Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy											Date: March 2019	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0303138N *I Consolidated Afloat Network Ent Services(CANES)*							
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
Total Program Element	202.863	24.197	23.697	22.873	-	22.873	23.333	23.902	24.374	24.853	Continuing	Continuing
0725: *Communication Automation*	0.000	0.000	0.000	0.821	-	0.821	0.876	0.894	0.912	0.930	Continuing	Continuing
9C87: *CANES Integration*	202.863	24.197	23.697	22.052	-	22.052	22.457	23.008	23.462	23.923	277.470	643.129
Program MDAP/MAIS Code: **Project MDAP/MAIS Code(s):** M417												

Note

To ensure resources are aligned to enable rapid capability delivery, funding has been realigned into PE 0303138N from the following Program Element/Project as part of RDTEN PE Consolidation starting in FY20: PE 0204163N Project 0725 (Communication Automation, Automated Digital Network System (ADNS)). There are no New Starts associated with PE Consolidation

A. Mission Description and Budget Item Justification

Consolidated Afloat Networks and Enterprise Services (CANES) is the Navy's Program of Record (POR) to replace and modernize existing afloat networks with the necessary hardware, software and enterprise services infrastructure to enable information warfare from and within the tactical domain. CANES provides complete infrastructure inclusive of hardware, software, processing, storage and end user devices for the Unclassified, Coalition, Secret and Sensitive Compartmented Information (SCI) enclaves to a wide variety of Navy surface combatants, submarines and Maritime Operations Centers. CANES services include application hosting, data transport and storage, system management, cyber security, email, web, chat, collaboration, and voice and video services. CANES is based on the overarching concept of reducing the number of afloat networks and providing enhanced efficiency through a single engineering focus on integrated technical solutions. It allows for streamlined acquisition, contracting, test events, sustainment, and significant lifecycle efficiencies through consolidation of multiple configuration management baselines, logistics, and training efforts into a single unified support structure.

More than eighty (80) hosted applications and systems inclusive of Command and Control, Intelligence, Surveillance and Reconnaissance, Information Operations, Logistics and Business domains require the CANES infrastructure to operate in the tactical environment. Specific programs, such as Distributed Common Ground System - Navy (DCGS-N), Global Command and Control System - Maritime (GCCS-M), Naval Tactical Command Support System (NTCSS), and Undersea Warfare Decision Support System (USW-DSS), no longer provide their own independent network hardware and now depend on CANES to field, host, and sustain their capabilities. The CANES Application Integration program provides common software governance, testing, processes, and tools to application developers, and evaluates and confirms compatibility between CANES and the hosted applications prior to fielding. CANES also provides a set of capabilities called Agile Core Services (ACS) which brings common network services to allow hosted application developers to focus on the unique capabilities they provide.

CANES is funded and programmed to develop regular technical updates with an agile and robust hardware and software baseline development cycle necessary to pace rapidly evolving cyber security threats and meet emerging operational demands within the tactical domain. In order to deliver a mission effective, secure and affordable

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy	Date: March 2019
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0303138N *I Consolidated Afloat Network Ent Services(CANES)*

afloat network, CANES implements a Development Operations (DevOps) framework to improve its engineering processes and speed the deployment of new cyber security, application hosting and baseline updates. CANES requires that Automated Digital Network System (ADNS) field prior to or concurrently with CANES due to the architectural reliance between the two programs.

In FY 2020, CANES will start development of Technical Insertion (TI) 4 hardware and software baseline development including ACS, E2C laboratory engineering efforts and implementation of a Development Operations development and testing environment. Perform Operational Testing in support of CANES submarine variant and perform Application Integration System Integration Testing to support TI 3 software development efforts.

Automated Digital Network System (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 enables services and applications to interconnect to the Defense Information Systems Network (DISN) ashore via multiple Radio Frequency (RF) resources, to include emerging Assured Command and Control (C2) capabilities and pier connectivity.

In FY 2020, Automated Digital Network System (ADNS) will perform technical analyses and engineering efforts associated with the implementation of new technology to enable rapid introduction of new products and technology, prevent obsolescence, and mitigate end of support issues.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	24.271	23.697	22.173	-	22.173
Current President's Budget	24.197	23.697	22.873	-	22.873
Total Adjustments	-0.074	0.000	0.700	-	0.700
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	0.283	0.000			
• SBIR/STTR Transfer	-0.357	0.000			
• Rate/Misc Adjustments	0.000	0.000	0.700	-	0.700

Change Summary Explanation

Project 0725, Communication Automation: $0.821M was realigned from PE 0204163N to PE 0303138N as a result of budget line item consolidation. There is no significant change in this project's budget request from FY19 to FY20.

Project 9C87, CANES Integration: Funding decreased from FY19 to FY20 due to one-time development efficiencies gained in consolidating design efforts into fewer functional baselines.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0303138N / *Consolidated Afloat Network Ent Services(CANES)*	Project (Number/Name) 0725 / *Communication Automation*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
0725: *Communication Automation*	0.000	0.000	0.000	0.821	-	0.821	0.876	0.894	0.912	0.930	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Funding has been realigned into PE 0303138N from PE 0204163N Project 0725 as part of RDTEN PE Consolidation starting in FY20. There are no New Starts associated with this realignment. All budgeted efforts have been previously approved.

A. Mission Description and Budget Item Justification

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 megabytes 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, airborne platforms, and Aegis Ashore sites into 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 not only the JALN-M system but also the key Assured Command and Control (C2) capabilities. 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.

FY20 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. ADNS development will include addressing network management, intra and inter domain routing, Quality of Service (QoS), and Concept of Operations discussions. Will 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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: Automated Digital Network System (ADNS)	0.000	0.000	0.821	0.000	0.821
Articles:	-	-	-	-	-
FY 2019 Plans: FY19 Plans funded under PE 0204163N, Project 0725.					
FY 2020 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *Consolidated Afloat Network Ent Services(CANES)*	**Project (Number/Name)** 0725 / *Communication Automation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Continue testing and interfacing 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. Continue network-based Cyber Security technology and virtualization of ADNS. Perform technical analyses and engineering efforts associated with implementation of new technology to enable rapid introduction of new products and technology, prevent obsolescence, and mitigate end of support issues. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** In FY19 funding under PE 0204163N, Project 0725 was $0.844M. Funding decreases by $0.023M to $0.821M in FY20. There is no significant change in this project's budget request from FY19 to FY20.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	0.821	0.000	0.821

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• OPN/3050: *Ship Communications Automation*	99.545	105.087	137.861	-	137.861	122.421	94.494	96.577	92.889	Continuing	Continuing
• RDTEN/0204163N/0725: *Communication Automation*	8.465	1.344	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	249.332

Remarks

OPN/3050 funding profile captures more than ADNS OPN budget control. BLI 3050 funds C2OIX, STACC, ORT, EPCA, and ADNS programs.

RDTEN/0204163N/0725 funding profile captures more than ADNS RDTEN budget control. PU 0725 funds Battle Force Tactical Network (BFTN), Joint Aerial Layer Network - Maritime (JALN-M), and Automated Digital Network System (ADNS). Funding has been realigned into PE 0303138N from the following Program Elements/ Projects as part of RDTEN PE Consolidation starting in FY20: PE 0204163N Project 0725 Communication Automation.

D. Acquisition Strategy

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-

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *Consolidated Afloat Network Ent Services(CANES)*	**Project (Number/Name)** 0725 / *Communication Automation*

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

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, increasing performance of the routing and transport architecture while reducing physical footprint and cost, and securing the core via Cipher-Text.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *Consolidated Afloat Network Ent Services(CANES)*	**Project (Number/Name)** 0725 / *Communication Automation*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering-ADNS	WR	SSC : PAC/LANT	0.000	0.000		0.000		0.493	Dec 2019	-		0.493	Continuing	Continuing	Continuing
Systems Engineering-ADNS	WR	NUWC : Newport, RI	0.000	0.000		0.000		0.164	Oct 2019	-		0.164	Continuing	Continuing	Continuing
Systems Engineering-ADNS-DC	C/CPFF	NUWC : Newport, RI	0.000	0.000		0.000		0.041	Mar 2020	-		0.041	Continuing	Continuing	Continuing
Integration and Test-ADNS	C/CPFF	SSC : PAC	0.000	0.000		0.000		0.041	Mar 2020	-		0.041	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		0.739		-		0.739	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Certification Authority-ADNS	C/CPFF	BAH : San Diego, CA	0.000	0.000		0.000		0.082	Jan 2020	-		0.082	0.000	0.082	-
		Subtotal	0.000	0.000		0.000		0.082		-		0.082	0.000	0.082	N/A

	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		0.821		-		0.821	Continuing	Continuing	N/A

Remarks

FY18 and FY19 cost data is provided under PE 0204163N Project 0725

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *Consolidated Afloat Network Ent Services(CANES)*	**Project (Number/Name)** 0725 / *Communication Automation*

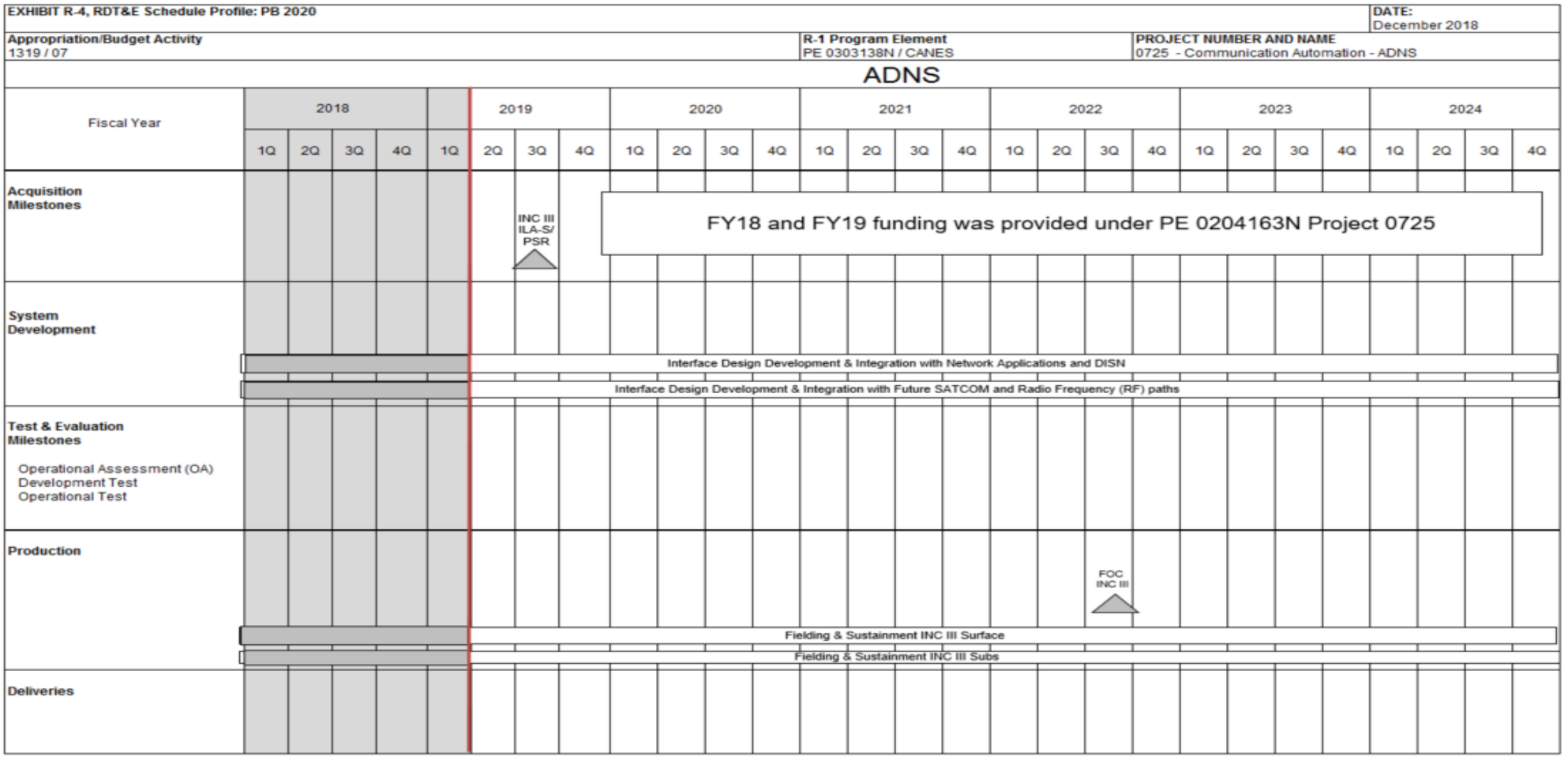


Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *Consolidated Afloat Network Ent Services(CANES)*	**Project (Number/Name)** 0725 / *Communication Automation*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 0725				
System Development: ADNS: Increment III_Interface Design Development and Integration with Network Applications and Defense Information Systems Network (DISN)	1	2018	4	2024
System Development: ADNS: Increment III_Interface Design Development and Integration with SATCOM and Radio Frequency (RF) paths	1	2018	4	2024
Production: ADNS: Increment III_Fielding and Sustainment INC III Surface	1	2018	4	2024
Production: ADNS: Increment III_Fielding and Sustainment INC III Submarines	1	2018	4	2024
Production: ADNS: Increment III_Full Operational Capability	3	2022	3	2022

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0303138N / *Consolidated Afloat Network Ent Services(CANES)*	Project (Number/Name) 9C87 / *CANES Integration*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
9C87: *CANES Integration*	202.863	24.197	23.697	22.052	-	22.052	22.457	23.008	23.462	23.923	277.470	643.129
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: M417

A. Mission Description and Budget Item Justification

Consolidated Afloat Networks and Enterprise Services (CANES) is the Navy's Program of Record (POR) to replace and modernize existing afloat networks with the necessary hardware, software and enterprise services infrastructure to enable information warfare from and within the tactical domain. CANES provides complete infrastructure inclusive of hardware, software, processing, storage and end user devices for the Unclassified, Coalition, Secret and Sensitive Compartmented Information (SCI) enclaves to a wide variety of Navy surface combatants, submarines and Maritime Operations Centers. CANES services include application hosting, data transport and storage, system management, cyber security, email, web, chat, collaboration, and voice and video services. CANES is based on the overarching concept of reducing the number of afloat networks and providing enhanced efficiency through a single engineering focus on integrated technical solutions. It allows for streamlined acquisition, contracting, test events, sustainment, and significant lifecycle efficiencies through consolidation of multiple configuration management baselines, logistics, and training efforts into a single unified support structure.

More than eighty (80) hosted applications and systems inclusive of Command and Control, Intelligence, Surveillance and Reconnaissance, Information Operations, Logistics and Business domains require the CANES infrastructure to operate in the tactical environment. Specific programs, such as Distributed Common Ground System - Navy (DCGS-N), Global Command and Control System - Maritime (GCCS-M), Naval Tactical Command Support System (NTCSS), and Undersea Warfare Decision Support System (USW-DSS), no longer provide their own independent network hardware and now depend on CANES to field, host, and sustain their capabilities. The CANES Application Integration program provides common software governance, testing, processes, and tools to application developers, and evaluates and confirms compatibility between CANES and the hosted applications prior to fielding. CANES also provides a set of capabilities called Agile Core Services (ACS) which brings common network services to allow hosted application developers to focus on the unique capabilities they provide.

CANES is funded and programmed to develop regular technical updates with an agile and robust hardware and software baseline development cycle necessary to pace rapidly evolving cyber security threats and meet emerging operational demands within the tactical domain. In order to deliver a mission effective, secure and affordable afloat network, CANES implements a Development Operations (DevOps) framework to improve its engineering processes and speed the deployment of new cyber security, application hosting and baseline updates. CANES requires that Automated Digital Network System (ADNS) field prior to or concurrently with CANES due to the architectural reliance between the two programs.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: CANES Integration	24.197	23.697	22.052	0.000	22.052
Articles:	-	-	-	-	-
FY 2019 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *Consolidated Afloat Network Ent Services(CANES)*	**Project (Number/Name)** 9C87 / *CANES Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Continue development of Technical Insertion (TI) 3 software baseline development including Agile Core Services (ACS), Enterprise Engineering and Certification (E2C) laboratory engineering efforts and implementation of a Development Operations development and testing environment. Perform systems engineering efforts to complete functional baselines and update technical data packages in support of TI 3. Perform Development Testing in support of CANES submarine variant and perform Development Testing Assist (DTA) for TI 3 software development. ***FY 2020 Base Plans:*** Start development of Technical Insertion (TI) 4 hardware and software baseline development including ACS, E2C laboratory engineering efforts and implementation of a Development Operations development and testing environment. Perform Operational Testing in support of CANES submarine variant and perform Application Integration System Integration Testing to support TI 3 software development efforts. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Funding decrease from FY2019 to FY2020 is the result of one-time development efficiencies gained in consolidating design efforts into fewer functional baselines.					
Accomplishments/Planned Programs Subtotals	24.197	23.697	22.052	0.000	22.052

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• OPN/2915: *CANES*	311.212	404.891	426.654	-	426.654	360.073	398.704	395.623	391.722	2,760.510	7,001.198
• OPN/2925: *CANES Intell*	46.075	53.465	52.713	-	52.713	45.763	50.833	48.161	49.151	449.385	1,114.576

Remarks

D. Acquisition Strategy

CANES is an ACAT IAC Major Automated Information System (MAIS) program. The program office employed a multiple-phase, multiple-award down-select contract strategy to reduce program risks and maintain competition in both design development and limited production during contract performance. Milestone C was achieved in 1QFY13 and Full Deployment Decision (FDD) was achieved in 1QFY16. In 2QFY15, a separate full and open indefinite delivery indefinite quantity (IDIQ) multiple award contract (MAC) production contract was awarded to support future production. CANES is programmed to develop regular technical updates to its hardware and software baselines to ensure that no cyber security vulnerabilities exist due to hardware and software obsolescence.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *Consolidated Afloat Network Ent Services(CANES)*	**Project (Number/Name)** 9C87 / *CANES Integration*

E. Performance Metrics

Early RDT&E investment and sustainment of dual design contractors through the development phase reduced Total Ownership Cost (TOC) from Milestone B to Milestone C. Cost avoidance throughout the life of the program is based on 1) reducing the number of networks through the use of mature, certified, cross domain technologies; 2) reducing the infrastructure footprint and associated costs for hardware afloat; and 3) providing increased capability to meet current and projected war fighter requirements.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *Consolidated Afloat Network Ent Services(CANES)*	**Project (Number/Name)** 9C87 / *CANES Integration*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Product Development	Various	Various : Various	179.731	0.000		0.000		0.000		-		0.000	0.000	179.731	179.731
Primary Hardware Development	WR	SSC : San Diego, CA and Charleston, SC	0.000	8.620	Nov 2017	8.646	Nov 2018	7.844	Nov 2019	-		7.844	63.100	88.210	100.000
Primary Software Development	WR	SSC : San Diego, CA and Charleston, SC	0.000	7.804	Nov 2017	9.721	Nov 2018	9.073	Nov 2019	-		9.073	70.944	97.542	110.000
Systems Engineering	C/CPFF	Booz Allen Hamilton (BAH) : San Diego, CA	0.000	0.315	Dec 2017	0.670	Dec 2018	0.627	Dec 2019	-		0.627	4.890	6.502	8.000
Systems Engineering	WR	SSC : San Diego, CA and Charleston, SC	0.000	4.481	Dec 2017	2.750	Dec 2018	2.573	Dec 2019	-		2.573	20.070	29.874	30.000
Systems Engineering	MIPR	US ARMY CECOM (MITRE) : San Diego, CA	0.000	0.827	Nov 2017	0.790	Mar 2019	0.776	Nov 2019	-		0.776	5.766	8.159	10.000
		Subtotal	179.731	22.047		22.577		20.893		-		20.893	164.770	410.018	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Support	Various	Various : Various	5.244	0.000		0.000		0.000		-		0.000	0.000	5.244	5.244
Studies & Design	WR	SSC : San Diego, CA	0.000	0.150	Nov 2017	0.460	Nov 2018	0.430	Nov 2019	-		0.430	3.357	4.397	5.000
Certification Authority	C/CPFF	NSMA : Washington, DC	0.000	0.377	Apr 2018	0.000		0.000		-		0.000	0.000	0.377	0.500
Certification Authority	C/CPFF	Booz Allen Hamilton (BAH) : San Diego,CA	0.000	0.863	Dec 2017	0.450	Dec 2018	0.421	Dec 2019	-		0.421	3.284	5.018	7.000
		Subtotal	5.244	1.390		0.910		0.851		-		0.851	6.641	15.036	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *Consolidated Afloat Network Ent Services(CANES)*	**Project (Number/Name)** 9C87 / *CANES Integration*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Test & Evaluation	Various	Various : Various	5.649	0.000		0.000		0.000		-		0.000	0.000	5.649	5.649
Operational Test & Evaluation	MIPR	JITC : Fairfax, VA	0.000	0.167	Feb 2018	0.150	Feb 2019	0.250	Feb 2020	-		0.250	1.095	1.662	2.000
Operational Test & Evaluation	WR	SSC : San Diego, CA	0.000	0.165	Nov 2017	0.000		0.000		-		0.000	0.000	0.165	0.500
Development Test & Evaluation	MIPR	DTIC : Ft Belvoir, VA	0.000	0.373	Feb 2018	0.000		0.000		-		0.000	0.000	0.373	0.500
		Subtotal	5.649	0.705		0.150		0.250		-		0.250	1.095	7.849	N/A

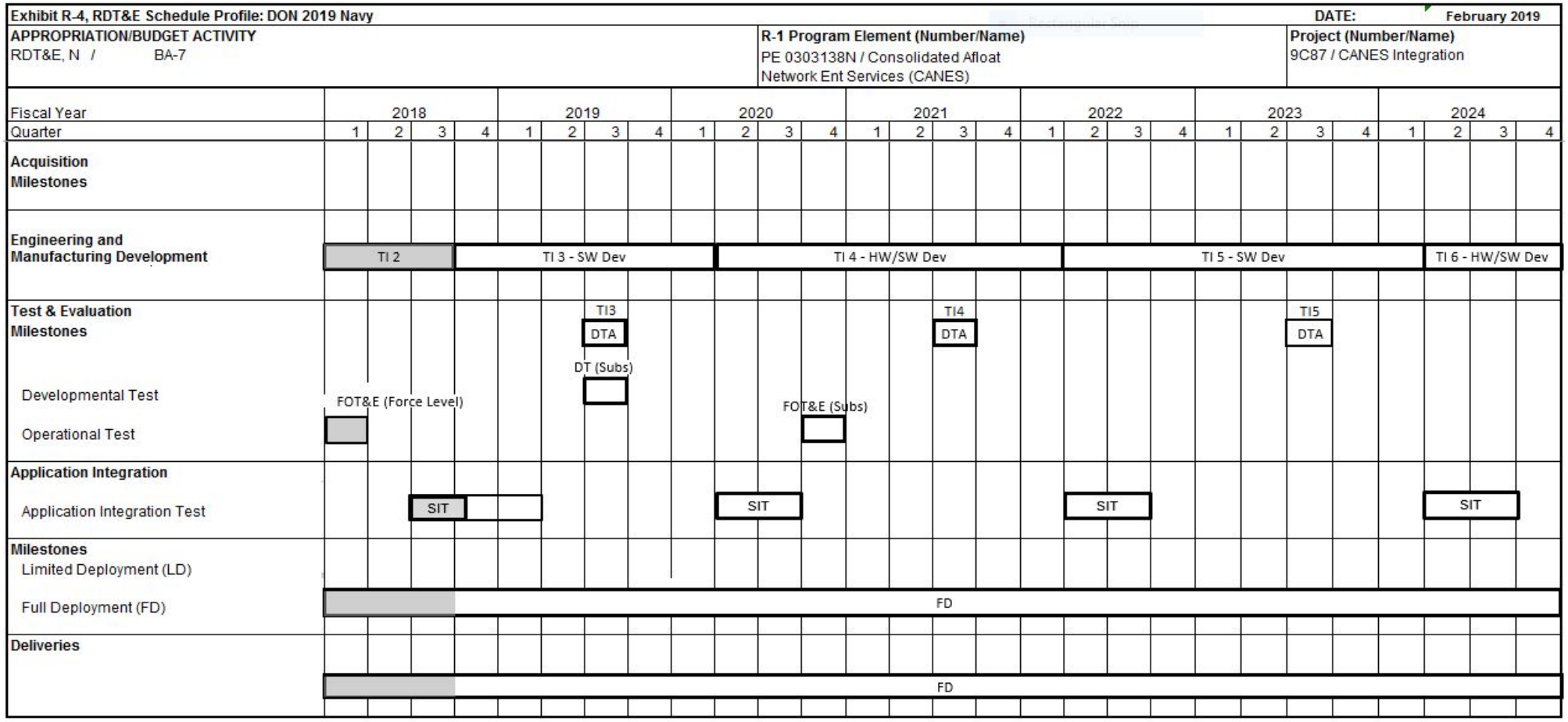
Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prior Year Management Services	Various	Various : Various	12.239	0.000		0.000		0.000		-		0.000	0.000	12.239	12.239
Program Management	C/CPFF	STF : San Diego, CA	0.000	0.055	Dec 2017	0.060	Dec 2018	0.058	Dec 2019	-		0.058	0.438	0.611	1.000
		Subtotal	12.239	0.055		0.060		0.058		-		0.058	0.438	12.850	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	202.863	24.197		23.697		22.052		-		22.052	172.944	445.753	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy		**Date:** March 2019
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *Consolidated Afloat Network Ent Services(CANES)*	**Project (Number/Name)** 9C87 / *CANES Integration*



TI: Technical Insertion; DT: Development Testing; DTA: Development Testing Assist; FOT&E: Force Level Follow-On Test and Evaluation; SIT: Software Integration Test; FD: Full Deployment

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy		Date: March 2019
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0303138N / *Consolidated Afloat Network Ent Services(CANES)*	**Project (Number/Name)** 9C87 / *CANES Integration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Fiscal Year				
Engineering and Manufacturing Development: Platform: Engineering and Manufacturing Development - TI 2 Hardware (HW)/SW Development	1	2018	3	2018
Engineering and Manufacturing Development: Platform: Engineering and Manufacturing Development - TI 3 SW Development	4	2018	1	2020
Engineering and Manufacturing Development: Platform: Engineering and Manufacturing Development - TI 4 HW/SW Development	2	2020	1	2022
Engineering and Manufacturing Development: Platform: Engineering and Manufacturing Development - TI 5 SW Development	2	2022	1	2024
Engineering and Manufacturing Development: Platform: Engineering and Manufacturing Development - TI 6 Hardware (HW)/SW Development	2	2024	4	2024
Test & Evaluation Milestone: Development Test: Development Test Assist- TI 3	3	2019	3	2019
Test & Evaluation Milestone: Development Test: Development Test Assist- TI 4	3	2021	3	2021
Test & Evaluation Milestone: Development Test: Development Test Assist- TI 5	3	2023	3	2023
Test & Evaluation Milestone: Development Test: Developmental Test - Sub	3	2019	3	2019
Test & Evaluation Milestone: Operational Test: Operational Test Force Level - Follow-on Operational Test & Evaluation (FOT&E)	1	2018	1	2018
Test & Evaluation Milestone: Operational Test: Operational Test - FOT&E Sub	4	2020	4	2020
Application Integration: Application Integration SIT 2	3	2018	1	2019
Application Integration: Application Integration SIT 3	2	2020	3	2020
Application Integration: Application Integration SIT 4	2	2022	3	2022
Application Integration: Application Integration SIT 5	2	2024	3	2024
Production Milestone: Production Milestone - Full Deployment (FD)	1	2018	4	2024
Deliveries: Deliveries - Full Deployment (FD)	1	2018	4	2024