and receive antennas and High Power Amplifiers (HPA). JTIDS, MOS and MOS Mod utilizes the JTIDS, MIDS Low Volume Terminal (LVT), and MIDS Joint Tactical Radio System (JTRS) terminals respectively, integrates the HPA and interfaces to the shipboard antenna and Command and Control Processor (C2P) . MIDS-LVT and MIDS JTRS terminals are developed by the MIDS Program Office. JTIDS terminal is no longer in production, but is undergoing product improvement to maintain interoperability and security with MIDS-LVT and MIDS JTRS. As part of the product improvement all shipboard link 16 terminals are required to have Dynamic Network Management (DNM), Crypto Modernization (CM) and Frequency Remapping (FR). MIDS Program Office is developing additional improvements to the MIDS-LVT and MIDS JTRS terminals. The MIDS-LVT will have Link 16 Enhanced Throughput (ET) and the MIDS JTRS will have the added capability of four net Concurrent Multi-Netting (CMN) with Current Contention Receive (CCR) and Tactical Targeting Networking Technology (TTNT).

The Multifunctional Information Distribution System (MIDS) program consists of two (2) products, MIDS Low Volume Terminal (LVT) and MIDS Joint Tactical Radio System (JTRS). MIDS-LVT provides Link 16 capability to platforms that were unable to employ Joint Tactical Information Distribution System due to space and weight constraints. The MIDS-LVT effort is multinational (U.S., France, Germany, Italy, and Spain) with joint Service participation (Navy, Army, and Air Force). The Department of Defense (DoD) established the program to design, develop, and deliver low volume, lightweight tactical information system terminals for U.S. and Allied fighter aircraft, bombers, helicopters, ships, and ground sites. MIDS-LVT provides interoperability with North Atlantic Treaty Organization (NATO) users, significantly increasing force effectiveness and minimizing hostile actions and friend-on-friend engagements. The terminal design is smaller, lighter, highly reliable, interoperable with JTIDS Class 2 terminal, compatible with all the participants' designated platforms, affordable, and re-configurable to individual user needs and budgets.

MIDS JTRS, designed as a Pre-Planned Product Improvement (P3I) and executed as an Engineering Change Proposal (ECP) to the production MIDS-LVT configuration, completed qualification in the first quarter of fiscal year 2010. It facilitated the JTRS incremental approach for fielding advanced JTRS transformational networking capability and transformed the MIDS-LVT into a 4-channel, Software Communications Architecture (SCA) compliant, Joint Tactical Radio. A form-fit-function replacement to MIDS-LVT, MIDS JTRS also adds three programmable 2 Megahertz (MHz) to 2 Gigahertz (GHz) channels capable of hosting the JTRS legacy and networking waveforms. In addition to the Link 16, Tactical Air Navigation, and voice functionality found in MIDS-LVT, MIDS JTRS has four channels and adds capabilities such as Link 16 Enhanced Throughput, Link 16 Frequency Re-mapping, software programmability, Cryptographic Modernization, and Four Net Concurrent Multi-Netting with Concurrent Contention Receive(CMN-4). With CMN-4, MIDS JTRS also utilizes Tactical Targeting Network Technology for MIDS JTRS Naval Integrated Fire Control Counter Air and From the Air Advanced Tactical Data Links. These capabilities provide Joint Airborne Network-Tactical Edge functionality to run advanced mission applications in a cross-platform/cross-domain tactical network enterprise and the ability to simultaneously participate in four Link 16 Nets.

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy					Date: February 2016
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*		R-1 Program Element (Number/Name) PE 0205604N / *Tactical Data Links*			
B. Program Change Summary ($ in Millions)	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**
Previous President's Budget	121.680	149.997	127.611	-	127.611
Current President's Budget	135.583	142.361	124.785	-	124.785
Total Adjustments	13.903	-7.636	-2.826	-	-2.826
• Congressional General Reductions	-	-0.136			
• Congressional Directed Reductions	-	-7.500			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	16.998	0.000			
• SBIR/STTR Transfer	-3.096	0.000			
• Program Adjustments	0.000	0.000	4.500	-	4.500
• Rate/Misc Adjustments	0.001	0.000	-7.326	-	-7.326

Change Summary Explanation

ATDLS (2126):
Decrease in Advanced Tactical Data Link Systems (ATDLS) by $5.2M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

Link 16 Network Increment II Cryptographic Modernization (CM)/Frequency Remapping (FR) (2126): JTIDS CM/FR Test Readiness Review (TRR) delayed due to complexities in developing test procedures that apply newer certification requirements to a legacy terminal. MOS Mod TRR, Production Readiness Review (PRR), government testing and Fielding Decision Review / Initial Operating Capability (FDR/IOC) delayed due to HPA power supply redesign in order to achieve technical requirements. EMC Testing and Certification of the EMD kits is delayed due to the availability of the government certification team and the complexity of testing a legacy terminal which has required additional vendor and certification team effort. MOS Mod delays are due to vendor's difficulty in completing the design on the High Power Amplifier (HPA) and additional EMC testing necessary for certification.

Command and Control Processor (C2P) (2126): Acquisition and engineering changes resulted in schedule slips to acquisition milestones, delays to the start of software development, and slips in testing schedules. On 25 Aug 2015, the Milestone Decision Authority (MDA) issued an Acquisition Decision Memorandum (ADM) that eliminated C2P Increment 3, and directed execution of C2P Technology Refresh (TR) and Link 22 under the existing Increment 2 Program.

Link Monitoring and Management Tool (LMMT) (2126): LMMT will be delivered in a limited fielding capacity in FY16 prior to testing of CD 1. DT/OT for Shore and Afloat CD 1 has now been combined and is now scheduled for Q3 FY16. CD2 DT/OT slip to Q4 FY17 and CD3 DT/OT slip to Q3 FY19 due to CVN availability changes.

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy	Date: February 2016
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*

MIDS (3020): TTNT Full Development (terminal) contract strategy changed with the DOD selling off the L Band frequency (where the TTNT terminal was to operate). The Spectrum Reallocation Funding (SRF) came to fruition in late FY15 which caused the MIDS Program Office (MPO) to change the TTNT L Band Contracting strategy. Originally MIDS was to build TTNT in the L band, then add in the S band changes, however with the SRF money a reality, the MPO changed the strategy in order to not pay for development twice of a TTNT terminal and incorporate cost sharing between the two requirements.

Because TTNT is now going to operate in the S band, MPO truncated the L band development to only deliver Engineering Design Models (EDMs) at the beginning of FY17 and move the testing and integration requirements to a new S band contract. The MPO will award an S band contract to take what was built in L Band development and make it work in the S band frequency and utilize cost sharing; there are specifically delineated L band tasks and S band tasks. The two different tasks will be tracked separately. The EDMs for L Band will be used in the S Band development effort for integration and testing of the L Band terminals in the S Band frequency. The work done in the TTNT L Band development already completed will compliment and be re-used in the S Band development contract. Delta milestone events will occur for the S Band contract to show the differences between the L and S band (Preliminary Design Review and Critical Design Review). This change to contract and development strategy keeps the TTNT terminal delivery on schedule for the Platform Integration and Test for delivery of the capability to the fleet. This ensures no loss of development already completed, but testing the L band terminals is necessary and the MPO cannot use SRF funding to do any L Band work, so there remains some L Band work left to do on the S band contract.

NTCDL (3341): Network Tactical Common Data Link (NTCDL) initial Request for Proposal (RFP) release was delayed. RFP was released Oct 2015. Proposals have been received and source selection is now in process to support a Q4FY16 contract award with discussions. FY17 funding is on track to: conduct Integrated Baseline Review (IBR) in Q1 to finalize initial development schedule, conduct a Q2 Preliminary Design Review (PDR) and Q4 Critical Design Review (CDR) assessing development progress and develop an initial product baseline, begin development of 2 Engineering Development Models (EDMs), begin developing required Milestone C documentation, initiate system software activity to continue developing link management capability and user interface software for Government Furnished Software delivery, begin system engineering efforts for NTCDL integration and internal/external interface management, and build test plans to support developmental test and operational assessment (DT/OA).

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy									Date: February 2016			
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0205604N / *Tactical Data Links*				Project (Number/Name) 2126 / *ATDLS Integration*			
COST ($ in Millions)	**Prior Years**	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**Cost To Complete**	**Total Cost**
2126: *ATDLS Integration*	663.778	51.219	45.027	37.995	-	37.995	22.990	24.723	25.424	25.996	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project develops and improves the Navy's Tactical Data Link (TDL) systems. It includes the Advanced Tactical Data Link Systems (ATDLS) Integration Programs, specifically Link 16 Network, Command and Control Processor (C2P) and Link Monitoring and Management Tool (LMMT).

ATDLS Integration Program develops new and improved capabilities for Navy TDL users. The Navy Link 16 Network Increment II consists of Dynamic Network Management (DNM), Cryptographic Modernization (CM) and Frequency Remapping (FR). C2P Technology Refresh (TR) and C2P Interoperability will modernize legacy C2P processing components to address C2P component obsolescence and fleet interoperability issues. C2P is a critical component in the Aegis Ballistic Missile Defense (BMD) architecture. Modernization is a service life extension program required to sustain C2P support of Naval Integrated Air and Missile Defense (IAMD) and BMD capabilities. Link 22 development and integration into the C2P allows for standard data link communication with Coalition forces. LMMT will upgrade commercial off-the-shelf hardware and modernize software operating systems. LMMT will improve TDL performance monitoring and management in support of the Integrated Air & Missile Defense (IAMD) and Ballistic Missile Defense (BMD) missions.

Link 16 Network Increment II: (1) conduct DNM Developmental Test (DT)/Operational Test (OT) and correct DNM deficiencies (2) develop and implement CM and FR mandates as a product improvement into Link 16 terminals and integration into shore sites, ship (NGC2P, Next Generation Command and Control Processor), and current Navy Joint Tactical Information Distribution System (JTIDS) airborne platforms; (3) DT/OT of Navy platform CM/FR modifications; (4) provide product improvement for continued production capability MIDS-on-ship (MOS) Modernization (MOS Mod) and extensibility to new Tactical Data Link capabilities of shipboard Link 16 terminals, (5) qualification of replacement shipboard Link 16 antenna to replace end of life existing antenna.

FY 2017 Justification: Conduct government testing of the JTIDS CM/FR Low Rate Initial Production units and deficiency correction. Conduct government developmental and operational testing. Prepare for JTIDS CM/FR decision review. The E-2C Program Office (PMA-231) will complete software modifications to the E-2C host processing required to implement the CM/FR capability. PMA 231 will conduct E-2C government testing of JTIDS CM/FR. Funding will also provide for MOS CM/FR to complete integrated testing and deficiency correction of the MOS CM/FR with the High-Power Amplifier (HPA) Switch necessary for integration of the MIDS LVT Block Updated 2 configuration. JTIDS and MOS CM/FR efforts are in support of NSA and Joint Chiefs of Staff mandates, for the modernization of the cryptographic algorithm used in Link 16 terminals and the Department of Defense and the Department of Transportation Memorandum of Agreement for the implementation of a capability to remap any 14 of the existing 51 frequencies in order to remain operable within the United States and its possessions. All Link 16 terminals are required to have this capability to support Link 16 Interoperability. To address continued production capability and extensibility to new Tactical Data Link capabilities, funding will provide for government testing and deficiency correction of MOS Mod. Continue government testing and deficiency correction of new Link 16 antenna which will replace the obsolete AS-4127A.

Command and Control Processor (C2P) Technology Refresh (TR) funds a product improvement effort to the legacy C2P hardware components and allows C2P software to execute on modern processors, thereby extending its effective service life. Product improvement efforts will include C2P software development, hardware integration,

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 2126 / *ATDLS Integration*

update of the C2P development environment to promote sustainability and testing to include Follow-on Test and Evaluation (FOT&E) of the C2P TR baseline. Transform C2P legacy software code with modern supportable software code.

C2P, Phase 3, Increment 2 is planned to include Link 22, which is a modernized replacement for Link 11, providing Beyond Line of Sight (BloS) tactical data communication system utilizing fixed frequency or frequency hopping techniques in the High Frequency (HF) (3-30 Megahertz (MHz)) and/or the Ultra High Frequency (UHF) (225-400 MHz) bands.

FY 2017 Justification: Continue C2P Technology Refresh development and Link 22 software builds.

Link Monitoring and Management Tool (LMMT) is a new system delivered on commercial off-the-shelf hardware providing gateway functions for multiple Tactical Data Link (TDL) interface, routing and display of TDL data to include Link 16 and Joint Range Extension. LMMT is also capable of performing TDL network planning, monitoring, management, data forwarding between the TDLs and providing tactical data to the Global Command and Control System for establishing the Common Operational Picture. LMMT requirements will be incrementally developed and delivered in capability drops via the Joint Capabilities Integration Development System (JCIDS) IT Box approach.

FY 2017 Justification: Funding will provide for Capability Drop 1 (CD) Afloat DT/OT leading to an Afloat Fielding Decision in FY 2017. Funding will also provide for the continuation of CD 2 build and DT/OT.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Link 16 Network Increment II - Dynamic Network Management (DNM)	1.102	0.121	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2015 Accomplishments: Conducted MOS DNM operational testing. Corrected critical DNM test deficiencies. ***FY 2016 Plans:*** Correct Joint Tactical Information Distribution System (JTIDS) and MOS DNM test deficiencies. ***FY 2017 Base Plans:*** N/A ***FY 2017 OCO Plans:*** N/A					
Title: Link 16 Network Increment II - Cryptographic Modernization (CM) / Frequency Remapping (FR)	19.854	18.812	13.300	0.000	13.300
Articles:	2	5	-	-	-
FY 2015 Accomplishments:					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 2126 / *ATDLS Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Initiated contractor qualification and certification of JTIDS CM/FR on Engineering Manufacturing Development (EMD) unit. Conducted JTIDS/MOS CM/FR shipboard integration effort leading to completion of Critical Design Review (CDR). Continued design and development work for JTIDS Air Integration of CM/FR for E-2C. Completed design of MOS Modernization Engineering Manufacturing Development (EMD) units. Provided Link 16 Network integration logistics support. ***FY 2016 Plans:*** Complete design and development work for JTIDS Air Integration of CM/FR for E-2C. Continue contractor qualification and certification of JTIDS CM/FR on Engineering Manufacturing Development (EMD) unit. Initiate government testing of JTIDS CM/FR including shipboard integration. Develop HPA switch necessary for integration of MIDS LVT Block Update 2 (BU2) into MOS terminal. Initiate logistics documentation and conduct testing on HPA switch for MOS CM/FR. Initiate government testing on MOS Modernization terminal. Continue vendor development, qualification and certification of MOS Mod EMD units. Continue Link 16 Network integration logistics support. ***FY 2017 Base Plans:*** Complete contractor qualification and certification of JTIDS CM/FR on Engineering Manufacturing Development (EMD) unit. Continue government testing and correct identified deficiencies in JTIDS CM/FR LRIP units including shipboard integration. Test the integration of JTIDS CM/FR with the E-2C. Develop MOS CM/FR software modifications necessary for shipboard integration in support of MIDS LVT BU2 changes being performed by the MIDS Program Office. Complete integration and conduct integrated government testing of MOS CM/FR terminal with HPA switch. Continue logistics documentation on HPA switch for MOS CM/FR. Complete vendor development, qualification and certification of MOS Mod EMD units. Conduct government testing on MOS Modernization terminal. Integrate and test MIDS JTRS common baseline terminal into MOS Modernization terminal. Continue Link 16 Network integration logistics support. Initiate at sea testing for Link 16 antenna. ***FY 2017 OCO Plans:*** N/A					
Title: Command and Control Processor (C2P)	22.364	19.783	19.357	0.000	19.357
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 2126 / *ATDLS Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Complete CDR and PDR and continue C2P TR development in preparation of Developmental Test Readiness Review/Operational Test Readiness Review (DTRR/OTRR) and Developmental Test/Operational Test (DT/OT). Commence Link 22 development. ***FY 2016 Plans:*** Continue C2P TR development. Conduct C2P Tech Refresh TRR event and commence IV&V testing. Continue Link 22 development and integration and complete Link 22 Software Build 1. ***FY 2017 Base Plans:*** Continue C2P TR and Link 22 development. Complete C2P TR IV&V testing. Conduct C2P Link 22 TRR event and commence Link 22 IV&V testing. Conduct Follow-on Test and Evaluation (FOT&E) of the C2P TR baseline. Complete Link 22 Software Build 2. Transform C2P legacy software to modern C2P software language for Build 1. ***FY 2017 OCO Plans:*** N/A					
Title: Link Monitoring and Management Tool (LMMT) ***Articles:*** ***FY 2015 Accomplishments:*** Conducted Capability Drop (CD) 1 IV&V and Navy Interoperability Certifications. ***FY 2016 Plans:*** Begin limited fielding for non-operational shore sites. Conduct CD 1 Joint Interoperability Certifications. Conduct combined DT/OT for Ashore and Afloat CD 1. Conduct CD 2 BD and commence CD 2 development and testing efforts. ***FY 2017 Base Plans:*** Conduct FDR/IOC for CD 1. Continue CD 2 build and conduct CD 2 DT/OT. Conduct CD 3 BD. ***FY 2017 OCO Plans:*** N/A	5.699 -	6.311 -	5.338 -	0.000 -	5.338 -
Title: Joint Aerial Layer Network (JALN) ***Articles:*** ***FY 2015 Accomplishments:***	2.200 -	0.000 -	0.000 -	0.000 -	0.000 -

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 2126 / *ATDLS Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Continued activities intended to improve USN TDL capabilities when in a jamming environment. ***FY 2016 Plans:*** N/A ***FY 2017 Base Plans:*** N/A ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	51.219	45.027	37.995	0.000	37.995

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPN/2614: *Adv Tact Data Link Sys (ATDLS)*	16.568	23.069	30.105	-	30.105	45.988	44.174	44.618	45.528	Continuing	Continuing

Remarks

D. Acquisition Strategy

The JTIDS Crypto Modernization (CM)/Frequency Remapping (FR) development and Low Rate Initial Production (LRIP) contract was awarded to Data Link Solutions (DLS). The associated production contract for JTIDS CM/FR will be competitively awarded after Operational Test. MOS CM/FR will be accomplished through integration of the MIDS LVT Block Upgrade 2 (BU) into the existing MOS cabinet. MOS CM/FR integration will require development of an High-Power Amplifier (HPA) bypass and update to the MOS Terminal Controller software. HPA bypass development is being conducted by SSC Pacific. The MOS Terminal Controller software will be contracted in FY16. MOS MOD contract will provide three Engineering Manufacturing Development (EMD) units for developental and operational testing. The MOS MOD contract will also provide full rate production units.

The C2P Technology Refresh (TR) and Link 22 development contract was awarded to Northrop Grumman. The Data Terminal Set (DTS) contract awarded to support the Link 11/Link 22 functions of the C2P system. Early engineering hardware procured on CALI contract to support TR and Link 22 baseline development and at-sea testing. The C2P Technology Refresh and Link 22 production contract will be competitively awarded and will support LRIP and Full Rate production units. Purchase of Modernized Link Level Crypto (MLLC) hardware procured from the MLLC production contract in support of C2P TR/Link 22 fielding.

The Link Monitoring and Management Tool (LMMT) capability will replace previously-fielded ADSI systems. LMMT will leverage existing Government-off-the-Shelf (GOTS) software and Commercial-off-the-Shelf (COTS) hardware. LMMT capabilities are implemented primarily in software and will be developed in capability drops

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 2126 / *ATDLS Integration*

(CDs). Existing GOTS software will be updated to incorporate network performance monitoring and management capabilities by SPAWAR System Center (SSC). Afloat fielding decision will be accomplished after Capability Drop (CD) Developmental Test/Operational Test (DT/OT).

E. Performance Metrics

Link 16 Network Dynamic Network Management (DNM): Successfully achieve Initial Operational Capability. Successfully conduct Full Deployment Decision Review. Successfully complete Operation Test Readiness Review. Successfully complete Developmental Test / Operational Test.

Link 16 Network Cryptographic Modernization: Successful implementation of updated cryptographic algorithm as specified by National Security Agency Certification in Joint Tactical Information Distribution System (JTIDS), Multifunctional Information Distribution System (MIDS) on Ship (MOS), and MOS Modernization (MOS Mod) Link 16 terminals.

Link 16 Network Frequency Remapping: Successful implementation of a Frequency Remapping capability as specified in Department of Defense/Department of Transportation Memorandum of Agreement regarding the 960-1215 MHz Frequency Band of 31 Dec 02 in Joint Tactical Information Distribution System (JTIDS), Multifunctional Information Distribution System (MIDS) on Ship (MOS) and MOS Modernization (MOS Mod) Link 16 Terminals.

Link 16 Antenna: Meet existing antenna performance specifications.

Link 16 Network Production Capability: Production Shipboard Link 16 Terminals available to meet new construction shipboard requirements.

Command and Control Processor (C2P): Successfully achieve C2P Technology Refresh Fielding and thereby maintain operational availability.

Link 22: Successfully achieve Link 22 implementation fielding, meeting operational requirement.

LMMT: Successfully meet operational requirements and achieve Fielding Decision Reviews (FDR) for Capability Drops 1, 2 and 3.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205604N / *Tactical Data Links*	Project (Number/Name) 2126 / *ATDLS Integration*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ATDLS Product Development and Integration	Various	Various : Various	363.158	0.000		0.000		0.000		-		0.000	0.000	363.158	363.158
Link 16 Network Development (JTIDS)	C/CPIF	DLS (BAE/ Rockwell) : Wayne, NJ	55.709	5.301	Dec 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Link 16 Network Development (MOS)	C/FFP	DLS (BAE/ Rockwell) : Wayne, NJ	0.034	0.000		0.000		0.000		-		0.000	0.000	0.034	Continuing
Link 16 Network Development (MIDS LVT/ MIDS J)	WR	MIDS IPO : San Diego, CA	6.614	0.000		0.300	Jun 2016	0.000		-		0.000	0.000	6.914	Continuing
Link 16 Network E-2C Integration	WR	PMA 231 : Pax River, MD	2.332	3.564	Oct 2014	2.774	Jan 2016	2.614	Oct 2016	-		2.614	Continuing	Continuing	Continuing
Link 16 Network Development (MOS MOD)	C/FPIF	DLS (BAE/ Rockwell) : Wayne, NJ	10.081	4.206	Dec 2014	2.194	Feb 2016	0.448	Oct 2016	-		0.448	Continuing	Continuing	Continuing
Link 16 Network Software	WR	SPAWARSYSCEN PAC : San Diego, CA	2.996	0.379	Jan 2015	0.408	Oct 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Link 16 Network Integrated Logistics Support	C/CPFF	SeaPort-E : San Diego, CA	2.206	0.346	Oct 2014	0.220	Oct 2015	0.103	Nov 2016	-		0.103	Continuing	Continuing	Continuing
Link 16 Network JTIDS Depot Repair Bench Update	WR	Warner Robins Air Logistics Center : Warner Robins, GA	0.000	0.000		5.486	Oct 2015	4.848	Dec 2016	-		4.848	0.000	10.334	-
Link 16 Network Technical Design Agents	C/CPFF	SeaPort-E : San Diego, CA	2.643	0.000		2.195	Oct 2015	1.456	Nov 2016	-		1.456	0.000	6.294	-
Link 16 Network Systems Engineering	WR	SPAWARSYSCEN PAC : San Diego, CA	46.358	4.656	Oct 2014	2.322	Oct 2015	1.530	Oct 2016	-		1.530	Continuing	Continuing	Continuing
Link 16 Network IV&V	WR	SPAWARSYSCEN PAC : San Diego, CA	2.469	0.602	Oct 2014	1.196	Oct 2015	0.380	Oct 2016	-		0.380	Continuing	Continuing	Continuing
C2P Development (Tech Refresh)	C/IDIQ	Northrop Grumman : San Diego, CA	12.952	6.992	Feb 2015	1.500	Jun 2016	0.872	May 2017	-		0.872	Continuing	Continuing	Continuing
C2P Development (Link 22)	C/IDIQ	Northrop Grumman : San Diego, CA	0.595	2.141	Feb 2015	1.500	Jul 2016	0.872	May 2017	-		0.872	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205604N / *Tactical Data Links*	Project (Number/Name) 2126 / *ATDLS Integration*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C2P Development Data Terminal Set	C/IDIQ	TBD : TBD	0.000	1.227	Aug 2015	4.390	Jan 2016	1.647	Dec 2016	-		1.647	0.000	7.264	-
C2P Development (Interoperability)	WR	SPAWARSYSCEN PAC : San Diego, CA	6.599	0.000		0.000		0.000		-		0.000	0.000	6.599	Continuing
C2P Systems Engineering	WR	SPAWARSYSCEN PAC : San Diego, CA	10.137	7.937	Oct 2014	0.690	Oct 2015	4.037	Oct 2016	-		4.037	Continuing	Continuing	Continuing
C2P IV&V	WR	SPAWARSYSCEN PAC : San Diego, CA	2.336	2.850	Oct 2014	3.691	Oct 2015	3.842	Oct 2016	-		3.842	Continuing	Continuing	Continuing
C2P Development & Integration	WR	SPAWARSYSCEN PAC : San Diego, CA	3.711	0.332	Oct 2014	6.151	Oct 2015	5.706	Oct 2016	-		5.706	0.000	15.900	-
C2P Integrated Logistics Support	C/CPFF	SeaPort-E : San Diego, CA	3.802	0.457	Oct 2014	0.250	Oct 2015	0.254	Nov 2016	-		0.254	Continuing	Continuing	Continuing
LMMT Integrated Logistics Support	C/CPFF	SeaPort-E : San Diego, CA	0.383	0.300	Oct 2014	0.350	Oct 2015	0.350	Nov 2016	-		0.350	Continuing	Continuing	Continuing
LMMT Development	WR	SPAWARSYSCEN PAC : San Diego, CA	2.636	1.962	Oct 2014	2.670	Oct 2015	1.938	Oct 2016	-		1.938	Continuing	Continuing	Continuing
LMMT Systems Engineering	WR	SPAWARSYSCEN PAC : San Diego, CA	0.697	2.100	Oct 2014	1.000	Oct 2015	1.000	Oct 2016	-		1.000	Continuing	Continuing	Continuing
LMMT IV&V	WR	SPAWARSYSCEN PAC : San Diego, CA	0.000	0.312	Oct 2014	0.667	Oct 2015	0.800	Oct 2016	-		0.800	Continuing	Continuing	Continuing
JALN Development	WR	AFRL : W. Patterson AFB, OH	4.400	2.200	Dec 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	542.848	47.864		39.954		32.697		-		32.697	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ATDLS Test and Evaluation	Various	Various : Various	65.171	0.000		0.000		0.000		-		0.000	0.000	65.171	65.171
Link 16 Network T&E	WR	SPAWARSYSCEN PAC : San Diego, CA	8.487	1.102	Oct 2014	1.264	Oct 2015	1.586	Oct 2016	-		1.586	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205604N / *Tactical Data Links*	Project (Number/Name) 2126 / *ATDLS Integration*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C2P T&E	WR	SPAWARSYSCEN PAC : San Diego, CA	1.951	0.000		0.150	Jan 2016	0.150	Oct 2016	-		0.150	0.000	2.251	Continuing
LMMT T&E	WR	SPAWARSYSCEN PAC : San Diego, CA	0.450	0.700	Oct 2014	1.250	Oct 2015	0.800	Oct 2016	-		0.800	Continuing	Continuing	Continuing
		Subtotal	76.059	1.802		2.664		2.536		-		2.536	-	-	-

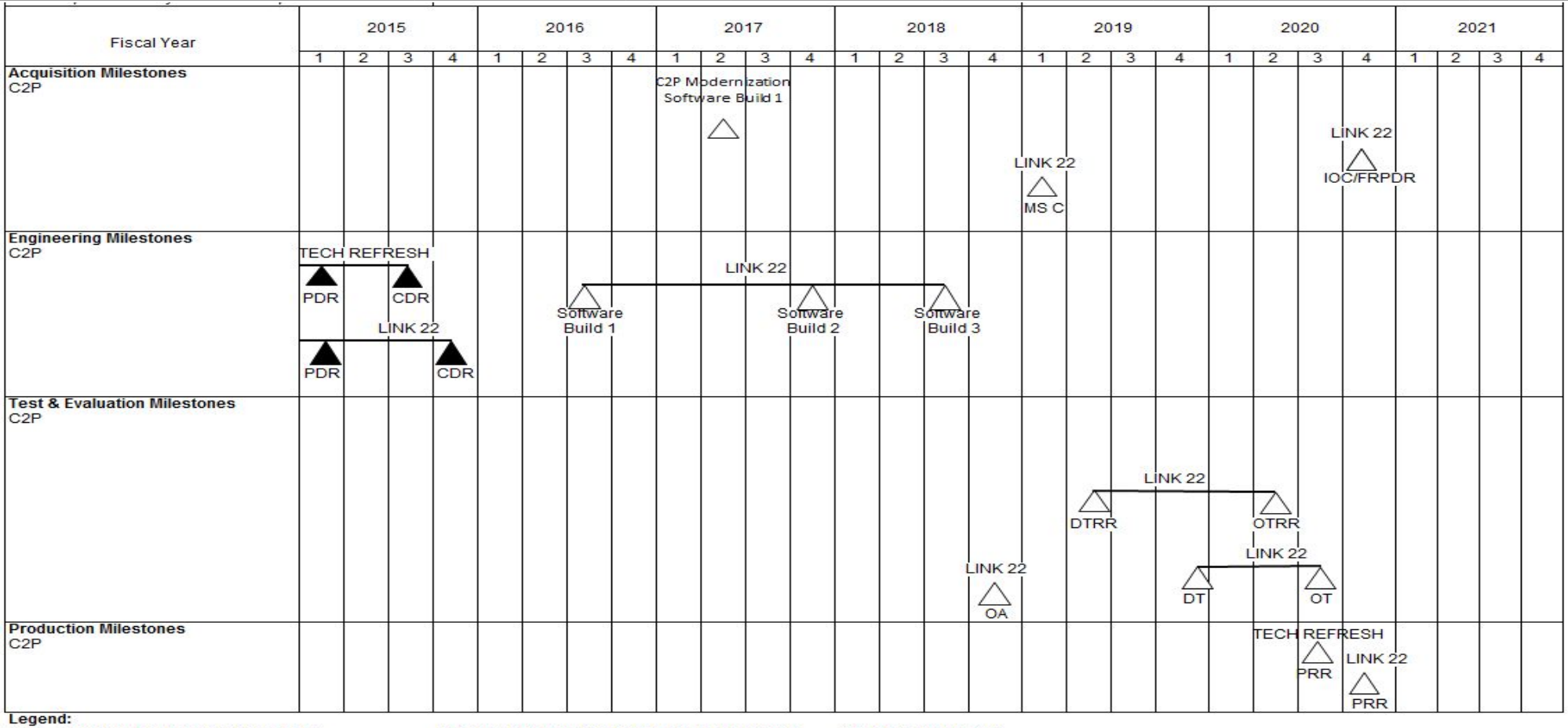
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ATDLS System Engineering Support	Various	Various : Various	20.177	0.000		0.000		0.000		-		0.000	0.000	20.177	20.177
Link 16 Network Contractor Engineering Support	C/CPFF	SeaPort-E : San Diego, CA	9.533	0.000		0.000		0.000		-		0.000	0.000	9.533	Continuing
Link 16 Network Government Engineering Support	WR	SPAWARSYSCEN PAC : San Diego, CA	6.278	0.000		0.000		0.000		-		0.000	0.000	6.278	Continuing
Link 16 Network Program Management Support	C/CPFF	SeaPort-E : San Diego, CA	3.729	0.800	Oct 2014	0.573	Oct 2015	0.335	Nov 2016	-		0.335	Continuing	Continuing	Continuing
C2P Program Management Support	C/CPFF	SeaPort-E : San Diego, CA	4.783	0.428	Oct 2014	1.461	Oct 2015	0.800	Nov 2016	-		0.800	Continuing	Continuing	Continuing
LMMT Program Management Support	C/CPFF	SeaPort-E : San Diego, CA	0.371	0.325	Oct 2014	0.375	Oct 2015	0.450	Nov 2016	-		0.450	Continuing	Continuing	Continuing
C2P Systems Engineering Support	C/CPFF	SeaPort-E : San Diego, CA	0.000	0.000		0.000		1.177	Nov 2016	-		1.177	0.000	1.177	-
		Subtotal	44.871	1.553		2.409		2.762		-		2.762	-	-	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	663.778	51.219		45.027		37.995		-		37.995	-	-	-

Remarks

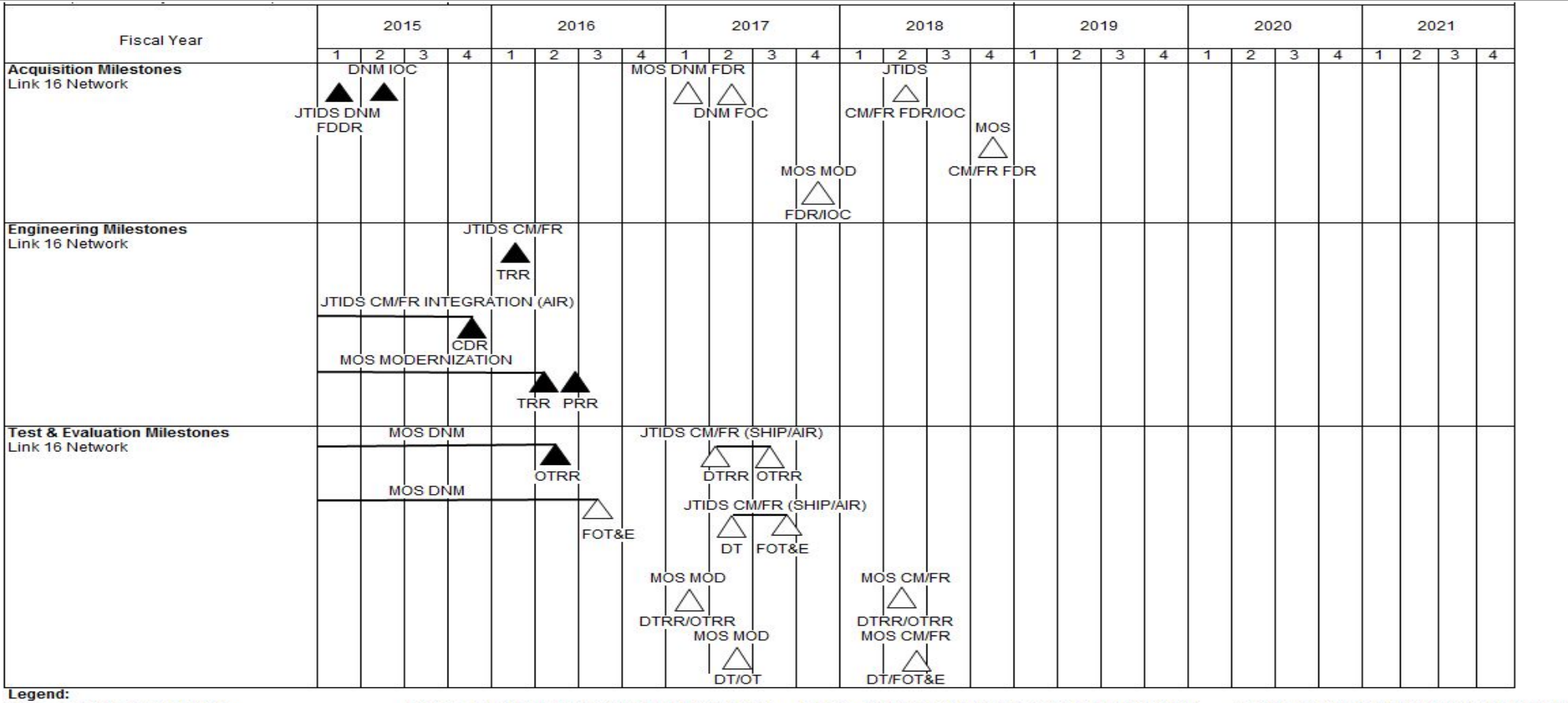
Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 2126 / *ATDLS Integration*



Legend:

C2P - Command and Control Processor
CDR - Critical Design Review
DT - Developmental Test
DTRR - Developmental Test Readiness Review
FRPDR - Full Rate Production Decision Review
IOC - Initial Operating Capability
MS C - Milestone C
OA - Operational Assessment
OT - Operational Test
OTRR - Operational Test Readiness Review
PDR - Preliminary Design Review
PRR - Production Readiness Review

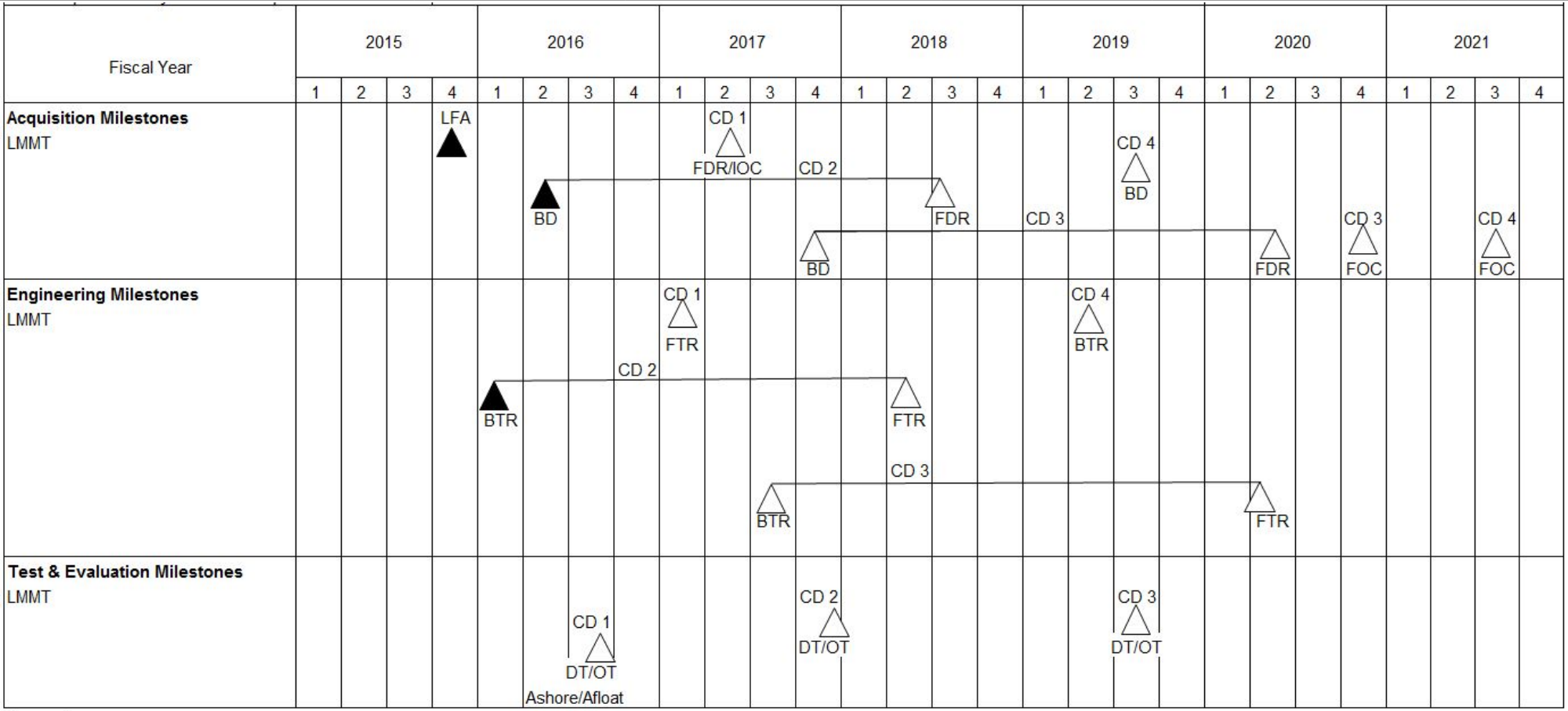
Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 2126 / *ATDLS Integration*



Legend:

CDR - Critical Design Review
CM - Cryptographic Modernization
DT - Developmental Test
DNM - Dynamic Network Management
DTRR - Developmental Test Readiness Review
FDR - Fielding Decision Review
FOT&E - Follow-on Operational Test & Evaluation
FR - Frequency Remapping
FDDR - Full Dep. Decision Review
FOC - Full Operating Capability
IOC - Initial Operating Capability
JTIDS - Joint Tactical Information Distribution System
MS - Milestone
MOS MOD - MOS Modernization
MOS - Multifunctional Info. Distribution Sys. (MIDS) On Ship (MOS)
OT - Operational Test
OTRR - Operational Test Readiness Review
PRR - Production Readiness Review
TRR - Test Readiness Review

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 2126 / *ATDLS Integration*



Legend:

BD - Build Decision
BTR - Build Technical Review
CD - Capability Drop
DT - Developmental Test
FDR - Fielding Decision Review
FOC - Full Operational Capability
FTR - Fielding Technical Review
IOC - Initial Operating Capability
LFA - Limited Fielding ADM
OT - Operational Test

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 2126 / *ATDLS Integration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2126				
C2P Link 22 Preliminary Design Review	1	2015	1	2015
C2P Tech Refresh Preliminary Design Review	1	2015	1	2015
Link 16 Network JTIDS DNM Full Developmental Decision Review	1	2015	1	2015
Link 16 Network DNM Initial Operating Capability	2	2015	2	2015
C2P Tech Refresh Critical Design Review	3	2015	3	2015
Link 16 Network JTIDS CM/FR Integration (Air) Critical Design Review	4	2015	4	2015
C2P Link 22 Critical Design Review	4	2015	4	2015
LMMT Limited Fielding ADM	4	2015	4	2015
Link 16 Network JTIDS CM/FR Test Readiness Review	1	2016	1	2016
LMMT CD 2 Build Technical Review	1	2016	1	2016
LMMT CD 2 Build Decision	2	2016	2	2016
Link 16 Network MOS Modernization Test Readiness Review	2	2016	2	2016
Link 16 Network MOS Modernization Production Readiness Review	2	2016	2	2016
Link 16 Network MOS DNM Operational Test Readiness Review	2	2015	2	2015
Link 16 Network MOS DNM Follow-On Operational Test & Evaluation	3	2016	3	2016
C2P Link 22 Software Build 1	3	2016	3	2016
LMMT CD 1 Developmental/Operational Test	3	2016	3	2016
LMMT CD 1 Fielding Technical Review	1	2017	1	2017
Link 16 Network MOS MOD Developmental Test Readiness Review / Operational Test Readiness Review	1	2017	1	2017
Link 16 Network MOS DNM Fielding Decision Review	1	2017	1	2017
C2P Modernization Software Build 1	2	2017	2	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 2126 / *ATDLS Integration*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Link 16 Network MOS MOD Developmental Test / Operational Test	2	2017	2	2017
LMMT CD 1 Fielding Decision Review/Initial Operating Capability	2	2017	2	2017
Link 16 Network JTIDS CM/FR (Ship/Air) Developmental Test	2	2017	2	2017
Link 16 Network JTIDS CM/FR (Ship/Air) Developmental Test Readiness Review	2	2017	2	2017
Link 16 Network DNM Full Operating Capability	2	2017	2	2017
LMMT CD 3 Build Technical Review	3	2017	3	2017
Link 16 Network JTIDS CM/FR (Ship/Air) Follow-On Operational Test & Evaluation	3	2017	3	2017
Link 16 Network JTIDS CM/FR (Ship/Air) Operational Test Readiness Review	3	2017	3	2017
LMMT CD 3 Build Decision	4	2017	4	2017
LMMT CD 2 Developmental/Operational Test	4	2017	4	2017
Link 16 Network MOS MOD Fielding Decision Review/Initial Operating Capability	4	2017	4	2017
C2P Link 22 Software Build 2	4	2017	4	2017
Link 16 Network JTIDS CM/FR Fielding Decision Review/Initial Operating Capability	2	2018	2	2018
Link 16 Network MOS CM/FR Developmental Test Readiness Review / Operational Test Readiness Review	2	2018	2	2018
LMMT CD 2 Fielding Technical Review	2	2018	2	2018
Link 16 Network MOS CM/FR Developmental Test / Follow-On Operational Test and Evaluation	2	2018	2	2018
LMMT CD 2 Fielding Decision Review	3	2018	3	2018
C2P Link 22 Software Build 3	3	2018	3	2018
C2P Link 22 Operational Assessment	4	2018	4	2018
Link 16 Network CM/FR Fielding Decision Review	4	2018	4	2018
C2P Link 22 Milestone C	1	2019	1	2019
C2P Link 22 Developmental Test Readiness Review	2	2019	2	2019
LMMT CD 4 Build Technical Review	2	2019	2	2019
LMMT CD 3 Developmental/Operational Test	3	2019	3	2019
LMMT CD 4 Build Decision	3	2019	3	2019

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 2126 / *ATDLS Integration*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
C2P Link 22 Developmental Test	4	2019	4	2019
LMMT CD 3 Fielding Technical Review	2	2020	2	2020
C2P Link 22 Operational Test Readiness Review	2	2020	2	2020
LMMT CD 3 Fielding Decision Review	2	2020	2	2020
C2P Tech Refresh Production Readiness Review	3	2020	3	2020
C2P Link 22 Operational Test	3	2020	3	2020
C2P Link 22 Production Readiness Review	4	2020	4	2020
C2P Link 22 Initial Operating Capability/Full Rate Production Decision Review	4	2020	4	2020
LMMT CD3 Full Operational Capability (FOC)	4	2020	4	2020
LMMT CD4 Full Operational Capability (FOC)	3	2021	3	2021

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy											Date: February 2016	
Appropriation/Budget Activity 1319 / 7					R-1 Program Element (Number/Name) PE 0205604N / *Tactical Data Links*				Project (Number/Name) 3020 / *MIDS/JTRS*			
COST ($ in Millions)	**Prior Years**	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**Cost To Complete**	**Total Cost**
3020: *MIDS/JTRS*	112.827	70.117	70.241	57.406	-	57.406	21.088	17.834	18.119	18.495	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 554

Note

In accordance with the Acquisition Decision Memorandum dated 11 July 2012, the Joint Tactical Radio Systems Programs of Record (JTRS PORs) transitioned to a Military Department-managed program. MIDS transitioned to the Navy under PE 0205604N but was formerly in PE 0604280N.

A. Mission Description and Budget Item Justification

The Multifunctional Information Distribution System (MIDS) program consists of two (2) products, MIDS Low Volume Terminal (LVT) and MIDS Joint Tactical Radio System (JTRS). MIDS-LVT provides Link 16 capability to platforms that were unable to employ Joint Tactical Information Distribution System due to space and weight constraints. The MIDS-LVT effort is multinational (U.S., France, Germany, Italy, and Spain) with joint Service participation (Navy, Army, and Air Force). The Department of Defense (DoD) established the program to design, develop, and deliver low volume, lightweight tactical information system terminals for U.S. and Allied fighter aircraft, bombers, helicopters, ships, and ground sites. MIDS-LVT provides interoperability with North Atlantic Treaty Organization (NATO) users, significantly increasing force effectiveness and minimizing hostile actions and friend-on-friend engagements. The terminal design is smaller, lighter, highly reliable, interoperable with Joint Tactical Information Distribution System (JTIDS) Class 2 terminal, compatible with all the participants' designated platforms, affordable, and re-configurable to individual user needs and budgets.

MIDS JTRS, designed as a Pre-Planned Product Improvement (P3I) and executed as an Engineering Change Proposal (ECP) to the production MIDS-LVT configuration, completed qualification in the first quarter of fiscal year 2010. It facilitated the JTRS incremental approach for fielding advanced JTRS transformational networking capability and transformed the MIDS-LVT into a 4-channel, Software Communications Architecture (SCA) compliant, Joint Tactical Radio. A form-fit-function replacement to MIDS-LVT, MIDS JTRS also adds three programmable 2 Megahertz (MHz) to 2 Gigahertz (GHz) channels capable of hosting the JTRS legacy and networking waveforms. In addition to the Link 16, Tactical Air Navigation, and voice functionality found in MIDS-LVT, MIDS JTRS has four channels and adds capabilities such as Link 16 Enhanced Throughput, Link 16 Frequency Re-mapping, software programmability, Cryptographic Modernization, and Four Net Concurrent Multi-Netting with Concurrent Contention Receive (CMN-4). With CMN-4, MIDS JTRS also utilizes Tactical Targeting Network Technology for MIDS JTRS Naval Integrated Fire Control Counter Air and From the Air Advanced Tactical Data Links. These capabilities provide Joint Airborne Network-Tactical Edge functionality to run advanced mission applications in a cross-platform/cross-domain tactical network enterprise and the ability to simultaneously participate in four Link 16 Nets.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: MIDS	70.117	70.241	57.406	0.000	57.406
Articles:	-	-	-	-	-
FY 2015 Accomplishments:					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 3020 / *MIDS/JTRS*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Completed the development and implementation of CMN-4 for MIDS JTRS. Began test and evaluation and collecting Operational Assessment data. Delivered MIDS JTRS CMN-4 PRTs. Awarded Lot 4 for MIDS JTRS Production. Continued Block Cycle 2 (BC2) (MIDS On Ship Modernization) to include the Link 16 High Powered Amplifier. Continued full development effort for Tactical Targeting Networking Technology (TTNT) for MIDS JTRS Naval Integrated Fire Control Counter Air and From the Air Advanced Tactical Data Links. Continued the hardware and software development to include adding the Protected Core Processor Engineering Change Proposal to the baseline. Conducted Critical Design Review. Continued the Crypto Modernization(CM)/Frequency ReMapping(FR)/Enhanced Throughput(ET) for BU2 capability and enhancement efforts for MIDS-LVT to include completing the hardware design and development. Completed the software design and development. Conducted CDR for BU2. Began qualification and certification efforts and first article qualification testing. Began software bind to incorporate Block Cycle 9 as the baseline for BU2 terminals. Continued MIDS Modernization efforts to include Small Business Innovation Research transition opportunities including a Small Form Factor terminal. Conducted the demonstration of MIDS Modernization and awarded the development effort for MIDS Modernization Increment 1. Continued to incorporate new waveforms such as Mutli-Function Advanced Data Link (MADL), Common Data Link (CDL), and others into the MIDS JTRS terminal. Continued MIDS systems engineering, communication security, IA and program management support.					
FY 2016 Plans: Achieve Operational Assessment and Readiness for CMN-4 in MIDS JTRS. Conduct Full Operational Test and Evaluation. Complete BC2 (MIDS on Ship Modernization). Award Lot 5 for MIDS JTRS Production. Merge the BC2 baseline with CMN-4 baseline (Block Cycle 3) and upgrade the Crypto Sub System for incorporation into the TTNT development and testing. Continue full development effort for TTNT for MIDS JTRS Naval Integrated Fire Control Counter Air and From the Air Advanced Tactical Data Links for the L band. Begin S band technology development (contract) to incorporate the existing TTNT L band terminal development into the TTNT S band frequency (no SRF funding will be used on the L band requirement, but there are L band requirements in the S band contract-					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 3020 / *MIDS/JTRS*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
cost sharing). The L band requirements (Navy RDTE) are delineated tasks and tracked separately from the S band requirements (SRF funded). Conduct Delta Preliminary Design Review for the TTNT L band and S band terminals. Award contract for the TTNT S Band terminal development to include test and integration of the L Band terminal. Continue the qualification and certification efforts and first article qualification testing for MIDS-LVT BU2. Complete the software bind to incorporate Block Cycle 9 as the baseline for BU2 terminals. Continue MIDS Modernization Increment 1 efforts to include specification development to define the Functional and Allocated baseline requirements. Continue to incorporate new waveforms such as MADL, CDL, and others into the MIDS JTRS terminal. Continue MIDS systems engineering, communication security, IA and program management support. Begin work on MIDS Modernization Increment 2 for Air Dominance Assured Communications to include the design. Begin Link 16 waveform development fixes/updates for incorporation into the new MIDS JTRS hardware (CMN-4 and TTNT) terminals.					
FY 2017 Base Plans: Complete collecting Operational Assessment data of Concurrent Multi-Netting with Concurrent Contention Receive (CMN-4) for MIDS JTRS. Receive Operational Testing Report and achieve Initial Operational Capability for MIDS JTRS CMN-4. Award Lot 6 for MIDS JTRS Production. Complete the efforts for Tactical Targeting Network Technology (TTNT) for MIDS JTRS Naval Integrated Fire Control Counter Air and From the Air Advanced Tactical Data Links for L band with the Engineering Design Model (EDM) delivery. Conduct Delta Critical Design Review for TTNT L and S band (new S band contract with cost sharing). Award the Production Representative Terminal (PRT) contract for TTNT. Continue development of TTNT S Band contract including integration of the L and S Band Transceivers, TTNT External Power Amplifiers and High Powered Amplifiers (SRF funding will not be used on the L band requirements; L Band requirements on the S band contract include test and integration of the L band terminal only-delineated tasks will be tracked separately).					

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 3020 / *MIDS/JTRS*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Complete the Crypto Modernization (CM)/Block Upgrade (BU) 2 qualification and certification efforts and FAQT. Begin the developmental and service platform/operational delta testing required for the BU2 upgrades to the MIDS-LVT terminals. Award BU2 retrofit contracts. Continue to incorporate new waveforms such as MADL, CDL, and others into the MIDS JTRS terminal. Continue MIDS systems engineering, communication security, IA and program management support. Complete MIDS Modernization Increment 1 effort. Continue the Link 16 Waveform Development to incorporate into CMN-4 and TTNT Terminals. Continue the development MIDS Modernization Increment 2 for the Link 16 waveform. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	70.117	70.241	57.406	0.000	57.406

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

MIDS JTRS development was initiated as a major modification to the MIDS-LVT using an Engineering Change Proposal to the existing production contracts. Development efforts included the Phase 2B Core terminal. The U.S. prime contractors from the MIDS-LVT program, Data Link Solutions (DLS) and ViaSat Inc., cooperatively designed and developed the Core terminal. Each prime contractor built and qualified Production Verification Terminals. The U.S. implemented a continuous competition strategy between DLS and ViaSat that will be maintained throughout the MIDS JTRS production phase. This strategy was successfully used on MIDS-LVT production. The FY17 budget supports the development and implementation of Crypto Modernization, Frequency Remapping, and Enhanced Throughput capabilities for the MIDS-LVT terminal. It also supports the completion of the L-band Tactical Targeting Network Technology (TTNT) development and continuation of the S band TTNT terminal development (to include test and integration of the L band terminal) as well as the TTNT waveform into MIDS JTRS. It supports the completion of the development for MIDS Modernization Increment 1 efforts, beginning MIDS Modernization Increment 2 efforts and conducting future Link 16 Waveform development.

E. Performance Metrics

The MIDS-LVT and MIDS JTRS programs are employing mature, software-defined radio technologies and developing hundreds of thousands of lines of code. These software metrics are used to quantify the quality and progress of each software product's development over time. MIDS employs earned value metrics to monitor contract performance on its prime development contracts, as required.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 3020 / *MIDS/JTRS*

MIDS-LVT: The 11 performance measures are: L16 Waveform Compatibility, L16 Message Standards, L16 IER; Interoperability, L16 Coded Error Message Probability, Weight/Volume, L16 JAM Resistance, L16 Voice Channels, L16 Communication Range Data, L16 Communications Range Voice, L16 Relay.
MIDS JTRS: The 15 performance measures are: L16 Waveform Compatibility, L16 Waveform Standards, L16 Coded Error Message Probability, L16 Jamming Resistance, L16 Communication Range-Data, L16 Communications Range-Voice, L16 Relay, Start-up (Terminal Single Channel), Operational Communications - Passive Synchronization, Operational Communications - Automatic Message Acknowledgement, Operational Communications - Multi-Net, Operational Communications, Crypto Control, Navigation.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 3020 / *MIDS/JTRS*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development Prior Years	Various	Various : Various	6.062	0.000		0.000		0.000		-		0.000	0.000	6.062	6.062
MIDS JTRS NIFCA TTNT Full Development	C/CPFF	DLS : Cedar Rapids, IA	11.600	36.610	Jan 2015	12.500	Mar 2016	9.969	Dec 2016	-		9.969	Continuing	Continuing	Continuing
MIDS JTRS NIFCA TTNT Full Development	C/CPFF	ViaSat : San Diego, CA	12.559	10.050	Jan 2015	7.145	Nov 2015	7.937	Dec 2016	-		7.937	Continuing	Continuing	Continuing
MIDS JTRS NIFCA TTNT Waveform Development	C/CPFF	Rockwell Collins : Wayne, NJ	7.713	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
MIDS-LVT BU2 Full Development	C/CPIF	DLS : Cedar Rapids, IA	17.000	1.859	Feb 2015	9.423	Oct 2015	0.000		-		0.000	Continuing	Continuing	Continuing
MIDS-LVT BU2 Full Development	C/CPIF	ViaSat : San Diego, CA	23.000	0.335	Jan 2015	9.537	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
MIDS-LVT BU2 Software Full Development	C/CPIF	BAE : Wayne, NJ	11.400	8.050	Dec 2014	4.844	Dec 2015	1.220	Dec 2016	-		1.220	Continuing	Continuing	Continuing
MIDS-LVT LCM	C/FFP	ViaSat : San Diego, CA	0.095	2.094	Dec 2014	0.000		0.000		-		0.000	0.000	2.189	2.189
MIDS JTRS CMN-4 Production Representative Terminals (PRT)	C/FFP	DLS : Cedar Rapids, IA	2.010	0.000		0.498	Mar 2016	1.500	Jun 2017	-		1.500	0.000	4.008	4.008
MIDS JTRS CMN-4 Production Representative Terminals (PRT)	C/FFP	ViaSat : San Diego, CA	2.020	0.000		0.498	Mar 2016	1.500	Jun 2017	-		1.500	0.000	4.018	4.018
TTNT Risk Red/Tech Dev	C/CPFF	DLS : Cedar Rapids, IA	2.045	0.000		0.000		0.000		-		0.000	0.000	2.045	2.045
TTNT Risk Red/Tech Dev	C/CPFF	ViaSat : San Diego, CA	2.214	0.000		0.000		0.000		-		0.000	0.000	2.214	2.214
TTNT Spectrum Relocation	C/CPFF	DLS : Cedar Rapids, IA	0.000	0.064	Sep 2015	0.639	Apr 2016	10.000	Dec 2016	-		10.000	0.000	10.703	10.703
TTNT Spectrum Relocation	C/CPFF	ViaSat : San Diego, Ca	0.000	0.020	Sep 2015	0.639	Apr 2016	5.000	Dec 2016	-		5.000	0.000	5.659	5.659
MIDS JTRS Software Merge BC3	TBD	DLS : Cedar Rapids, IA	0.000	0.000		2.750	Jan 2016	0.000		-		0.000	0.000	2.750	2.750
MIDS JTRS Software Merge BC3	TBD	ViaSat : San Diego, CA	0.000	0.000		2.750	Jan 2016	0.000		-		0.000	0.000	2.750	2.750

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 3020 / *MIDS/JTRS*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MIDS Modernization	TBD	DLS : Cedar Rapids, IA	0.000	2.624	Mar 2015	1.664	Oct 2015	0.000		-		0.000	0.000	4.288	4.288
MIDS Modernization	TBD	ViaSat : San Diego, CA	0.000	1.843	Mar 2015	1.016	Oct 2015	0.000		-		0.000	0.000	2.859	2.859
Link 16 Waveform Development	TBD	TBD : TBD	0.000	0.000		1.700	Jan 2016	2.000	Jan 2017	-		2.000	0.000	3.700	Continuing
MIDS JTRS CMN-4	C/CPIF	DLS : Cedar Rapids, IA	2.238	0.396	Mar 2015	0.000		0.000		-		0.000	0.000	2.634	2.634
MIDS JTRS CMN-4	C/CPIF	ViaSat : San Diego, Ca	0.000	0.500	Mar 2015	0.000		0.000		-		0.000	0.000	0.500	0.500
MIDS JTRS Block Cycle 2 HPA	C/CPFF	DLS : Cedar Rapids, IA	0.000	0.439	Nov 2014	0.000		0.000		-		0.000	0.000	0.439	0.439
MIDS JTRS Block Cycle 2 HPA	C/CPFF	VIaSat : San Diego, Ca	0.000	0.811	Nov 2014	0.000		0.000		-		0.000	0.000	0.811	0.811
Air Dominance Assured Communications L16 WF (MIDS Mod Incr 2)	TBD	TBD : TBD	0.000	0.000		4.000	Jan 2016	5.000	Jan 2017	-		5.000	0.000	9.000	Continuing
		Subtotal	99.956	65.695		59.603		44.126		-		44.126	-	-	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Eval Prior Years	Various	Various : Various	1.986	0.000		0.000		0.000		-		0.000	0.000	1.986	1.986
MIDS-LVT BU2 Test Terminals and LCM	C/FFP	ViaSat : San Diego, CA	1.417	0.126	May 2015	0.000		0.000		-		0.000	0.000	1.543	1.543
Modeling and Simulation	WR	NAVAIR : China Lake, CA	1.275	1.165	Nov 2014	3.000	Dec 2015	2.100	Nov 2016	-		2.100	0.000	7.540	Continuing
MIDS JTRS CMN-4/MIDS Mod GFAQT and LAB	WR	SSC : San Diego, CA	0.984	0.000		1.282	Dec 2015	1.392	Mar 2017	-		1.392	0.000	3.658	Continuing
TTNT Link 16 Mod/ Simulation	MIPR	Lincoln Labs : Hanscom AFB, MA	0.370	0.330	Dec 2014	0.200	Dec 2015	0.200	Dec 2016	-		0.200	0.000	1.100	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205604N / *Tactical Data Links*	Project (Number/Name) 3020 / *MIDS/JTRS*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
DTOT CMN-4/MIDS Mod	WR	NAVAIR : China Lake	0.000	0.000		0.000		3.200	Jan 2017	-		3.200	0.000	3.200	3.200
		Subtotal	6.032	1.621		4.482		6.892		-		6.892	0.000	19.027	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Management Services Prior Years	Various	Various : Various	1.181	0.000		0.000		0.000		-		0.000	0.000	1.181	1.181
Systems Engineering Support	MIPR	MITRE : Bedford, MA	2.857	1.860	Dec 2014	0.416	Dec 2015	1.551	Nov 2016	-		1.551	0.000	6.684	Continuing
Government Engineering Support TTNT	WR	SSC : San Diego, CA	2.295	0.000		4.433	Dec 2015	4.273	Nov 2016	-		4.273	0.000	11.001	Continuing
Govt Program Support NIFC-CA	WR	NAVAIR : Pax River, MD	0.239	0.700	Dec 2014	0.841	Jan 2016	0.000		-		0.000	0.000	1.780	Continuing
Systems/Software Engineering Suppt	C/CPFF	G2 : San Diego, CA	0.267	0.221	Jul 2015	0.166	Apr 2016	0.264	Apr 2017	-		0.264	0.000	0.918	Continuing
MIDS-LVT BU2 NSA	MIPR	NSA : Fort George Meade, MD	0.000	0.020	Dec 2014	0.300	Mar 2016	0.300	Dec 2016	-		0.300	0.000	0.620	Continuing
		Subtotal	6.839	2.801		6.156		6.388		-		6.388	0.000	22.184	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	112.827	70.117		70.241		57.406		-		57.406	-	-	-

Remarks

In accordance with the ADM dated 11 July 2012, the Joint Tactical Radio Systems Programs of Record (JTRS PORs) transitioned to a Military Department-managed program.
MIDS transitioned to the Navy under PE 0205604N but was formerly in PE 0604280N.

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 3020 / *MIDS/JTRS*

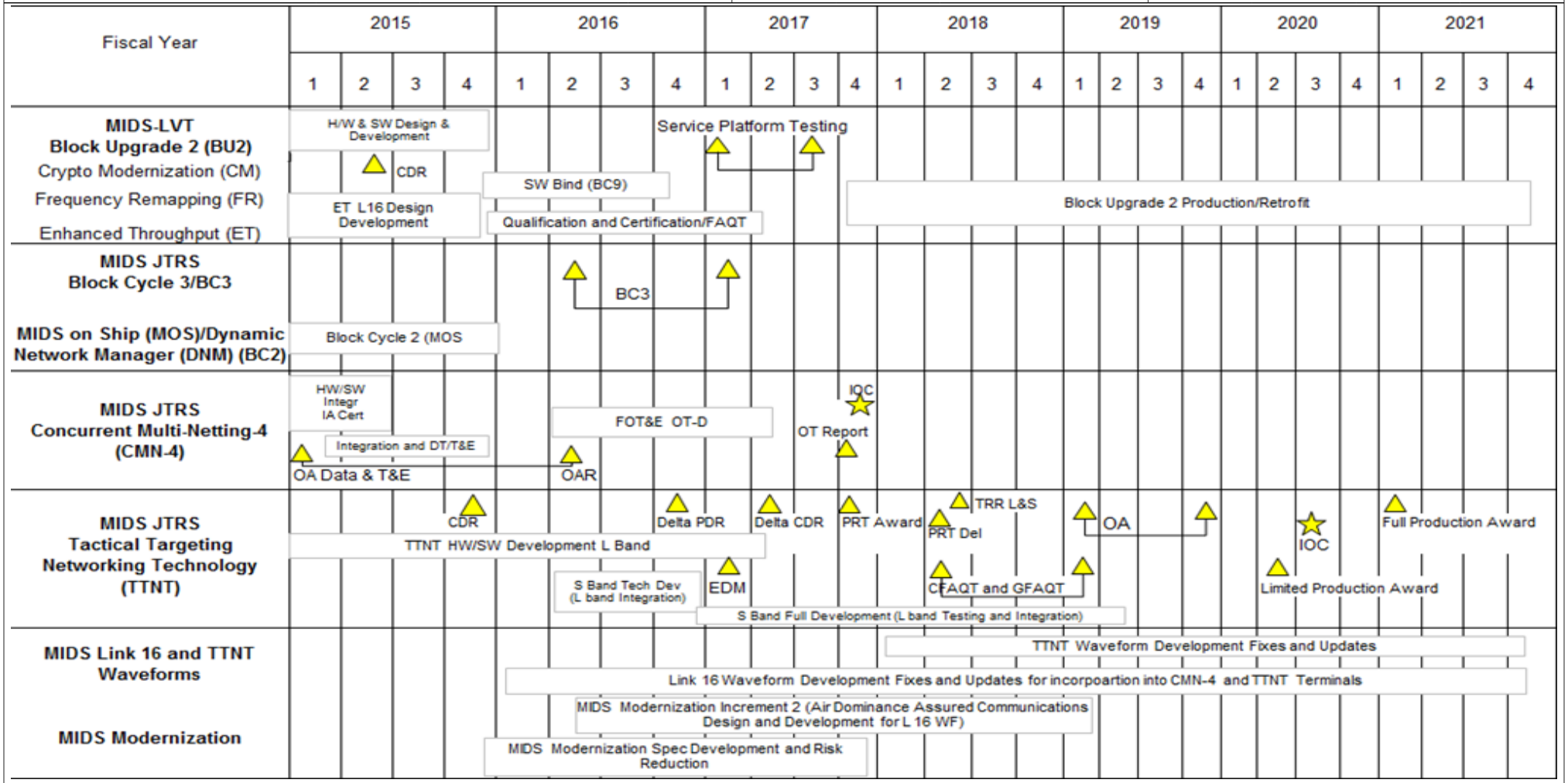


Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 3020 / *MIDS/JTRS*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
MIDS				
MIDS-LVT Block Upgrade 2 (BU2/CM/FR/ET): Hardware (HW) Design and Development	1	2015	4	2015
MIDS-LVT Block Upgrade 2 (BU2/CM/FR/ET): BU2 Critical Design Review	2	2015	2	2015
MIDS-LVT Block Upgrade 2 (BU2/CM/FR/ET): Software (SW) Design and Development	1	2015	4	2015
MIDS-LVT Block Upgrade 2 (BU2/CM/FR/ET): Enhanced Throughput (ET) Link-16 Design and Development	1	2015	4	2015
MIDS-LVT Block Upgrade 2 (BU2/CM/FR/ET): Qualification and Certification/FAQT	4	2015	2	2017
MIDS-LVT Block Upgrade 2 (BU2/CM/FR/ET): Software Bind (SW)	4	2015	4	2016
MIDS-LVT Block Upgrade 2 (BU2/CM/FR/ET): Service Platform Testing	1	2017	3	2017
MIDS-LVT Block Upgrade 2 (BU2/CM/FR/ET): Block Upgrade 2 Production/Retrofit	4	2017	4	2021
MIDS JTRS Block Cycle 3 (BC3): BC3	2	2016	1	2017
MIDS JTRS MIDS on Ship (MOS)/Dynamic Network Manager (DNM) (BC2): Block Cycle 2 with HPA	1	2015	1	2016
MIDS JTRS Concurrent Multi-Netting-4 (CMN-4): Hardware/Software Integration	1	2015	2	2015
MIDS JTRS Concurrent Multi-Netting-4 (CMN-4): Testing/IA Certification	1	2015	2	2015
MIDS JTRS Concurrent Multi-Netting-4 (CMN-4): Integration and DT/T&E	1	2015	4	2015
MIDS JTRS Concurrent Multi-Netting-4 (CMN-4): OA Data and T&E/OAR	1	2015	2	2016
MIDS JTRS Concurrent Multi-Netting-4 (CMN-4): Full Operational Test and Eval OT-D	2	2016	2	2017
MIDS JTRS Concurrent Multi-Netting-4 (CMN-4): OT Report	4	2017	4	2017
MIDS JTRS Concurrent Multi-Netting-4 (CMN-4): IOC (Initial Operational Capability)	4	2017	4	2017
MIDS JTRS Tactical Targeting Networking Technology (TTNT): TTNT Hardware/ Software Development (L Band)	1	2015	2	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 3020 / *MIDS/JTRS*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
MIDS JTRS Tactical Targeting Networking Technology (TTNT): Critical Design Review	4	2015	4	2015
MIDS JTRS Tactical Targeting Networking Technology (TTNT): S Band Technology Development (L Band Integration)	2	2016	4	2016
MIDS JTRS Tactical Targeting Networking Technology (TTNT): Delta Preliminary Design Review	4	2016	4	2016
MIDS JTRS Tactical Targeting Networking Technology (TTNT): Engineering Design Model	1	2017	1	2017
MIDS JTRS Tactical Targeting Networking Technology (TTNT): Delta Critical Design Review	2	2017	2	2017
MIDS JTRS Tactical Targeting Networking Technology (TTNT): S Band Full Development (L Band Testing and Integration)	4	2016	2	2019
MIDS JTRS Tactical Targeting Networking Technology (TTNT): PRT Award	4	2017	4	2017
MIDS JTRS Tactical Targeting Networking Technology (TTNT): PRT Deliveries	2	2016	2	2016
MIDS JTRS Tactical Targeting Networking Technology (TTNT): CFAQT and GFAQT	2	2018	1	2019
MIDS JTRS Tactical Targeting Networking Technology (TTNT): TTNT Technolgy Readiness Review (TRR)	2	2016	2	2016
MIDS JTRS Tactical Targeting Networking Technology (TTNT): Operational Assessment	1	2019	4	2019
MIDS JTRS Tactical Targeting Networking Technology (TTNT): Limited Production	2	2020	2	2020
MIDS JTRS Tactical Targeting Networking Technology (TTNT): IOC (Initial Operational Capability)	3	2020	3	2020
MIDS JTRS Tactical Targeting Networking Technology (TTNT): Full Production Award	1	2021	1	2021
MIDS Link 16 and TTNT Waveform: Link 16 Waveform Development Fixes and Updates	1	2016	4	2021
MIDS Link 16 and TTNT Waveform: TTNT Waveform Development Fixes and Updates	1	2018	4	2021
MIDS Modernization: MIDS Modernization Spec Development	4	2015	4	2017
MIDS Modernization: MIDS Modernization Inc 2 (Air Dominance Assured Communications)	2	2016	1	2019

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205604N / *Tactical Data Links*	Project (Number/Name) 3341 / *Network Tactical Common Data Link*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
3341: *Network Tactical Common Data Link*	16.926	14.247	27.093	29.384	-	29.384	16.119	0.000	0.000	0.000	0.000	103.769
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Funding was realigned in FY 18 from OPN and OMN to this budget to align with development schedule requirements for NTCDL.

A. Mission Description and Budget Item Justification

Network Tactical Common Data Link (NTCDL) provides the ability to transmit/receive real-time Intelligence, Surveillance, and Reconnaissance (ISR) data simultaneously from multiple sources (surface, airborne, sub-surface, man-portable), and exchange command and control information (voice, data, imagery, and Full Motion Video) across dissimilar Joint, Service, Coalition, and civil networks. NTCDL provides warfighters with the capability to support multiple, simultaneous, networked operations with currently fielded Common Data Link (CDL)-equipped platforms (e.g. F/ A-18, P-3, and MH-60R), in addition to next generation manned and unmanned platforms (e.g., P-8, Triton, UCLASS, and Fire Scout). NTCDL is a incremental capability (surface, airborne, sub-surface, man-portable) providing a modular, scalable, multiple-link networked communications. NTCDL benefits the fleet by providing horizon extension for line-of-sight sensor systems for use in time critical strike missions. NTCDL counters Anti-Access/Area Denial (A2/AD) through its relay capability, and supports Tasking Collection Processing Exploitation Dissemination (TCPED) through its ISR networking capability. Additionally, NTCDL supports Humanitarian Assistance/Disaster Relief (HA/DR) efforts through its ability to share ISR data across dissimilar Joint, Service, Coalition, and Civil organizations.

Joint Aerial Layer Network-Maritime (JALN-M) is the Navy implementation of the JALN architecture which provides assured communications in any environment, especially A2/AD. With disruption or loss of Space tier communications, JALN-M establishes and/or restores connectivity with the High Capacity Backbone (HCB) tier, the Distribution Access Range Extension (DARE) tier, and the Transition tier in accordance with the JALN-M Initial Capabilities Document (ICD) and the JALN-M Analysis of Alternatives (AoA) Final Report. JALN-M is a robust, assured communications capability providing joint connectivity via the HCB and Navy platform connectivity via a pseudo satellite DARE capability. JALN-M will use the Extended Data Rate (XDR) waveform (Navy Multiband Terminal (NMT)) for intra-battle group DARE communications, a CDL waveform for the HCB cross-link capability, and will leverage enhanced Ultra High Frequency/High Frequency (UHF/HF) waveforms for coalition connectivity. Furthermore, Positioning, Navigation, and Timing (PNT) efforts related to the JALN-M Pod will develop a prototype PNT subsystem that will be integrated into the JALN-M Pod, and will provide position and timing data to other Pod subsystems, both with and without Global Positioning System (GPS) connectivity. Because the Pod is being designed to operate in an A2/AD environment, the Pod HCB and XDR (i.e. NMT) subsystems need to be provided with PNT data in the absence of GPS, and the assured PNT subsystem will provide that data.

FY17 will focus on NTCDL product development efforts to include NTCDL Engineering Development Models (EDMs), government software development, development of documentation supporting Milestone C, and efforts associated with Increment 2, to include, airborne terminal research and development of High Capacity Backbone (HCB) and air-to-air relay activities in an Anti- Access/Area Denial (A2/AD) environment.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 3341 / *Network Tactical Common Data Link*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Network Tactical Common Data Link (NTCDL)	9.047	13.213	15.368	0.000	15.368
Articles:	-	2	-	-	-
Description: Overall program efforts include investigation of emerging technologies through study, development and associated testing for feasibility of program insertion. ***FY 2015 Accomplishments:*** Completed acquisition and contract documentation, (e.g. Acquisition Program Baseline (APB), Clinger Cohen Act (CCA), Technology Readiness Assessment (TRA), Acquisition Strategy (AS), Acquisition Plan (AP), Should Costs, System Functional Review (SFR), System Engineering Plan (SEP), Test and Evaluation Master Plan (TEMP), Statement of Work (SOW), Contract Data Requirements Lists (CDRLs), and System Performance Specification (SPS), achieve Development Request for Proposal Release Decision Review (DRFPR DR) and Milestone B. Released an Request For Proposal (RFP). ***FY 2016 Plans:*** Award NTCDL Contract and conduct post award activities, to include Post Award Conference (PAC) and Integrated Baseline Review (IBR). Complete development of CARD and update PLCCE. Initiate preparation for NTCDL development efforts (e.g. NTCDL Engineering Development Models [EDMs]); Preliminary Design Review (PDR) and Critical Design Review (CDR) System Engineering Technical Review (SETR) events; continue development of Milestone C documentation. ***FY 2017 Base Plans:*** Conduct Integrated Baseline Review (IBR) in Q1 between vendor and system engineers to finalize initial development schedule. Continue system engineering support to conduct a Q2 Preliminary Design Review (PDR) and Q4 Critical Design Review (CDR) with the vendor to assess development progress and develop an initial product baseline. Initiate development of 2 Engineering Development Models (EDMs). Initiate development of all required Milestone C documentation. Initiate system software activity to continue developing link management capability and user interface software for Government Furnished Software delivery. Conduct system engineering efforts to support NTCDL development, integration and internal/external interface management. Develop test plans to support developmental test and operational assessment (DT/OA). ***FY 2017 OCO Plans:*** N/A					
Title: Network Tactical Common Data Link (NTCDL) High Capacity Backbone (HCB)	5.200	13.880	14.016	0.000	14.016
Articles:	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 3341 / *Network Tactical Common Data Link*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Description: Network Tactical Common Data Link (NTCDL) High Capacity Backbone (HCB) efforts will support Joint Aerial Layer Network-Maritime (JALN-M) System of Systems development, integration, and testing. Efforts will include the development of capabilities to integrate shipboard NTCDL terminals with the HCB in an Anti-Access/Area Denial (A2/AD) environment. ***FY 2015 Accomplishments:*** Supported JALN-M System of Systems (SoS) development, Integration & Testing, ICD/ECR development and procurement of the HCB terminals. Developed capabilities to integrate shipboard NTCDL terminals and Mobile GIG Entry Point (MGEP) with HCB system. Facilitated the development of the design specifications of JALN-M payload requirements for the integration of an airborne prototype Pod, MGEP and shipboard systems. ***FY 2016 Plans:*** Continue to support JALN-M System of Systems development, Integration &Testing, and FY18 demo planning. Funding will be used to design, develop, and test the High Capacity Backbone (HCB) distributed system of systems (SoS) and the HCB component functional capabilities, interfaces, and supporting elements. Funds will also be applied to the planning and execution of JALN-M demonstration scheduled in FY18. ***FY 2017 Base Plans:*** FY17 efforts include delivery of the HCB terminals, completing development of Pod, MGEP, ship terminal, and continuing subsystem integration and test. Continue efforts that will include development associated with Increment 2, to include, airborne terminal research and development of High Capacity Backbone (HCB) and air-to-air relay activities in an Anti- Access/Area Denial (A2/AD) environment. Participate in integration and testing of JALN-M Pod components or sub-systems. Support planning and execution of the JALN-M flight tests. ***FY 2017 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	14.247	27.093	29.384	0.000	29.384

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• OPN, 2950: *Network Tactical Common Data Link (CDL)*	0.000	0.000	0.000	-	0.000	0.000	21.384	20.279	21.193	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 3341 / *Network Tactical Common Data Link*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost

Remarks

Funding was realigned in FY 18 from OPN and OMN to this budget to align with development schedule requirements for NTCDL.

D. Acquisition Strategy

NTCDL will utilize the evolutionary acquisition approach for: surface, air, sub-surface, man-portable.

E. Performance Metrics

Conformance to meet Joint Interoperability Test Command (JTIC) Certification requirements for CDL waveforms.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205604N / *Tactical Data Links*	Project (Number/Name) 3341 / *Network Tactical Common Data Link*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NTCDL Product Development	C/CPIF	UNKNOWN : UNKNOWN	0.000	0.000		9.744	Aug 2016	6.289	Nov 2016	-		6.289	0.000	16.033	-
NTCDL HCB Development	WR	SPAWARSYSCTR : San Diego, CA	0.000	1.200	Sep 2015	2.003	Nov 2015	2.190	Nov 2016	-		2.190	0.000	5.393	-
NTCDL HCB Development	C/CPFF	MIT/Lincoln Lab : Lexington, MA	0.000	4.000	Apr 2015	6.285	Nov 2015	11.829	Nov 2016	-		11.829	0.000	22.114	-
NTCDL HCB Development	C/CPFF	DTIC : Fort Belvoir, VA	0.000	0.000		2.104	Oct 2015	0.000		-		0.000	0.000	2.104	-
NTCDL Software Development	WR	SPAWARSYS : San Diego, CA	0.000	0.000		1.415	Nov 2015	1.659	Nov 2016	-		1.659	0.000	3.074	-
		Subtotal	0.000	5.200		21.551		21.967		-		21.967	0.000	48.718	-

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NTCDL Systems Engineering	WR	SPAWARSYSCTR : San Diego, CA	5.601	6.180	Oct 2014	1.384	Oct 2015	1.240	Oct 2016	-		1.240	0.000	14.405	-
NTCDL Systems Engineering	C/IDIQ	SPAWARSYS : San Diego, CA	5.125	1.367	Sep 2015	2.494	Nov 2015	2.604	Nov 2016	-		2.604	0.000	11.590	-
		Subtotal	10.726	7.547		3.878		3.844		-		3.844	0.000	25.995	-

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NTCDL Test and Evaluation	WR	SPAWARSYSCTR : San Diego, CA	3.267	0.000		0.898	Oct 2015	1.729	Oct 2016	-		1.729	0.000	5.894	-
NTCDL Test and Review	MIPR	JITC : Fort Huachuca, AZ	0.200	0.000		0.299	Dec 2015	0.576	Dec 2016	-		0.576	0.000	1.075	-
NTCDL Waveform certification	MIPR	COMOPTEVFOR : Norfolk, VA	0.200	0.000		0.060	Dec 2015	0.115	Dec 2016	-		0.115	0.000	0.375	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy			Date: February 2016
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205604N / *Tactical Data Links*	Project (Number/Name) 3341 / *Network Tactical Common Data Link*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	3.667	0.000		1.257		2.420		-		2.420	0.000	7.344	-

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	WR	SPAWARSYSCTR : San Diego, CA	1.000	0.000		0.000		0.000		-		0.000	0.000	1.000	-
Program Management Support	C/CPFF	BAH : San Diego, CA	1.533	1.500	Dec 2014	0.407	Dec 2015	1.153	Dec 2016	-		1.153	0.000	4.593	-
		Subtotal	2.533	1.500		0.407		1.153		-		1.153	0.000	5.593	-

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	16.926	14.247		27.093		29.384		-		29.384	0.000	87.650	-

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 3341 / *Network Tactical Common Data Link*

NTCDL Schedule

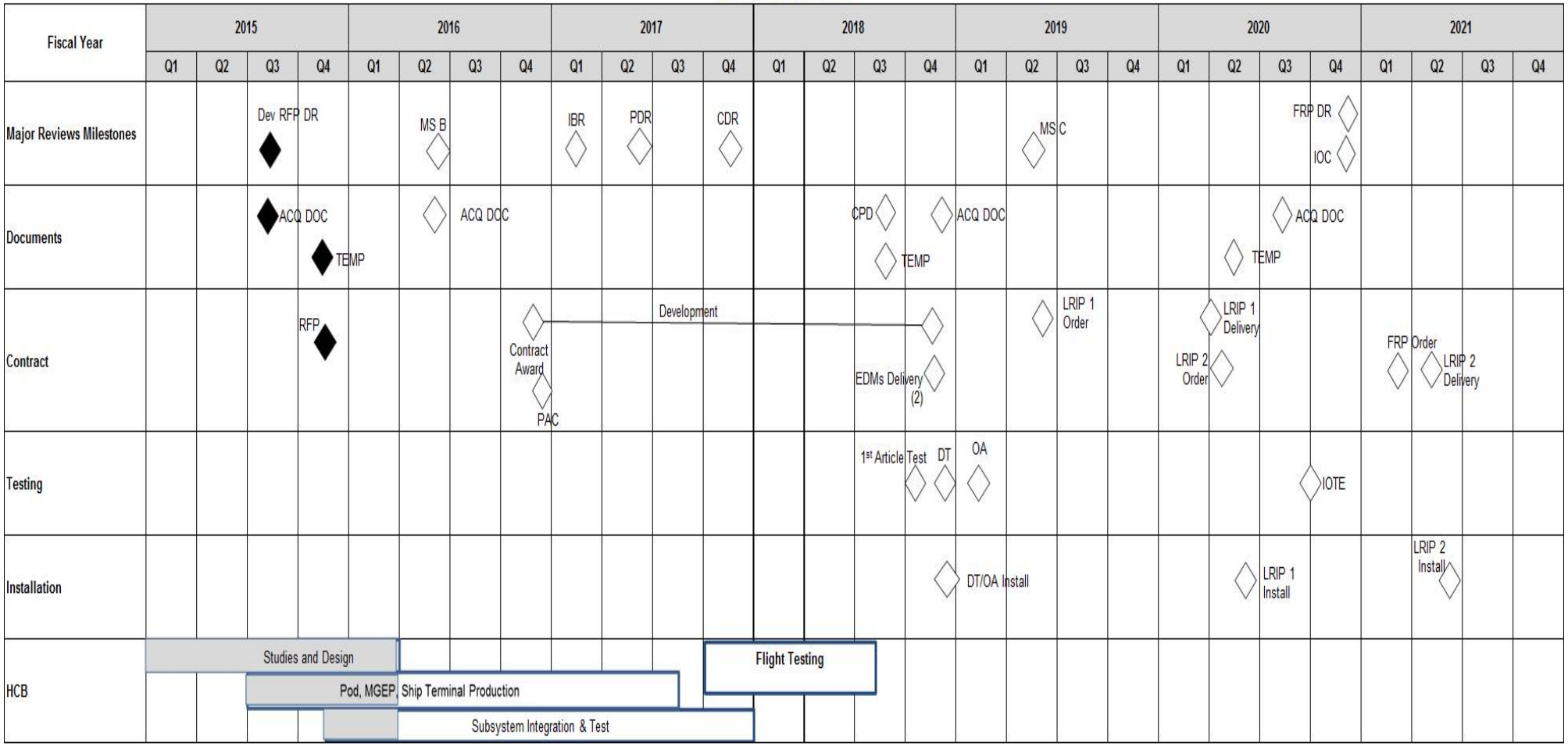


Exhibit R-4A, RDT&E Schedule Details: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 3341 / *Network Tactical Common Data Link*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3341				
JALN HCB Studies and Design	1	2015	1	2016
NTCDL - Development Request for Proposal Decision Review (Dev RFP DR)	3	2015	3	2015
JALN HCB Integrated Testing	4	2015	4	2017
NTCDL - Milestone B	2	2016	2	2016
NTCDL - Contract Award	4	2016	4	2016
NTCDL - Development Contract	4	2016	4	2018
NTCDL - Preliminary Design Review (PDR)	2	2017	2	2017
NTCDL - Critical Design Review (CDR)	4	2017	4	2017
JALN HCB Development	2	2015	3	2017
NTCDL - Capability Production Document (CPD)	3	2018	3	2018
JALN HCB Flight Testing	4	2017	3	2018
NTCDL - First Article Test	4	2018	4	2018
NTCDL - Development Testing (DT)	4	2018	4	2018
NTCDL - Operational Assessment (OA)	1	2019	1	2019
NTCDL - Milestone C	2	2019	2	2019
NTCDL - Low Rate Initial Production (LRIP) Order	2	2019	2	2019
NTCDL - Full-Rate Production Decision Review (FRP DR)	4	2020	4	2020
NTCDL - Initial Operational Capability (IOC)	4	2020	4	2020
NTCDL - Initial Operational Test and Evaluation (IOT&E)	3	2020	3	2020