Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Navy												Date: February 2020
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*					R-1 Program Element (Number/Name) PE 0205604N *I Tactical Data Links*							
COST ($ in Millions)	**Prior Years**	**FY 2019**	**FY 2020**	**FY 2021 Base**	**FY 2021 OCO**	**FY 2021 Total**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Cost To Complete**	**Total Cost**
Total Program Element	1,264.582	96.542	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,361.124
2126: *ATDLS Integration*	815.978	24.398	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	840.376
3020: *MIDS/JTRS*	345.469	40.201	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	385.670
3341: *Network Tactical Common Data Link*	103.135	31.943	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	135.078
Program MDAP/MAIS Code: **Project MDAP/MAIS Code(s):** 554												

Note

Funding for the following projects has been realigned out of PE 0205604N into PE 0604280N as part of Program Element Consolidation starting in FY20: Project 3020 (MIDS/JTRS), Project 2126 (ATDLS Integration) and Project 3341 (Network Tactical Common Data Link).

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.

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).

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Navy	Date: February 2020
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*

The Multifunctional Information Distribution System (MIDS) program office is the Lead Service for Department of Defense (DOD) Link 16 capability and consists of two (2) product lines, MIDS Low Volume Terminal (LVT) (legacy hardware defined radio) and MIDS Joint Tactical Radio System (JTRS) (software defined radio). MIDS-LVT effort is a cooperative development program between France, Germany, Italy, Spain, and the United States with United States joint service participation (Navy, Army, Air Force), and has provided over 11,000 terminals to 48 Nations providing interoperability with North Atlantic Treaty Organization (NATO) and coalition partners. 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 significantly increases force effectiveness and minimizes hostile actions and friend-on-friend engagements. The current development program for LVT is the Block Upgrade 2 (BU2) effort designed to meet the Cryptographic Modernization (CM) and Frequency Remapping (FR) mandates required for all US and international users which occurs inside the FYDP. MIDS-LVT BU2 was executed as an ECP and provides the critical upgrades to the MIDS-LVT Terminal to enable U.S., Coalition and International partners' ability to meet the National Security Agency (NSA) mandated timelines for CM and the National Telecommunications and Information Agency (NTIA) and Federal Aviation Agency (FAA) mandated timelines for FR.

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). MIDS Modernization Increment 1 will be fielded with all MIDS JTRS CMN4 terminals. The upgrade of the Link 16 transceiver will provide more capacity to host software and firmware and increase multi-path use.

The TTNT waveform is the next waveform to be added to the MIDS JTRS terminal. TTNT is a low latency, high throughput waveform that has the capability to support data exchange between fast-moving tactical aircraft, weapons, and unmanned aircraft, in addition to air, land, and sea-based command and control nodes, in a variety of air-to-air and air-to-ground missions including time sensitive targeting, air warfare, close air support, non-traditional ISR, and anti-surface warfare. TTNT capability integration into the MIDS JTRS directly supports Naval Integrated Fire Control (NIFC) capability requirements. These capabilities provide Joint Airborne Network-Tactical Edge functionality to run advanced mission applications in a cross-platform/cross-domain tactical network enterprise, the TTNT capability will be in addition to the CMN-4 terminal providing Link 16 capability, and the ability to simultaneously participate in four Link 16 Nets.

MIDS JTRS Tactical Targeting Network Technology (TTNT), is a block upgrade to the MIDS JTRS CMN-4 Terminal provides an Internet Protocol-based networking capability on tactical aircraft. TTNT is a low latency, high throughput waveform that has the capability to support data exchange between fast-moving tactical aircraft, weapons, and unmanned aircraft, in addition to air, land, and sea-based command and control nodes, in a variety of air-to-air and air-to-ground missions including time sensitive targeting, air warfare, close air support, non-traditional ISR, and anti-surface warfare. TTNT capability integration into the MIDS JTRS directly supports Naval Integrated Fire Control (NIFC) capability requirements. These capabilities provide Joint Airborne Network-Tactical Edge functionality to run advanced mission applications in a cross-platform/cross-domain tactical network enterprise.

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Navy	Date: February 2020
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0205604N *I Tactical Data Links*

Network Tactical Common Data Link (NTCDL) provides the ability to transmit/receive real-time intelligence, surveillance, and reconnaissance (ISR) data simultaneously from multiple sources (air, surface, sub-surface, and 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 the capability to support multiple, simultaneous, networked operations with in-service Common Data Link (CDL) equipped aircraft (e.g., F/A-35, P-3, and MH- 60R) in addition to next-generation manned and unmanned platforms (e.g., P-8 Poseidon, Triton, MQ-25 (Stingray), small tactical unmanned aircraft systems (STUAS), and Fire Scout). NTCDL benefits the Fleet by providing a horizon extension for line-of-sight systems for use in time-critical strike missions.

B. Program Change Summary ($ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	88.979	0.000	0.000	-	0.000
Current President's Budget	96.542	0.000	0.000	-	0.000
Total Adjustments	7.563	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	9.900	0.000			
• SBIR/STTR Transfer	-2.337	0.000			
• Program Adjustments	0.000	0.000	0.000	-	0.000
• Rate/Misc Adjustments	0.000	0.000	0.000	-	0.000

Change Summary Explanation

ATDLS Integration (2126):
Funding was realigned to the new PE (0604280N/2126 ATDLS Integration) starting in FY20. The changes are listed in the new PE.

MIDS (3020):
Funding was realigned to the new PE (0604280N/3020 MIDS/JTRS) starting in FY20. The changes are listed in the new PE.

NTCDL (3341):
A rebaseline of the NTCDL program has been completed, and the vendor presented a new cost and schedule to complete the NTCDL development effort. Additional FY 19 funds were required to maintain the development schedule and conduct Developmental Test/ Operational Assessment (DT/OA). Funding was realigned to the new PE (0604280N/3341 NTCDL) starting in FY20.

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy			Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
2126: *ATDLS Integration*	815.978	24.398	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	840.376
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Funding has been realigned out of PE 0205604N Project 2126, into PE 0604280N as part of RDTEN PE Consolidation starting in FY20.

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 ATDLS Integration Programs perform technical analyses and engineering efforts associated with implementation of new technology to enable rapid introduction of new products and technology, prevent obsolescence, and end of support issues. The programs insert new technology enhancements via incremental software & hardware upgrades and deliver as annual build release.The Navy Link 16 Network Increment II consists of Dynamic Network Management (DNM), Cryptographic Modernization (CM) and Frequency Remapping (FR). C2P is a critical component of the shipboard combat system enabling tactical data link integration with the combat systems. C2P is a critical component of the Aegis Ballistic Missile Defense (BMD) architecture. C2P Technology Refresh (TR) will modernize obsolete C2P system hardware components and improve C2P system cyber security posture. C2P Modernization (MOD) is a service life extension effort required to sustain C2P system viability and significantly improve its cyber resiliency. C2P MOD modernizes the legacy C2P system software to enable improved cyber resiliency, improved system operational availability and the ability to run in multiple hardware environments. Link 22 development and integration into the C2P allows for improved maritime tactical data link operations with coalition forces. LMMT will upgrade commercial off-the-shelf hardware and modernize software operating systems. LMMT will perform monitoring and management of all TDL and provide information in support of the Integrated Air & Missile Defense (IAMD) and Ballistic Missile Defense (BMD) missions.

Link 16 Network Increment II: (1) Develop and implement CM and FR mandates as a product improvement into existing legacy JTIDS and MOS terminals and integration 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; (2) Developmental Testing (DT) / Operational Testing (OT) of Navy platform CM/FR modifications; (3) provide product improvement for continued production capability Multifunctional Information Distribution System (MIDS) on Ship (MOS) Modernization (MOS Mod) and extensibility to new Tactical Data Link capabilities of shipboard Link 16 terminals, (4) qualification of replacement shipboard Link 16 antenna to replace end of life existing antenna. JTIDS, MOS CM/FR, and MOS Mod 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.

Command and Control Processor (C2P): Command and Control Processor (C2P): The two RDT&E initiatives are 1) C2P Technology Refresh (TR) cyber security update and 2) C2P Modernization which now includes Link 22 integration. C2P TR cyber security update is a new initiative driven by recently discovered cyber

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 2126 / *ATDLS Integration*

security risk to the C2P system in support of the BMD mission. The C2P TR Cyber security update is planned to support acceleration on all AEGIS BMD ships. C2P Modernization funds the transition of the C2Ps legacy CMS-2Y software code (old Navy unique computer programming language from the 1980s) to a modern software language. Transition to a modern software language is required to sustain the system software and to more adequately address growing cybersecurity and Ao challenges and to enable more affordable transition to new hardware processing components as a result of commercial of the shelf processor obsolescence. Link 22 which was previously planned for fielding in the C2P TR architecture has been delayed until the fielding of C2P Modernization. This was based on prioritizing existing resources to address the emergent cyber security risk that has resulted in the C2P TR cybersecurity update plan. Link 22 is a modernized replacement for Link 11, providing beyond line of site (BLOS) tactical data communications using HF radios.

Link Monitoring and Management Tool (LMMT) is a 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 (JRE). LMMT is also capable of performing TDL network monitoring and management, data forwarding between the TDLs and providing tactical data to the IAMD, BMD network, and Global Command and Control System (GCCS) 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.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Link 16 Network Increment II - Cryptographic Modernization (CM) / Frequency Remapping (FR)	7.113	0.000	0.000	0.000	0.000
Articles:	10	-	-	-	-
FY 2020 Plans: FY20 funding has been realigned to PE 0604280N Project 2126 as part of PE Consolidation.					
FY 2021 Base Plans: FY21 funding has been realigned to PE 0604280N Project 2126 as part of PE Consolidation.					
FY 2021 OCO Plans: N/A					
Title: Command and Control Processor (C2P)	16.463	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2020 Plans: FY20 funding has been realigned to PE 0604280N Project 2126 as part of PE Consolidation.					
FY 2021 Base Plans: FY21 funding has been realigned to PE 0604280N Project 2126 as part of PE Consolidation.					
FY 2021 OCO Plans: N/A					
Title: Link Monitoring and Management Tool (LMMT)	0.822	0.000	0.000	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Articles:	-	-	-	-	-
FY 2020 Plans: FY20 funding has been realigned to PE 0604280N Project 2126 as part of the PE Consolidation. ***FY 2021 Base Plans:*** FY21 funding has been realigned to PE 0604280N Project 2126 as part of the PE Consolidation. ***FY 2021 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	24.398	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• OPN/2614: *Adv Tact Data Link Sys (ATDLS)*	29.822	52.753	103.835	-	103.835	86.367	60.020	62.574	62.991	Continuing	Continuing
• RDTEN/0604280N/2126: *ATDLS Integration*	0.000	18.201	21.203	-	21.203	21.254	22.665	23.127	23.590	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). A sole source determination was approved for the production and integration of JPI hardware. DLS will produce and integrate JPI hardware and software into existing JTIDS terminals. Multifunctional Information Distribution System (MIDS) on Ship (MOS) CM/FR will be accomplished through integration of the MIDS LVT Block Upgrade 2 (BU) into the existing MOS cabinet. MOS CM/FR required development and integration of a High-Power Amplifier (HPA) bypass switch. HPA bypass switch development was conducted by SSC Pacific. Production of HPA Switch will be performed by SSC PAC for existing MOS systems. To address the WIN 10 implementation for the MOS system, a new MOS Terminal Controller hardware and software has been developed and is being produced on the MOS Lot 4 contract. MOS MOD contract will provide three engineering manufacturing development (EMD) units for developmental and operational testing. The MOS MOD contract will also provide full rate production units. A second MOS Mod contract for production will be competitively awarded to extend the production period and increase capacity.

The C2P Technology Refresh (TR) and Link 22 development contract was awarded to Northrop Grumman. The Data Terminal Set (DTS) contract to support the Link 11/ Link 22 functions of the C2P system was awarded in August 2016. An existing IDIQ MAC contract will be used to procure initial TR units with a new ATDLS production contract planned for future procurements in FY 19 and beyond.

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 2126 / *ATDLS Integration*

The Link Monitoring and Management Tool (LMMT) capability will replace previously-fielded Air Defense Systems Integrator (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 (CDs). Existing GOTS software will be updated to incorporate network performance monitoring and management capabilities by Naval Information Warfare Center (NIWC).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ATDLS Product Development and Integration	Various	Various : Various	475.633	0.000		0.000		0.000		-		0.000	0.000	475.633	387.088
Link 16 Network Development (JTIDS)	C/CPIF	DLS (BAE/ Rockwell) : Wayne, NJ	61.010	1.336	Oct 2018	0.000		0.000		-		0.000	0.000	62.346	Continuing
Link 16 Network Development (MOS MOD)	C/FPIF	DLS (BAE/ Rockwell) : Wayne, NJ	17.965	0.825	Oct 2018	0.000		0.000		-		0.000	0.000	18.790	Continuing
Link 16 Network Integrated Logistics Support	C/CPFF	SeaPort-E : San Diego, CA	2.962	0.016	Oct 2018	0.000		0.000		-		0.000	0.000	2.978	Continuing
Link 16 Network Systems Engineering	WR	NIWC PAC : San Diego, CA	56.167	1.040	Oct 2018	0.000		0.000		-		0.000	0.000	57.207	Continuing
C2P Systems Engineering	WR	NIWC PAC : San Diego, CA	22.038	2.927	Oct 2018	0.000		0.000		-		0.000	0.000	24.965	Continuing
C2P IV&V	WR	NIWC PAC : San Diego, CA	15.253	3.288	Oct 2018	0.000		0.000		-		0.000	0.000	18.541	Continuing
C2P Development & Integration	WR	NIWC PAC : San Diego, CA	16.969	6.615	Oct 2018	0.000		0.000		-		0.000	0.000	23.584	Continuing
LMMT Systems Engineering	WR	NIWC PAC : San Diego, CA	5.340	0.692	Oct 2018	0.000		0.000		-		0.000	0.000	6.032	Continuing
		Subtotal	673.337	16.739		0.000		0.000		-		0.000	0.000	690.076	N/A

Remarks

FY20 and FY21 cost data is provided under PE 0604280N Project 2126

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ATDLS Test and Evaluation	Various	Various : Various	68.886	0.000		0.000		0.000		-		0.000	0.000	68.886	65.171
Link 16 Network T&E	WR	NIWC PAC : San Diego, CA	15.951	3.786	Dec 2018	0.000		0.000		-		0.000	0.000	19.737	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C2P T&E	WR	NIWC PAC : San Diego, CA	4.097	2.184	Oct 2018	0.000		0.000		-		0.000	0.000	6.281	Continuing
		Subtotal	88.934	5.970		0.000		0.000		-		0.000	0.000	94.904	N/A

Remarks

FY20 and FY21 cost data is provided under PE 0604280N Project 2126

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ATDLS System Engineering Support	Various	Various : Various	35.988	0.000		0.000		0.000		-		0.000	0.000	35.988	35.988
Link 16 Network Program Management Support	C/CPFF	SeaPort-E : San Diego, CA	5.598	0.110	Oct 2018	0.000		0.000		-		0.000	0.000	5.708	Continuing
C2P Program Management Support	C/CPFF	SeaPort-E : San Diego, CA	8.188	0.706	Nov 2018	0.000		0.000		-		0.000	0.000	8.894	Continuing
C2P Systems Engineering Support	C/CPFF	SeaPort-E : San Diego, CA	1.896	0.743	Nov 2018	0.000		0.000		-		0.000	0.000	2.639	Continuing
LMMT Program Management Support	C/CPFF	SeaPort-E : San Diego, CA	2.037	0.130	Nov 2018	0.000		0.000		-		0.000	0.000	2.167	Continuing
		Subtotal	53.707	1.689		0.000		0.000		-		0.000	0.000	55.396	N/A

Remarks

FY20 and FY21 cost data is provided under PE 0604280N Project 2126

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	815.978	24.398		0.000		0.000		-		0.000	0.000	840.376	N/A

Remarks

FY20 and FY21 cost data is provided under PE 0604280N Project 2126

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 2126 / *ATDLS Integration*

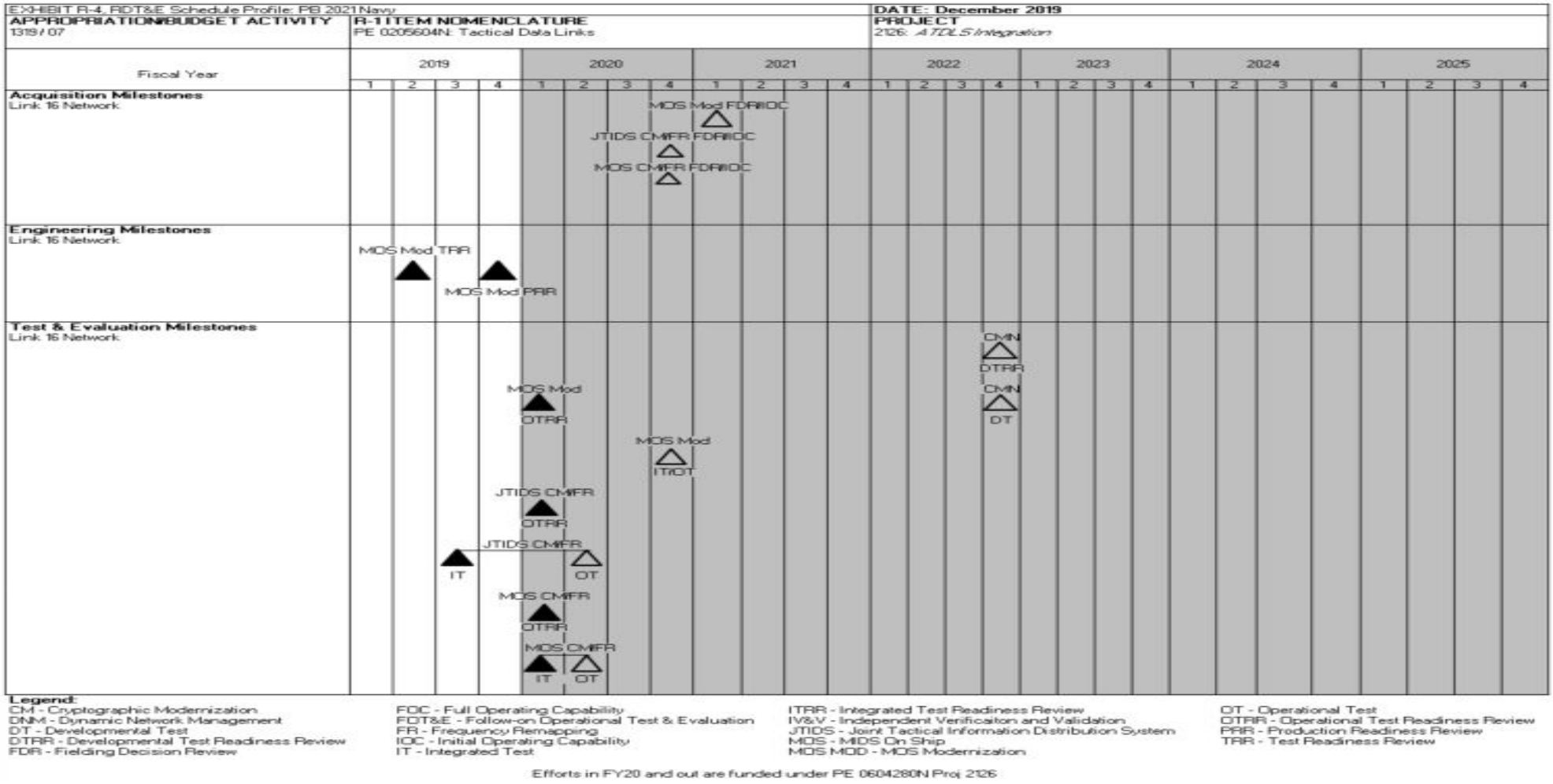
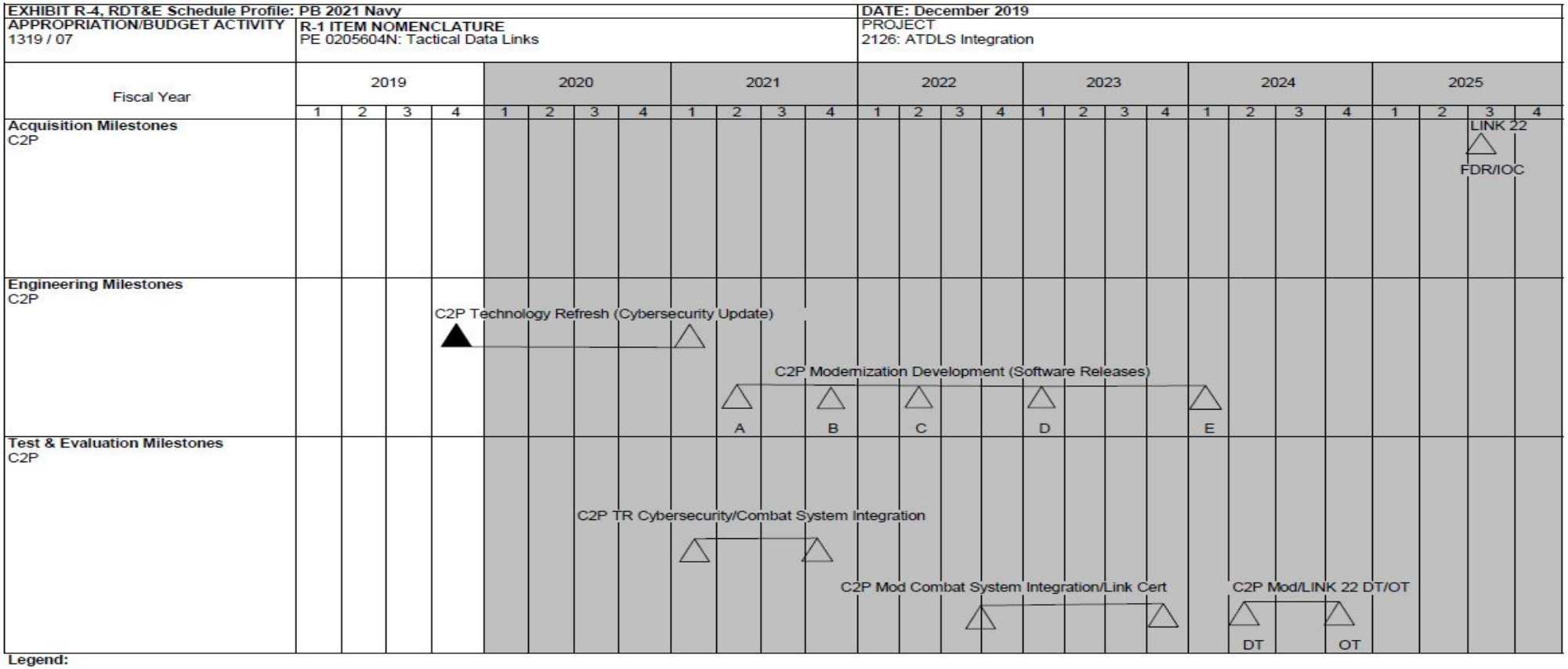


Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 2126 / *ATDLS Integration*



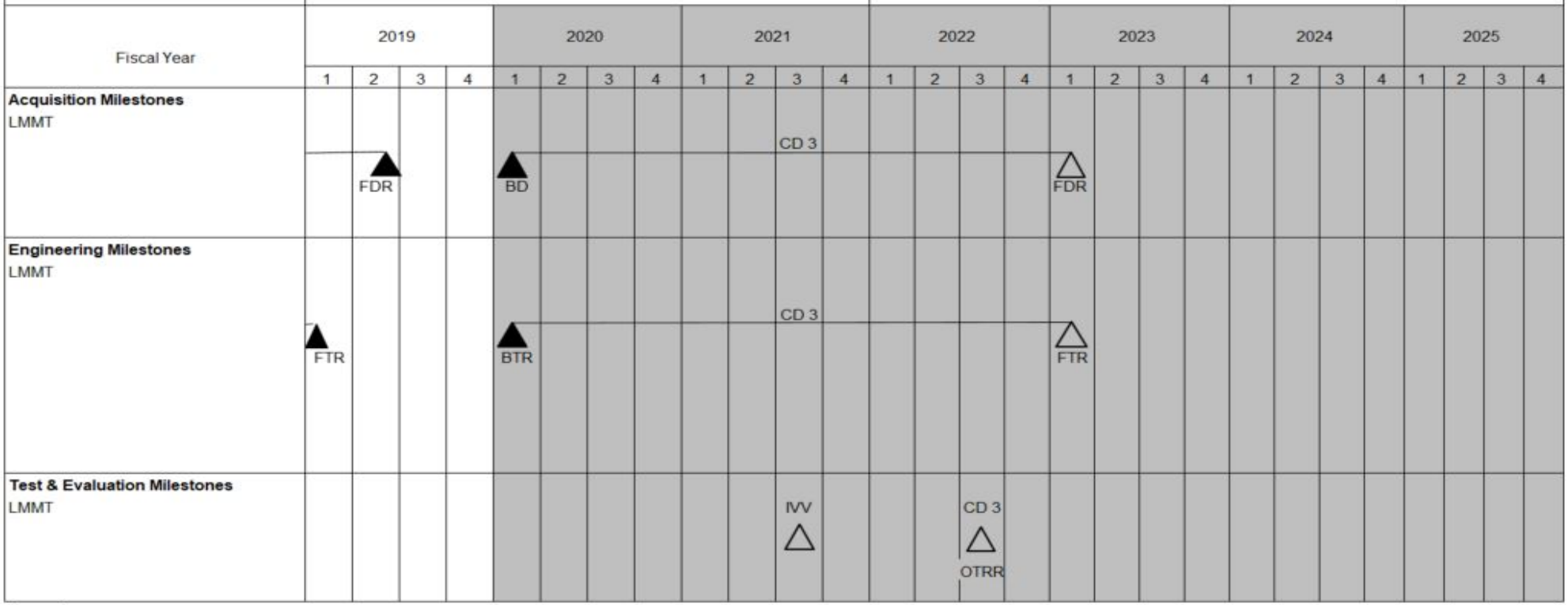
Legend:

C2P - Command and Control Processor
CDR - Critical Design Review
DT - Developmental Test
DTRR - Developmental Test Readiness Review
FDR - Fielding Decision Review
FOTE - Follow on Test and Evaluation
IOC - Initial Operating Capability
IV&V - Independent Verificaiton and Validation
OTRR - Operational Test Readiness Review
PDR - Preliminary Design Review
SRR - System Requirement Review

Efforts in FY20 and out are funded under PE 0604280N Proj 2126

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 2126 / *ATDLS Integration*

EXHIBIT R-4, RDT&E Schedule Profile: PB 2021 Navy		DATE: December 2019
APPROPRIATION/BUDGET ACTIVITY 1319 / 07	R-1 ITEM NOMENCLATURE PE 0205604N: Tactical Data Links	PROJECT 2126: ATDLS Integration



Legend:

BD - Build Decision
CD - Capability Drop
FDR - Fielding Decision Review
FTR - Fielding Technical Review
OT - Operational Test
BTR - Build Technical Review
DT - Developmental Test
FOC - Full Operational Capability
IOC - Initial Operating Capability
OTRR - Operational Test Readiness Review
IVV - Independent Verifcation and Validation

Efforts in FY20 and out are funded under PE 0604280N Proj 2126

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy		Date: February 2020
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				
LMMT CD2 Fielding Technical Review	1	2019	1	2019
Link 16 MOS MOD Test Readiness Review	2	2019	2	2019
LMMT CD 2 Fielding Decision Review	2	2019	2	2019
Link 16 JTIDS CM/FR Integrated Test	3	2019	3	2019
C2P Technology Refresh (Cybersecurity Update)	4	2019	4	2019
Link 16 MOS Mod Production Readiness Review	4	2019	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy											Date: February 2020	
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 2019**	**FY 2020**	**FY 2021 Base**	**FY 2021 OCO**	**FY 2021 Total**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Cost To Complete**	**Total Cost**
3020: *MIDS/JTRS*	345.469	40.201	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	385.670
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Project MDAP/MAIS Code: 554

Note

Funding has been realigned out of PE 0205604N Project 3020, into PE 0604280N as part of RDTEN PE Consolidation starting in FY20.

A. Mission Description and Budget Item Justification

The Multifunctional Information Distribution System (MIDS) program office is the Lead Service for Department of Defense (DOD) Link 16 capability and consists of two (2) product lines, MIDS Low Volume Terminal (LVT) (legacy hardware defined radio) and MIDS Joint Tactical Radio System (JTRS) (software defined radio). MIDS-LVT effort is a cooperative development program between France, Germany, Italy, Spain, and the United States with United States joint service participation (Navy, Army, Air Force), and has provided over 11,000 terminals to 48 Nations providing interoperability with North Atlantic Treaty Organization (NATO) and coalition partners. 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 significantly increases force effectiveness and minimizes hostile actions and friend-on-friend engagements. The current development program for LVT is the Block Upgrade 2 (BU2) effort designed to meet the Cryptographic Modernization (CM) and Frequency Remapping (FR) mandates required for all US and international users which occurs inside the FYDP. MIDS-LVT BU2 was executed as an ECP and provides the critical upgrades to the MIDS-LVT Terminal to enable U.S., Coalition and International partners' ability to meet the National Security Agency (NSA) mandated timelines for CM and the National Telecommunications and Information Agency (NTIA) and Federal Aviation Agency (FAA) mandated timelines for FR.

MIDS JTRS, designed as a Pre-Planned Product Improvement (P3I) and executed as an Engineering Change Proposal (ECP) to the production MIDS-LVT configuration, and is fully compatible with MIDS-LVT. The MIDS JTRS Core Terminal achieved Full Fielding & Production (FP&F) in March 2012. 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 Link 16, Tactical Air Navigation (TACAN), and voice functionality found in MIDS-LVT, MIDS JTRS has four channels and adds capabilities such as Link 16 Enhanced Throughput (ET), Link 16 Frequency Re-mapping (FR), software programmability, Cryptographic Modernization (CM), and Four Net Concurrent Multi-Netting with Concurrent Contention Receive (CMN-4).

MIDS JTRS Tactical Targeting Network Technology (TTNT), is a block upgrade to the MIDS JTRS CMN-4 Terminal provides an Internet Protocol-based networking capability on tactical aircraft. TTNT is a low latency, high throughput waveform that has the capability to support data exchange between fast-moving tactical aircraft, weapons, and unmanned aircraft, in addition to air, land, and sea-based command and control nodes, in a variety of air-to-air and air-to-ground missions including time sensitive targeting, air warfare, close air support, non-traditional ISR, and anti-surface warfare. TTNT capability integration into the MIDS JTRS directly supports Naval Integrated Fire Control (NIFC) capability requirements. These capabilities provide Joint Airborne Network-Tactical Edge functionality to run advanced mission applications in a cross-platform/cross-domain tactical network enterprise.

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: MIDS	40.201	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
FY 2020 Plans: FY20 funding has been realigned to PE 0604280N Project 3020 as part of PE Consolidation.					
FY 2021 Base Plans: FY21 funding has been realigned to PE 0604280N Project 3020 as part of PE Consolidation.					
FY 2021 OCO Plans: N/A					
Accomplishments/Planned Programs Subtotals	40.201	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• RDTE/0604280N/3020: *MIDS/JTRS*	0.000	39.214	47.579	-	47.579	66.030	67.849	54.500	32.342	Continuing	Continuing

Remarks

D. Acquisition Strategy

Multifunctional Information Distribution System Joint Tactical System (MIDS JTRS) development was initiated as a major modification to the MIDS-LVT using an Engineering Change Proposal to the existing production contracts. The U.S. prime contractors from the MIDS-LVT program, Data Link Solutions (DLS) and Viasat Inc., cooperatively designed and developed each of the MIDS JTRS terminal variants and Block Upgrade 2 for MIDS-LVT. The U.S. implemented a continuous competition strategy between DLS and ViaSat that will be maintained throughout the MIDS-LVT and MIDS JTRS production phases. This strategy has been successfully used on all MIDS variants.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy		Date: February 2020
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 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development Prior Years	Various	Various : Various	281.737	0.000		0.000		0.000		-		0.000	0.000	281.737	254.622
TTNT Development Contract (L Band)	C/CPFF	DLS : Cedar Rapids, IA	22.076	9.329	Oct 2018	0.000		0.000		-		0.000	0.000	31.405	Continuing
Link 16 Waveform Development	WR	NIWC PAC : San Diego, CA	3.644	0.560	Nov 2018	0.000		0.000		-		0.000	0.000	4.204	Continuing
Investigation Reports	C/CPFF	DLS : Cedar Rapids, IA	1.275	5.217	Dec 2018	0.000		0.000		-		0.000	0.000	6.492	1.556
Investigation Reports	C/CPFF	Viasat : San Diego	0.802	0.885	Jan 2019	0.000		0.000		-		0.000	0.000	1.687	0.792
Link 16 hardware upgrade	C/CPFF	DLS : Cedar Rapids, IA	0.000	9.305	Mar 2019	0.000		0.000		-		0.000	0.000	9.305	Continuing
Link 16 hardware upgrade	C/CPFF	ViaSat : San Diego, CA	0.000	7.685	Mar 2019	0.000		0.000		-		0.000	0.000	7.685	Continuing
		Subtotal	309.534	32.981		0.000		0.000		-		0.000	0.000	342.515	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Modeling and Simulation	MIPR	MIT Lincoln Labs : Lexington, MA	0.000	1.500	Nov 2018	0.000		0.000		-		0.000	0.000	1.500	-
Multi-level security analysis	WR	NAVAIR : China Lake, Ca	0.393	0.000		0.000		0.000		-		0.000	0.000	0.393	0.393
Modeling and Simulation	WR	NAVAIR : China Lake, Ca	4.682	0.200	Jan 2019	0.000		0.000		-		0.000	0.000	4.882	Continuing
		Subtotal	5.075	1.700		0.000		0.000		-		0.000	0.000	6.775	N/A

Remarks

Consolidated Automated Support System (CASS) Test Program Sets (TPS)

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy			Date: February 2020
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 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Eval Prior Years	Various	Various : Various	8.144	0.000		0.000		0.000		-		0.000	0.000	8.144	8.144
MIDS JTRS CMN-4/MIDS Mod GFAQT and JTEL LAB	WR	NIWC PAC : San Diego, CA	1.485	0.250	Oct 2018	0.000		0.000		-		0.000	0.000	1.735	Continuing
COMOPTEVFOR	MIPR	COMOPTEVFOR : Norfolk, VA	0.056	0.066	Jan 2019	0.000		0.000		-		0.000	0.000	0.122	0.056
JTEL Testing Support	C/CPFF	G-2 : San Diego, CA	0.137	0.050	Aug 2019	0.000		0.000		-		0.000	0.000	0.187	Continuing
		Subtotal	9.822	0.366		0.000		0.000		-		0.000	0.000	10.188	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Management Services Prior Years	Various	Various : Various	1.307	0.000		0.000		0.000		-		0.000	0.000	1.307	1.201
Systems Engineering Support	MIPR	MITRE : Bedford, MA	7.703	0.526	Jan 2019	0.000		0.000		-		0.000	0.000	8.229	Continuing
Government Engineering Support TTNT	WR	NIWC PAC : San Diego, CA	8.971	2.072	Dec 2018	0.000		0.000		-		0.000	0.000	11.043	Continuing
Govt Program Support NIFC-CA	WR	NAVAIR : Pax River, MD	0.969	0.058	Nov 2018	0.000		0.000		-		0.000	0.000	1.027	0.969
Infomation Assurance	MIPR	CERDEC : Aberdeen Proving Ground, MD	0.000	0.268	Jan 2019	0.000		0.000		-		0.000	0.000	0.268	-
COR and Logistics Support	WR	NIWC Atlantic : Charleston, SC	0.151	0.064	Nov 2018	0.000		0.000		-		0.000	0.000	0.215	Continuing
Contractor Engineering/ Programmatic Support	C/CPFF	Sentek : San Diego, Ca	1.449	0.675	Nov 2018	0.000		0.000		-		0.000	0.000	2.124	Continuing
ARL SIPRNET Connection	MIPR	ARL : Adelphi, MD	0.192	0.101	Jan 2019	0.000		0.000		-		0.000	0.000	0.293	Continuing
Contractor Program Management and Financial Support	C/CPFF	G2 : San Diego, CA	0.296	1.390	Nov 2018	0.000		0.000		-		0.000	0.000	1.686	Continuing
		Subtotal	21.038	5.154		0.000		0.000		-		0.000	0.000	26.192	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy			Date: February 2020
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205604N / *Tactical Data Links*	Project (Number/Name) 3020 / *MIDS/JTRS*	

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	345.469	40.201		0.000		0.000		-		0.000	0.000	385.670	N/A

Remarks

FY20-FY21 cost data is provided under PE 0604280N Project 3020.

LCM - MIDS-LVT Crypto Module WF - Waveform BU2 - Block Upgrade 2 BC3 - Block Cycle 3
TTNT - Tactical Targeting Network Technology CSS/PCP - Cryptographic Sub System/Protected Core Processor
ER0F - Engineering Release 0F ER0G - Engineering Release 0G DLS - Data Link Solutions
NIFC-CA - Naval Integrated Fire Control - Counter Air PDR - Preliminary Design Review CDR - Critical Design Review
TRR - Test Readiness Review DT - Development Test IR - Information Repository JTEL - Joint Test and Evaluation Lab
CFAQT - Contractor First Article Qualification Test GFAQT - Gov't First Article Qualification Test

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 3020 / *MIDS/JTRS*

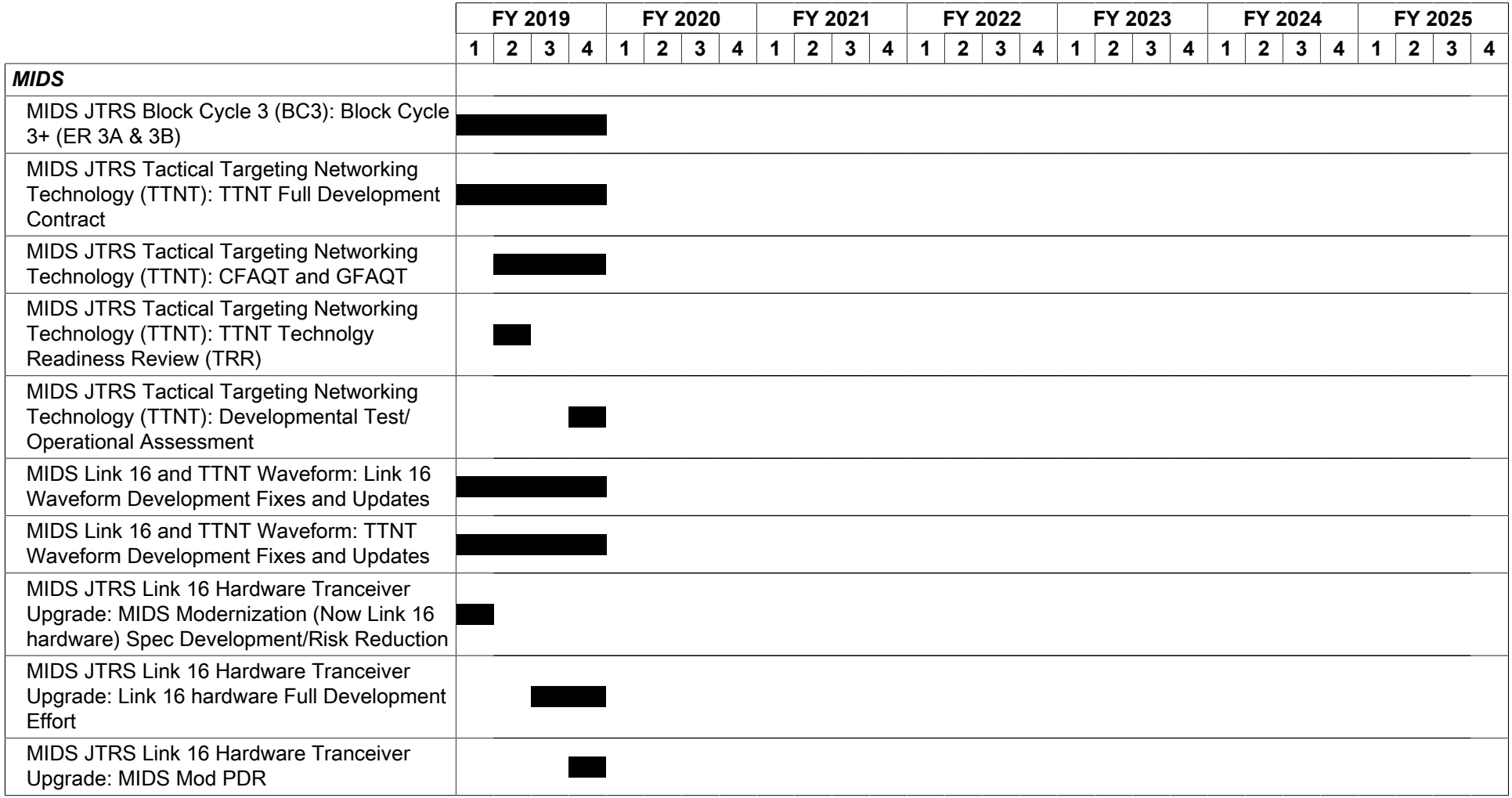


Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 3020 / *MIDS/JTRS*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
MIDS				
MIDS JTRS Block Cycle 3 (BC3): Block Cycle 3+ (ER 3A & 3B)	1	2019	4	2019
MIDS JTRS Tactical Targeting Networking Technology (TTNT): TTNT Full Development Contract	1	2019	4	2019
MIDS JTRS Tactical Targeting Networking Technology (TTNT): CFAQT and GFAQT	2	2019	4	2019
MIDS JTRS Tactical Targeting Networking Technology (TTNT): TTNT Technolgy Readiness Review (TRR)	2	2019	2	2019
MIDS JTRS Tactical Targeting Networking Technology (TTNT): Developmental Test/ Operational Assessment	4	2019	4	2019
MIDS Link 16 and TTNT Waveform: Link 16 Waveform Development Fixes and Updates	1	2019	4	2019
MIDS Link 16 and TTNT Waveform: TTNT Waveform Development Fixes and Updates	1	2019	4	2019
MIDS JTRS Link 16 Hardware Tranceiver Upgrade: MIDS Modernization (Now Link 16 hardware) Spec Development/Risk Reduction	1	2019	1	2019
MIDS JTRS Link 16 Hardware Tranceiver Upgrade: Link 16 hardware Full Development Effort	3	2019	4	2019
MIDS JTRS Link 16 Hardware Tranceiver Upgrade: MIDS Mod PDR	4	2019	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy			Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
3341: *Network Tactical Common Data Link*	103.135	31.943	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	135.078
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

Note

Funding has been realigned out of PE 0205604N Project 3341, into PE 0604280N as part of RDTEN PE Consolidation starting in FY20.

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 air platforms (e.g. F/ A-35, P-3, and MH-60R), in addition to next generation manned and unmanned platforms (e.g., P-8, Triton, MQ-25 (Stingray), small tactical unmanned aircraft systems (STUAS) and Fire Scout). NTCDL is an incremental capability (surface, airborne, sub-surface, man-portable) providing modular, scalable, multiple-link networked communications. NTCDL benefits the fleet by providing a horizon extension for line-of-sight sensor systems for use in time-critical strike missions and supports tasking, collection, processing, exploitation, and dissemination (TCPED) via its ISR networking capability. NTCDL supports Resilient Command and Control (RC2) through its relay capability, and supports TCPED through its ISR networking capability.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Network Tactical Common Data Link (NTCDL)	31.943	0.000	0.000	0.000	0.000
Articles:	-	-	-	-	-
Description: NTCDL is the only High Data Rate (HDR), Line of Sight (LOS) solution delivering Intelligence, Surveillance, and Reconnaissance (ISR), sensor control information and unmanned aircraft system (UAS) command and control. NTCDL uses Joint Department of Defense specifications for Common Data Link (CDL) waveforms and LOS networks across the allocated CDL frequency spectrum. New technical specifications require increasing number of simultaneous CDL links to support increasing number of CDL/ISR platforms and missions. The software for NTCDL is developed by both contractor and government. The contractor software development is responsible for the internal control of the NTCDL hardware whereas the Government Furnished Software (GFS) is responsible for interfacing with various external networks (e.g. Automated Digital Network System (ADNS)) and users (e.g. Consolidated Afloat Networks and Enterprise Services (CANES)). Engineering Development Model (EDM) development is a multi-year effort that includes two EDMs being delivered in FY21. EDM 1 will undergo Development Test for Operational Assessment, and EDM 2 will go through shock, environmental, and cyber testing. At the same time the two EDMs are going through testing, BAE Systems will					

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
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 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
continue development of the X/Ku antennas. EDM 2 will be repaired after testing and given the X/Ku antennas. Both EDMs will provide Full Capability and will be installed in FY23. ***FY 2020 Plans:*** FY20 funding has been realigned to PE 0604280N Project 3341 as part of PE Consolidation. ***FY 2021 Base Plans:*** FY21 funding has been realigned to PE 0604280N Project 3341 as part of PE Consolidation. ***FY 2021 OCO Plans:*** N/A					
Accomplishments/Planned Programs Subtotals	31.943	0.000	0.000	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• RDTEN/0604280N/3341: *Network Tactical Common Data Link*	0.000	30.776	34.520	-	34.520	8.887	6.889	6.424	6.554	Continuing	Continuing
• OPN/2950: *Network Tactical Common Data Link (CDL)*	6.223	5.193	4.150	-	4.150	22.511	20.699	20.980	21.394	Continuing	Continuing

Remarks

The FY2019-FY2021 OPN deltas are is the funding for the CDLS Tech Refresh. NTCDL is he follow-on program for CDLS. OPN funds for NTCDL are accurately reflected.

D. Acquisition Strategy

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy			Date: February 2020
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 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Product Development	Various	Various : Various	26.755	0.000		0.000		0.000		-		0.000	0.000	26.755	-
NTCDL Product Development	C/CPIF	BAE Systems, Int : Wayne, NJ	33.069	25.803	Dec 2018	0.000		0.000		-		0.000	0.000	58.872	-
NTCDL Software Development	WR	NIWC PAC : San Diego, CA	4.942	2.177	Nov 2018	0.000		0.000		-		0.000	0.000	7.119	-
NTCDL Software Development	C/IDIQ	Technology Unlimited Group : San Diego, CA	1.021	0.814	Mar 2019	0.000		0.000		-		0.000	0.000	1.835	-
		Subtotal	65.787	28.794		0.000		0.000		-		0.000	0.000	94.581	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NTCDL Systems Engineering	WR	NIWC PAC : San Diego, CA	14.997	1.510	Oct 2018	0.000		0.000		-		0.000	0.000	16.507	-
NTCDL Systems Engineering	C/IDIQ	Technology Unlimited Group : San Diego, CA	9.546	0.554	Mar 2019	0.000		0.000		-		0.000	0.000	10.100	-
		Subtotal	24.543	2.064		0.000		0.000		-		0.000	0.000	26.607	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NTCDL Test and Evaluation	WR	NIWC PAC : San Diego, CA	5.769	0.720	Oct 2018	0.000		0.000		-		0.000	0.000	6.489	-
NTCDL Test and Review	MIPR	JITC : Fort Huachuca, AZ	0.529	0.018	Feb 2019	0.000		0.000		-		0.000	0.000	0.547	-
NTCDL Waveform certification	MIPR	COMOPTEVFOR : Norfolk, VA	0.678	0.010	Jul 2019	0.000		0.000		-		0.000	0.000	0.688	-
		Subtotal	6.976	0.748		0.000		0.000		-		0.000	0.000	7.724	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy			Date: February 2020
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*	

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management	WR	NIWC PAC : 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	4.829	0.337	Nov 2018	0.000		0.000		-		0.000	0.000	5.166	-
		Subtotal	5.829	0.337		0.000		0.000		-		0.000	0.000	6.166	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	103.135	31.943		0.000		0.000		-		0.000	0.000	135.078	N/A

Remarks

FY20 and FY21 cost data is provided under PE 0604280N Project 3341.

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy		Date: February 2020
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

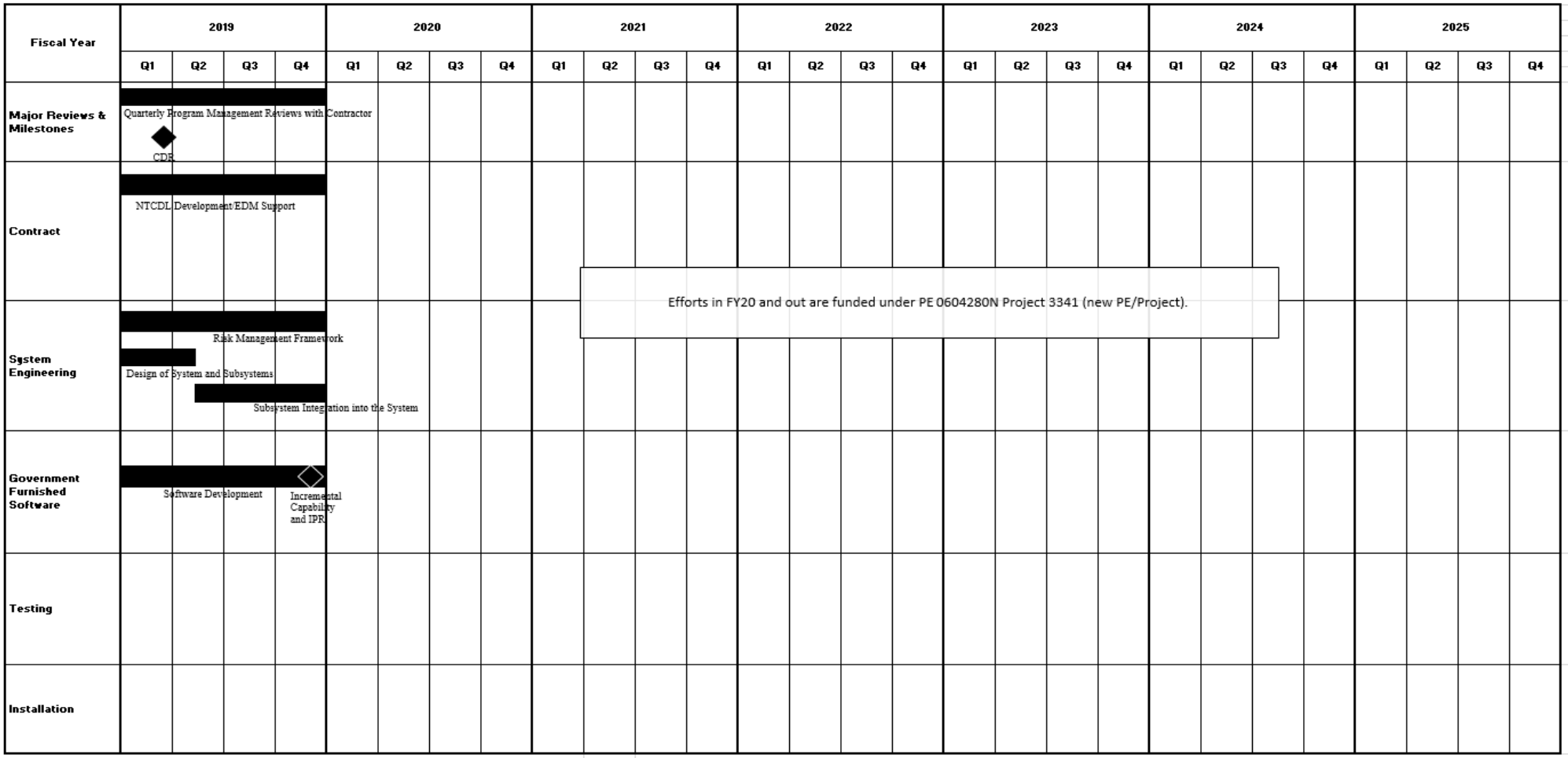


Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 7	**R-1 Program Element (Number/Name)** PE 0205604N / *Tactical Data Links*	**Project (Number/Name)** 3341 / *Network Tactical Common Data Link*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3341				
NTCDL - Design of System and Subsystems	1	2019	2	2019
NTCDL - Government Furnished Software (GFS) Development	1	2019	4	2019
NTCDL - Development Contract	1	2019	4	2019
NTCDL - Risk Management Framework (RMF)	1	2019	4	2019
NTCDL - Quarterly Program Management Reviews with Contractor	1	2019	4	2019
NTCDL - Critical Design Review (CDR)	1	2019	1	2019
NTCDL - Subsystem Integration into the System	2	2019	4	2019
NTCDL - GFS Incremental Capability and IPR	4	2019	4	2019