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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 7: Operational Systems Development</i>					R-1 Program Element (Number/Name) PE 0204163N / <i>Fleet Tactical Development</i>							
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	134.693	26.333	41.538	48.225	-	48.225	8.437	2.457	2.487	2.567	Continuing	Continuing
0725: <i>Communication Automation</i>	134.693	26.333	41.538	48.225	-	48.225	8.437	2.457	2.487	2.567	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Communications Automation Program - This project is a continuing program that provides for automation and communications upgrades for fleet tactical users. It includes Battle Force Tactical Network (BFTN), Joint Aerial Layer Network-Maritime (JALN-M), Automated Digital Network System (ADNS) and High Frequency Internet Protocol/Sub Network Relay.

The Battle Force Tactical Network (BFTN) on each surface, subsurface, air, or fixed US Navy platform utilizes previously installed/existing Line of Sight (LOS)/Extended Line of Sight (ELOS) radios (a.k.a. Radio Frequency (RF)) to create a secure gateway that inter-connects all users into a common RF Tactical Network (a.k.a. wireless). This Network separately supports US-Only and NATO Allied/Coalition users' tactical data information exchanges on each platform (node) between and/or across separately dispersed RF Networks even if Satellite Communications (SATCOM) channels to shore are lost during an Assured C2 and Anti-Access/Area Denial (A2/AD) event.

Joint Aerial Layer Network-Maritime (JALN-M) is the Navy implementation of the JALN architecture which provides assured communications in any environment, especially Anti-Access/Area Denial (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 Common Data Link (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 (NMT) subsystems need to be provided with PNT data in the absence of GPS, and the assured PNT subsystem will provide that data.

ADNS is the method by which Tactical Navy units transfer Internet Protocol (IP) data to Navy and Department of Defense communities on the Global Information Grid (GIG). ADNS is the gateway to tactical Wide Area Network (WAN) afloat for Internet Protocol network operations, supporting information dissemination and external connectivity. ADNS allows services and applications to interconnect to the Defense Information Systems Network (DISN) ashore via multiple Radio Frequency (RF) resources and pier connectivity.

FY17 BFTN efforts will focus on the completion of the system integration package for BFTN engineering changes, completion of the active anti-jam sub-system Propagation Aware Automated Link Establishment/Automated Link Establishment Controller (PAALE/ALEC) and field test for hands-free automation, continuation of

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the development and certification of digital multi-coupler which allows up to 4 radios to share a single antenna reducing top-side footprint, integration of shore global information grid (GIG) entry point (GIG/GEP) (non-permanent change), completion of ADNS INC III Service Pack 4, and certification of Information Assurance/ Computer Network Defense (IA/CND) of GEP design.

FY17 JALN-M efforts will focus on procurement, integration, and test of the Joint Aerial Layer Network-Maritime (JALN-M) end-to-end system in preparation of the pre-demo flight tests.

FY17, ADNS RDT&E investment will continue to support Interface Design Development (IDD) and integration with network applications, development of Line-Of-Sight (LOS) link, DISN integration, and development of Cipher-Text (CT) piers. Study efforts will continue with the intention of integrating ADNS into the JALN-M system. JALN-M is the Navy implementation that provides network connectivity in areas that have limited or denied Satellite Communications (SATCOM). ADNS system development will include addressing network management, intra and inter domain routing, Quality of Service (QoS), and Concept of Operations discussions. Continue Network-Based Cyber Security technology and virtualization to increase performance of the Navy's ADNS routing and transport architecture.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	27.039	62.867	51.221	-	51.221
Current President's Budget	26.333	41.538	48.225	-	48.225
Total Adjustments	-0.706	-21.329	-2.996	-	-2.996
• Congressional General Reductions	-	-0.329			
• Congressional Directed Reductions	-	-21.000			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.706	0.000			
• Rate/Misc Adjustments	0.000	0.000	-2.996	-	-2.996

Change Summary Explanation

Decrease in Fleet Tactical Development by \$2.0M as required for the Department of the Navy to comply with the Bipartisan Budget Act of 2015.

In order to mitigate risk, JALN-M reduced the quantity of pod prototypes from 4 to 2. Additionally, the JALN-M demonstration originally planned for FY18 has been replaced with a series of flight tests .

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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
0725: <i>Communication Automation</i>	134.693	26.333	41.538	48.225	-	48.225	8.437	2.457	2.487	2.567	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Automated Digital Network System (ADNS) - Prior to FY13 funding resides in PE 0204163N. FY13-15 funding resides in PE 0303138N. Starting in FY16, funding was realigned back into PE 0204163N for Major Automated Information System (MAIS) transparency compliance.

A. Mission Description and Budget Item Justification

The Battle Force Tactical Network (BFTN) on each surface, subsurface, air, or fixed US Navy platform uses previously installed/existing Line of Sight (LOS)/ Extended Line of Sight (ELOS) radios (a.k.a. Radio Frequency (RF)) to create a secure gateway that inter-connects all users into a common RF Tactical Network (a.k.a. wireless). BFTN enables war-fighters to digitally communicate NATO Allied/Coalition and US-Only information necessary to execute and plan in a real-time operational environment without relying on ashore application server interaction. This RF Network separately supports US-Only Carrier and Expeditionary Strike Group Commanders and maintains the digital communication ability to execute and plan with other U.S. ships, submarines or aircraft, as well as with NATO Allied/Coalition networks; even if Satellite Communication (SATCOM) channels to shore are lost.

In a satellite-denied event, adversaries covertly jam or disable communications necessary to Fleet protection and tactical operation. BFTN enhanced engineering changes will facilitate automation for operators ease of use, communications relays and application of network aware link establishment (NA-ALE) within/across battle groups. The BFTN engineering change will also enable size, weight and power (SWAP) modification of the existing BFTN Fly Away Kit for use in small platforms (i.e. surface, subsurface and manned/unmanned air platforms) which will also extend BFTN Ultra High Frequency/High Frequency (UHF/HF) link ranges. As a result, BFTN service levels can be extended for theatre of operations sufficient to thwart contested SATCOM connectivity to shore servers. Engineering studies and related test activities commenced in FY14 to support the goal of development and implementation of an engineering change for increased BFTN network data rates and link ranges (1.92Mbps - Ultra High Frequency (UHF) at 20nm or greater and 128Kbps - High Frequency (HF) at 200nm or greater), using either a single channel or quadrupling of system channel quantities for improved service, increased network performance and jam resistance in a satellite degraded/denied environment. Design enhancements will enable the BFTN network to self-assemble Transmission Control Protocol/Internet Protocol (TCP/IP) delivery circuits, adapt to user proximity changes due to maneuvers or operational demands and self-heal those data delivery circuits, if they are degraded or forcefully taken from afloat forces. These engineering changes will enhance ease of operators' use and mitigate obsolescence and end of life impacts associated with steady progression of network technology and architectures.

FY17 BFTN efforts will focus on the completion of the system integration package for BFTN engineering changes, completion of the active anti-jam sub-system Propagation Aware Automated Link Establishment/Automated Link Establishment Controller (PAALE/ALEC) and field test for hands-free automation, continuation of the development and certification of digital multi-coupler which allows up to 4 radios to share a single antenna reducing top-side footprint, integration of shore global information grid (GIG) entry point (GEP) (non-permanent change), completion of ADNS INC III Service Pack 4, and certification of Information Assurance/ Computer Network Defense (IA/CND) of GEP design.

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Joint Aerial Layer Network-Maritime (JALN-M) is the Navy implementation of the JALN architecture which provides assured communications in any environment, especially Anti-Access Area Denial (A2AD). 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 Common Data Link (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 A2AD environment, the Pod HCB and XDR (NMT) subsystems need to be provided with PNT data in the absence of GPS, and the assured PNT subsystem will provide that data.

FY17 JALN-M efforts will focus on procurement, integration, and test of the Joint Aerial Layer Network-Maritime (JALN-M) end-to-end system in preparation of the pre-demo flight tests.

Automated Digital Network System (ADNS) provides routing, switching, baseband, configuration and monitoring capabilities for interconnecting naval, coalition and joint enclaves worldwide. ADNS utilizes off the shelf equipment and network protocols as specified by the Joint Technical Architecture. ADNS INC III combines all Navy Tactical Voice, Secure Communications Interoperability Protocol (SCIP) Inter-Working Function, Video, and data requirements into a converged IP data stream. ADNS INC III supports higher bandwidth satellites, providing up to 25 mega bytes per second (Mbps) of throughput on Unit Level ships and up to 50 Mbps on Force Level ships. INC III architecture also incorporates an IPv4/IPv6 dual stack and Cipher-Text (CT) security architecture to align to the Global Information Grid (GIG) in order to mesh Navy Tactical surface, subsurface, and airborne platforms into a single IP environments with gateway functions to coalition and joint networks, in addition to greater security utilizing the High Assurance Internet Protocol Encryptor (HAIPE) devices. ADNS will serve as the Navy tactical interface for IP Networking for the JALN-M system. ADNS will investigate emerging technologies to integrate with additional Department of Defense C4I Programs to improve inter-strike group networking and extend the network to the tactical edge.

FY17 ADNS RDT&E investment will continue to support Interface Design Development (IDD) and integration with network applications, development of Line-Of-Sight (LOS) link, DISN integration, and development of CT piers. Study efforts will continue with the intention of integrating ADNS into the Joint Aerial Layer Network - Maritime (JALN-M) system. JALN-M is the Navy implementation that provides network connectivity in areas that have limited or denied SATCOM. ADNS system development will include addressing network management, intra and inter domain routing, QoS, and Concept of Operations discussions. Continue Network-Based Cyber Security technology and virtualization to increase performance of the Navy's ADNS routing and transport architecture.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Battle Force Tactical Network (BFTN)	7.752	12.699	5.354	0.000	5.354
Articles:	-	-	-	-	-
Description: Overall program efforts include investigation of emerging technologies through study, development and associated testing for feasibility of program insertion.					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p><i>FY 2015 Accomplishments:</i> Continued to support the Integrated Testing and Operational Testing (IT/OT) event in support of a full rate production decision and resolve any developmental issues that are realized during the event. Continued to develop engineering documentation, initiated efforts in management of plans, logistics, currently fielded systems and develop solutions for end of life issues, obsolescence, and increase system ease of use for operators. Developed engineering documentation, initiated efforts in management of plans, logistics, and milestones and schedule to support efforts toward BFTN engineering change contract award. Awarded contract for modification and testing efforts of BFTN engineering change to overcome obsolescence issues which include: initiation of system sub-component miniaturization to reduce system weight and power parameters for ready integration into a broader range of platform configurations and support MIL-STD (Military Standard).</p> <p><i>FY 2016 Plans:</i> Begin BFTN engineering change development efforts. These efforts include completing the system integration package for BFTN engineering changes as back-fit and forward-fit configuration with associated engineering drawings, logistics and training. These efforts also include starting the active anti-jam sub-system Propagation Aware Automated Link Establishment/Automated Link Establishment Controller (PAALE/ALEC) and field test for hands-free automation, implementing component miniaturization to fit ships/subs and manned/unmanned aerial platforms. In addition, these efforts include shore integration of BFTN Global Information Grid Entry Point (non-permanent change) with cooperation of USN and USAF. Final lab testing of Automated Digital Network System (ADNS) INC III to/from BFTN to validate internet-working end to end compatibility. Complete certification of engineering changes at Common Submarine Radio Room, land-based submarine radio room and BFTN land-based test station.</p> <p><i>FY 2017 Base Plans:</i> Complete the system integration package for BFTN engineering changes as back-fit and forward-fit configuration with associated engineering drawings, logistics and training. Complete the active anti-jam sub-system PAALE/ALEC and field test for hands-free automation, implementing component changes to fit ships/subs and manned/unmanned aerial platforms. Integrate shore global information grid/gig entry point (GIG/GEP) (non-permanent change) with cooperation of USN and USAF. Complete ADNS INC III Service Pack interoperability and backward compatibility verification. Certify Information Assurance/ Computer Network Defense (IA/CND) of GEP design.</p> <p><i>FY 2017 OCO Plans:</i> N/A</p>					
Title: Joint Aerial Layer Network -Maritime (JALN-M)	18.581	25.392	40.084	0.000	40.084

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Articles:	-	-	-	-	-
<p>Description: Overall program efforts include investigation of emerging technologies through study, development and associated testing for feasibility of program insertion.</p> <p>FY 2015 Accomplishments: Developed Joint Aerial Layer Network-Maritime (JALN-M) capabilities. Began development for Assured Position Navigation and Timing (PNT) subsystem and Position Reporting System (PRS). Facilitated the development of the design specifications of JALN-M payload requirements for integration into an airborne prototype pod. Continued developmental efforts with the Airborne Extended Data Rate (XDR) (Navy Multiband Terminal (NMT)) and High Capacity Backbone (HCB) waveforms, pod prototype, and Mobile Ground Entry Point (MGEP). Developmental efforts included requirements maturity and documentation and initial systems designs. Completed component and system of systems (SoS) System Design Review (SDR) and Preliminary Design Review (PDR).</p> <p>FY 2016 Plans: FY16 efforts includes procurement of the hardware for the two surrogate satellite prototypes. Continue design, development, integration and test of JALN-M end-to-end system. Complete component and system of systems (SoS) Critical Design Review (CDR). Begin pod assembly and subsystem integration and test of pods, three HCB systems, and Airborne XDR. Begin integration and installation of MGEP at NUWC for emulated CVN and emulated SSN. Continue Assured PNT subsystem integration and test with the pods. Delivery of production HCB systems for MGEP, and shipboard terminals. Continue Airborne XDR development. Complete PNT subsystem and PRS development, Complete design and integration of HCB ground systems, and equipment procurement for MGEP. Complete component integration of Topology Manager for airborne PRS and HCB systems. Additional efforts include planning activities and the development of systems engineering documentation in support of the JALN-M Pod flight tests.</p> <p>FY 2017 Base Plans: FY17 efforts include procurement, integration, and test of the Joint Aerial Layer Network-Maritime (JALN-M) end-to-end system in preparation for 30 flight tests. Complete component integration for Airborne XDR Deliver two pod prototypes and three HCB terminals. Begin system integration for pod prototypes, HCB, and Airborne XDR. Procure 14 radios for Position Reporting System (PRS)and continue system integration of PRS with shipboard systems and airborne payloads. Complete MGEP installation at Northwest Teleport and begin shipboard installations of Topology Manager on one aircraft carrier (CVN) and three Destroyer Guided Missiles (DDGs). Begin hardware and software installations of QNT radios on three DDGs and one CVN. Begin hardware and</p>					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
software installations of HCB on one CVN. Begin Electromagnetic Interference (EMI) testing to determine topside equipment installation position for underway DDG. Complete Integration and Test Readiness Review (ITRR), Installation Readiness Review (IRR), and Pre-Demo Flight Readiness Review (RR). FY 2017 OCO Plans: N/A					
Title: Automated Digital Network System (ADNS) Articles:	0.000	3.447	2.787	0.000	2.787
FY 2015 Accomplishments: FY15 and prior years funding resides under PE: 0303138N	-	-	-	-	-
FY 2016 Plans: Continue testing and interfaces with Enterprise Network Management System (ENMS), IPv6 transition, and integration of Super High Frequency (SHF). Continue the Interface Design Development (IDD) and integration with network applications, develop Line-Of-Sight (LOS) link, Defense Information System Network(DISN) integration and development of Cipher-Text (CT) Piers. Investigate and recommend platform network devices, network design support to include procurement, integration and testing of the Wide Area Network (WAN) and Joint Aerial Layer Network-Maritime (JALN-M) system. Commence network-based Cyber Security technology and virtualizing ADNS. Complete Post Implementation Review (PIR) in support of Increment III Submarines.					
FY 2017 Base Plans: Continue testing and interfaces with ENMS, IPv6 transition, and integration of SHF. Continue the IDD and integration with network applications, develop LOS link, DISN integration and development of CT Piers. Investigate and recommend platform network devices, network design support to include procurement, integration and testing of the WAN and JALN-M system. Continue network-based Cyber Security technology and virtualizing ADNS.					
FY 2017 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	26.333	41.538	48.225	0.000	48.225

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

Line Item	FY 2015	FY 2016	FY 2017	FY 2017	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	Cost To	
			Base	OCO	Total					Complete	Total Cost
• OPN/3057: <i>Battle Force Tactical Network (BFTN)</i> .	1.425	4.068	3.706	-	3.706	0.000	0.000	0.000	0.000	Continuing	Continuing
• OPN/3050: <i>Automated Digital Network System (ADNS)</i>	0.000	53.395	44.272	-	44.272	48.663	56.227	56.881	58.067	Continuing	Continuing
• OPN/2915: <i>CANES (ADNS Only)</i>	56.626	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	160.060

Remarks

Automated Digital Network System (ADNS) - Prior to FY13 funding resides in PE 0204163N. FY13-15 funding resides in PE 0303138N. Starting in FY16, funding was realigned back into PE 0204163N for Major Automated Information System (MAIS) transparency compliance.

D. Acquisition Strategy

Battle Force Tactical Network (BFTN) will follow an evolutionary acquisition approach with collegial development across activities and coalesced implementation phases at accredited facility to achieve interoperable component upgrades, system integration and automated operations that optimize Fleet implementation. Program will use awarded OMNIBUS contracts to obtain engineering and support services consistent with acquisition initiatives. Development of BFTN engineering change enhancements leverages Commercial-Off-The-Shelf (COTS) and Government-Off-The-Shelf (GOTS) products while expanding material savings by streamlining logistics, installation, integration and training concepts. Where feasible, differing types of advantageous contract vehicles will be used to provide flexibility, decrease contract administrative costs, and encourage acquisition streamlining through the use of COTS products.

Joint Aerial Layer Network-Maritime (JALN-M) will address capability gaps as directed by the JALN Analysis of Alternatives (AoA) by integrating a suite of technical capabilities into a single payload. Technical and acquisition support will be provided to conduct High Capacity Backbone (HCB) and Airborne Extended Data Rate (XDR) demonstrations and to develop six prototype JALN-M payloads.

Automated Digital Network System (ADNS): Evolutionary acquisition approach with overlapping development and implementation phases for defined INC I, II, and III baselines. INC I, II, and III will use competitively awarded contracts to implement changes consistent with acquisition initiatives. ADNS leverages Commercial-Off-The-Shelf (COTS) and Government Off-the-Shelf (GOTS) products while capitalizing on acquisition reform initiatives to achieve material savings in the logistics, installation, integration and training areas. Where feasible, differing types of advantageous contract vehicles will be used to provide flexibility, decrease contract administrative costs, and encourage acquisition streamlining through the use of COTS/GOTS products.

E. Performance Metrics

BFTN - Complete successful Initial Operational Test and Evaluation (IOT&E). Legacy UHF Radios Modified for Multichannel Wideband Interoperability Verified. Successful Electro Magnetic Compatibility/Electro Magnetic Interference (EMC/EMI) Test & Accreditation. Continue engineering changes for BFTN engineering change to increase individual High Frequency Internet Protocol (HFIP) channel data rates to 128Kbps and Ultra High Frequency Internet Protocol (UHFIP) to 1.9Mbps. Successful demonstration of engineering change over three (3) channels simultaneously, followed by successful demonstration of Spatial Multiplexing design over eight (8) channels simultaneously. Increased data rates for modem and controller are verified.

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Appropriation/Budget Activity	R-1 Program Element (Number/Name)	Project (Number/Name)
1319 / 7	PE 0204163N / <i>Fleet Tactical Development</i>	0725 / <i>Communication Automation</i>

ADNS - Included in the ADNS program goals are the improvements to bandwidth throughput, connectivity to multiple Radio Frequency (RF) paths, greater security, and system capability delivered within a smaller form factor. The ADNS program will, at a minimum, provide bandwidth throughput enhancements resulting in an increase from 2 megabytes per second (Mbps) to 25/50 Mbps. ADNS will also provide the ability to transport data across multiple paths simultaneously vice the current limitations of single or secondary paths. ADNS will provide greater security posture by encrypting each enclave, increase performance of the routing and transport architecture while reducing physical footprint and cost, and securing the core via Cipher-Text.

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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 0204163N / Fleet Tactical Development				Project (Number/Name) 0725 / Communication Automation					
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	Various	Various : Various	50.479	0.000		0.000		0.000		-		0.000	0.000	50.479	-
Systems Engineering-ADNS	WR	SSC : PAC/LANT	22.389	0.000		1.310	Dec 2015	0.959	Dec 2016	-		0.959	Continuing	Continuing	Continuing
Systems Engineering-ADNS	WR	NUWC : Newport, RI	1.864	0.000		1.136	Dec 2015	0.973	Dec 2016	-		0.973	Continuing	Continuing	Continuing
Primary Hardware Dev.-JALN-M	WR	NSWC : Panama City, FL	0.635	0.060	Nov 2014	0.000		0.000		-		0.000	0.000	0.695	-
Primary Hardware/Software - JALN-M	C/FFP	MIT/Lincoln Lab : Lexington MA	16.658	10.746	Nov 2014	21.251	Nov 2015	32.179	Nov 2016	-		32.179	Continuing	Continuing	Continuing
System Engineering JALN-M	C/CPFF	STF : San Diego,CA	0.901	1.126	Nov 2014	1.303	Nov 2015	2.064	Nov 2016	-		2.064	Continuing	Continuing	Continuing
System Engineering JALN-M	WR	SSC : PAC	1.321	0.606	Jan 2015	1.200	Jan 2016	1.111	Jan 2017	-		1.111	Continuing	Continuing	Continuing
System Engineering JALN-M	WR	NAWCAD : Patuxent River, MD	1.200	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
System Engineering BFTN	WR	SSC : PAC	0.971	0.813	Nov 2014	1.554	Nov 2015	0.895	Nov 2016	-		0.895	Continuing	Continuing	Continuing
Primary HW/SW Dev BFTN	WR	SSC : PAC	0.000	0.326	Dec 2014	0.055	Nov 2015	0.590	Nov 2016	-		0.590	Continuing	Continuing	Continuing
Primary Hardware Dev BFTN	C/FFP	Leidos : Sterling, VA	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
System Engineering BFTN	WR	SSC : LANT JICF	0.129	0.000		0.347	Nov 2015	0.301	Nov 2016	-		0.301	Continuing	Continuing	Continuing
System Engineering BFTN	C/CPFF	STF : San Diego,CA	0.285	0.156	Nov 2014	0.235	Nov 2015	0.486	Nov 2016	-		0.486	Continuing	Continuing	Continuing
Primary Hardware BFTN	SS/CPIF	Metasoft : San Diego, CA	0.714	2.746	Jan 2015	4.254	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Primary HW Dev BFTN	C/CPFF	MAXCENTRIC : San Diego, CA	0.000	0.000		2.500	Nov 2015	0.000		-		0.000	Continuing	Continuing	Continuing
Primary Software Dev BFTN	SS/BA	SSC : PAC	2.052	0.130	Nov 2014	1.388	Nov 2015	0.598	Nov 2016	-		0.598	Continuing	Continuing	Continuing
System Engineering BFTN	WR	SSC : LANT	0.268	0.244	Nov 2014	0.818	Nov 2015	0.960	Nov 2016	-		0.960	Continuing	Continuing	Continuing
Intergration and Test-ADNS	WR	SSC : LANT	0.000	0.000		0.553	Dec 2015	0.472	Dec 2016	-		0.472	Continuing	Continuing	Continuing
System Engineering BFTN	WR	SSC : PAC JICF	0.000	0.055	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Navy												Date: February 2016			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)						
1319 / 7				PE 0204163N / Fleet Tactical Development					0725 / Communication Automation						
Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
System Engineering-ADNS	C/CPFF	BAH : San Diego, CA	0.000	0.000		0.310	Jan 2016	0.265	Jan 2017	-		0.265	Continuing	Continuing	Continuing
Subtotal			99.866	17.008		38.214		41.853		-		41.853	-	-	-
Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Support	Various	Various : Various	10.358	0.000		0.000		0.000		-		0.000	0.000	10.358	-
Studies and Analysis BFTN	WR	SSC : PAC	0.048	0.420	Oct 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
System Engineering BFTN	WR	SSC : PAC	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Documentation BFTN	C/CPFF	CSA : San Diego, CA	0.126	0.203	Nov 2014	0.388	Nov 2015	0.470	Nov 2016	-		0.470	Continuing	Continuing	Continuing
Documentation BFTN	C/CPFF	TASC : San Diego, CA	0.000	0.000		0.210	Nov 2015	0.470	Nov 2016	-		0.470	Continuing	Continuing	Continuing
Development Support - JALN-M	C/CPFF	BAH : San Diego	2.712	0.750	Dec 2014	0.550	Dec 2015	1.375	Dec 2016	-		1.375	Continuing	Continuing	Continuing
Development Support - JALN-M	C/CPFF	Mitre : San Diego, CA	0.541	0.300	Oct 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Development Support - JALN-M	WR	SSC : PAC	0.948	1.400	Oct 2014	0.623	Nov 2015	2.566	Nov 2016	-		2.566	Continuing	Continuing	Continuing
Development Support - JALN-M	C/CPFF	Linqest : San Diego, CA	0.000	0.300	Apr 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Financial Management Support - JALN-M	C/CPFF	Artemis : San Diego, CA	0.206	0.230	Oct 2014	0.275	Oct 2015	0.422	Oct 2016	-		0.422	Continuing	Continuing	Continuing
Documentation BFTN	C/CPFF	BAH : San Diego, CA	0.000	0.202	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Certification Authority-ADNS	C/CPFF	BAH : San Diego, CA	0.000	0.000		0.138	Jan 2016	0.118	Jan 2017	-		0.118	Continuing	Continuing	Continuing
Subtotal			14.939	3.805		2.184		5.421		-		5.421	-	-	-

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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 0204163N / <i>Fleet Tactical Development</i>	Project (Number/Name) 0725 / <i>Communication Automation</i>
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Test and Evaluation	Various	Various : Various	14.512	0.000		0.000		0.000		-		0.000	0.000	14.512	-
Integration and Test BFTN	C/FFP	COMOPTEVOR : Norfolk, VA	0.497	0.248	Nov 2014	0.050	Mar 2016	0.060	Mar 2017	-		0.060	Continuing	Continuing	Continuing
Test and Evaluation Support BFTN	WR	SSC : PAC	0.000	1.047	Jan 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation Support BFTN	SS/CPFF	UCSD : San Diego, CA	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test and Evaluation-JALN-M	C/CPFF	JHU/APL : Laurel, MD	1.400	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Developmental Test and Evaluation-JALN-M	C/CPFF	MIT/Lincoln Lab : Lexington, MA	2.949	2.863	Nov 2014	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Test and Evaluation Support BFTN	WR	SSC : LANT	0.000	0.362	Mar 2015	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			19.358	4.520		0.050		0.060		-		0.060	-	-	-

Management Services (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support - BFTN	C/CPFF	BAH : San Diego, CA	0.330	0.800	Nov 2014	0.870	Nov 2015	0.524	Nov 2016	-		0.524	Continuing	Continuing	Continuing
Program Management Support JALN-M	C/CPFF	BAH : San Diego, CA	0.200	0.200	Nov 2014	0.220	Nov 2015	0.367	Nov 2016	-		0.367	Continuing	Continuing	Continuing
Subtotal			0.530	1.000		1.090		0.891		-		0.891	-	-	-

	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	134.693	26.333	41.538	48.225	-	48.225	-	-	-

Remarks
Automated Digital Network System (ADNS) - Prior to FY13 funding resides in PE 0204163N. FY13-15 funding resides in PE 0303138N. Starting in FY16, funding was realigned back into PE 0204163N for Major Automated Information System (MAIS) transparency compliance.

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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 0204163N / <i>Fleet Tactical Development</i>	Project (Number/Name) 0725 / <i>Communication Automation</i>
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BFTN

Fiscal Year	2015				2016				2017				2018				2019				2020				2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Acquisition Milestones						◇ ADM		◇ ADM EC			◇ AS	◇																
Documents				◆ PLCCE		◇ APB						◇																
Test & Certification Events	◆ TEMP	◆ IATO																										
	Engineering Change (Tech Refresh/Obsolescence)				Engineering Change Development																							
			◆			◇ DT/IT/OT																						
Logistics																												
Contracts		◆																										
		Option Yr 3																										
Installation																												

Notes: Schedule Shift due to changes in Acquisition Strategy

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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 0204163N / <i>Fleet Tactical Development</i>	Project (Number/Name) 0725 / <i>Communication Automation</i>
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JALN-M Demonstration

Fiscal Year	2015				2016				2017				2018				2019				2020				2021							
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4				
Pod	Design								Pod Assembly				Subsystem	Flight Testing																		
Airborne XDR Waveform	Airborne XDR (A-XDR) Development																															
	Flight Test				Subsystem																											
Assured PNT	Subsystem Development								System Integration & Test																							
HCB	Studies & Design								Pod, MGEP, Ship Terminal Development																							
					Subsystem Integration & Test																											
MGEP					Equipment Procurement								Development												Integration & Installation							

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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 0204163N / <i>Fleet Tactical Development</i>	Project (Number/Name) 0725 / <i>Communication Automation</i>
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ADNS																												
Fiscal Year	2015				2016				2017				2018				2019				2020				2021			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Acquisition Milestones						PIR INC III Subs 													INC III ILA-S /PSR 									
System Development	Note: FY15, ADNS funding resides under PE: 0303138N																											
					Interface Design Development & Integration with Network Applications and DISN																							
					Interface Design Development & Integration with Future SATCOM, JALN-M and Radio Frequency (RF) paths																							
Test & Evaluation Milestones																												
Operational Assessment (OA) Development Test Operational Test																												
Production																												
	Fielding & Sustainment INC III Surface																											
	Fielding & Sustainment INC III Subs																											
Deliveries																												

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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 0204163N / <i>Fleet Tactical Development</i>	Project (Number/Name) 0725 / <i>Communication Automation</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
BFTN				
Acquisition Decision Memorandum (ADM)	2	2016	2	2016
Full Rate Production Decision Review (FRP DR) Baseline System	4	2017	4	2017
Initial Operational Capability (IOC) Baseline System	4	2017	4	2017
Engineering Change Development (Tech Refresh/Obsolescence)	1	2015	1	2016
Engineering Change Development	1	2016	4	2017
JALN-M				
Pod Design	1	2015	1	2015
Pod Subsystem Integration & Test	4	2016	3	2017
Pod Assembly	3	2016	3	2017
Pod Flight Testing	4	2017	3	2018
A-XDR Development	1	2015	1	2017
A-XDR Flight Test	1	2015	1	2015
A-XDR Integration & Test	2	2016	1	2017
PNT Subsystem Development	1	2015	2	2016
PNT Subsystem Integration & Test	2	2015	4	2017
HCB Studies & Design	1	2015	1	2016
HCB Pod, MGEP, Ship Terminal Development	3	2015	3	2017
HCB Integration & Test	4	2015	4	2017
MGEP Development	1	2015	1	2016
MGEP Equipment Procurement	1	2016	3	2016
MGEP Integration & Installation	3	2016	4	2017
ADNS				

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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 0204163N / <i>Fleet Tactical Development</i>	Project (Number/Name) 0725 / <i>Communication Automation</i>
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Acquisition Milestones: ADNS: Increment III_Subs Post Implementation Review	2	2016	2	2016
System Development: ADNS: Increment III_Interface Design Development and Integration with Network Applications and Defense Information Systems Network (DISN)	1	2016	4	2021
System Development: ADNS: Increment III_Interface Design Development and Integration with SATCOM, Joint Aerial Layer Network-Maritime (JALN) and Radio Frequency (RF) paths	1	2016	4	2021
Production: ADNS: Increment III_Fielding and Sustainment INC III Surface	1	2016	4	2021
Production: ADNS: Increment III_Fielding and Sustainment INC III Submarines	1	2016	4	2021
Production: ADNS: Increment III_Full Operational Capability	1	2021	1	2021
Acquisition Milestones: ADNS: Increment III Product Support Review	3	2019	3	2019

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