Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Threat Reduction Agency	Date: March 2019
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0605000BR / **Counter Weapons of Mass Destruction Systems Development*

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	25.169	6.199	6.163	13.100	-	13.100	13.150	13.303	13.459	13.618	Continuing	Continuing
RD: *Nuclear Technologies and Capabilities Development*	-	0.000	0.000	7.500	-	7.500	7.650	7.803	7.959	8.118	Continuing	Continuing
RF: *Forensics Technologies*	25.169	6.199	6.163	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	37.531
MA: *Mission Assurance Risk Management System*	-	0.000	0.000	5.600	-	5.600	5.500	5.500	5.500	5.500	Continuing	Continuing

Note

In program element 0605000BR, DTRA consolidated project RF-Forensics Technologies into the renamed project RD-Nuclear Technologies and Capabilities Development beginning in FY 2020.

A. Mission Description and Budget Item Justification

The Counter Weapons of Mass Destruction (WMD) Systems Development program element supports the development and demonstration of verification and monitoring technologies and systems for the Countering Weapons of Mass Destruction (CWMD) mission. This funding specifically supports International Monitoring System technology requirements under the Nuclear Arms Control Technology (NACT) program.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	6.241	6.163	4.821	-	4.821
Current President's Budget	6.199	6.163	13.100	-	13.100
Total Adjustments	-0.042	0.000	8.279	-	8.279
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Realignments	-0.042	-	2.679	-	2.679
• Functional Transfer	-	-	5.600	-	5.600

Change Summary Explanation

The increase from FY 2019 to FY 2020 is due to increased further investment in Nuclear Arms Control Technology (NACT) to begin the investigating the use of International Monitoring System (IMS) resources for DoD nuclear event response missions.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) RD / Nuclear Technologies and Capabilities Development	

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
RD: *Nuclear Technologies and Capabilities Development*	-	0.000	0.000	7.500	-	7.500	7.650	7.803	7.959	8.118	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

DTRA consolidated project RF-Forensics Technologies into the renamed project RD-Nuclear Technologies and Capabilities Development beginning in FY 2020. There is 53.6% real growth in this project.

A. Mission Description and Budget Item Justification

This project supports the development of verification and monitoring capabilities for the Defense Threat Reduction Agency (DTRA) to counter proliferation and weapons of mass destruction (WMD). DTRA's Nuclear Arms Control Technologies (NACT) program performs Research, Development, Test, and Evaluation (RDT&E) to improve the sustainability, reliability, and effectiveness of capabilities related to its operational mission to install, operate, maintain, and sustain the waveform and radionuclide nuclear detonation detection stations and a radionuclide analysis laboratory comprising the majority of the U.S. portion of the International Monitoring System (IMS). This system delivers data continuously to the U.S. monitoring and verification community supports warfighter and interagency nuclear-event response in support of U.S. and Department of Defense (DoD) objectives and the Comprehensive Nuclear-Test-Ban Treaty (CTBT).

The project addresses WMD monitoring, implementation of, and compliance with arms control agreement requirements validated by the Office of the Under Secretary of Defense, Acquisition and Sustainment. This project conforms to the administration's research and development priorities related to countering WMD. Technical assessments are made against nuclear treaty implementation and nuclear event response requirements to provide the basis for sound project development, evaluate existing programs, provide U.S. International Monitoring System (IMS) data, and to access international IMS data required to support U.S. monitoring policy, decision-makers, and negotiation teams.

The primary RDT&E program emphasis is to improve the efficiency, performance, reliability, and sustainability of U.S. IMS stations; optimize IMS capabilities to support both nuclear treaty monitoring and nuclear-event response; and improve capabilities to detect, characterize, and enable discrimination of nuclear events. The NACT program directly supports U.S. and allied warfighter and national technical monitoring requirements and provides vital data used by the treaty monitoring community, warfighter planners, DoD, other U.S. Government agencies, and international agencies.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: RD - Nuclear Technologies and Capabilities Development	0.000	-	7.500	-	7.500

Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / **Counter Weapons of Mass Destruction Systems Development*	**Project (Number/Name)** RD / *Nuclear Technologies and Capabilities Development*

B. Accomplishments/Planned Programs ($ in Millions)

	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Description: Project RD supports the NACT Program, conducting RDT&E to meet IMS technology requirements in support of CTBT implementation, compliance, monitoring, inspection, and other emerging nuclear arms control activities. ***FY 2020 Base Plans:*** - Continue to provide data from IMS infrastructure in support of DoD and Interagency nuclear-event response missions to enhance nuclear event response and consequence management mission capabilities. - Integrate IMS into appropriate DoD and interagency exercises to ensure stakeholder involvement in system optimization and to leverage, to the fullest extent possible, all IMS data streams in informing partner exercise activities. - Analyze technical requirements for new and upgraded capabilities within the IMS infrastructure that will support nuclear event response. - Leverage conventional high explosive test events to evaluate U.S. IMS performance. - Participate in CTBT Organization international- and interagency-sponsored technology development exchanges to ensure IMS research and engineering activities remain current and relevant. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** The increase from FY 2019 to FY 2020 is due to the realignment of Project RF-Forensics Technologies into Project RD-Nuclear Technologies and Capabilities Development as part of the Agency's RDT&E portfolio restructuring to bring greater agility and efficiency to programmatic and financial operations and better integrate refreshed organizational roles. Additionally, there was increased investment for NACT to apply IMS capabilities to support DoD and Interagency nuclear-event response missions. Real growth in this project is 19.7%.					
Accomplishments/Planned Programs Subtotals	0.000	-	7.500	-	7.500

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
• 20/0602718BR/RD: *Counter Weapons of Mass Destruction Applied Research*	13.745	16.860	92.710	-	92.710	93.612	95.541	97.485	99.433	Continuing	Continuing
• 28/0603160BR/RD: *Counter Weapons of Mass Destruction Advanced Technology Development*	21.293	26.021	70.153	-	70.153	64.234	60.840	62.070	61.168	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / **Counter Weapons of Mass Destruction Systems Development*	**Project (Number/Name)** RD / *Nuclear Technologies and Capabilities Development*

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

Remarks

D. Acquisition Strategy

Assess government, academic, and industrial performers and make selections based upon a "best fit for task" criteria. Common government awardees include DoD Service Laboratories and the Department of Energy National Laboratories.

E. Performance Metrics

The goal of the NACT RDT&E program is to enable full compliance of all emerging data availability/data quality requirements and other operational requirements as documented in nuclear CTBT treaty requirements, nuclear event response requirements, language, CTBT-issued Radionuclide and Waveform Operations Manuals, other CTBT Organization communications, and DoD Treaty Implementation Manager directives. The IMS data availability/timeliness performance specifications are currently 98% data availability for IMS waveform and 95% for IMS radionuclide systems. The data quality specifications are various data metrics that allow accurate time, location, and yield estimation of a nuclear event. RDT&E is conducted in support of the NACT's operational mission to operate, maintain, and sustain the Provisional Technical Secretariat certified waveform and radionuclide CTBT IMS monitoring stations and radionuclide laboratory in accordance with CTBT requirements at the lowest cost. Data quality metrics continue to evolve as the entire CTBT IMS capability is exercised and tested.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Threat Reduction Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development*	**Project (Number/Name)** RD / *Nuclear Technologies and Capabilities Development*	

Support ($ in Millions)

				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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**
Radionuclide sensor, station, laboratory and network improvements	FFRDC	Pacific Northwest National Laboratory : Richland, WA	-	-		-		1.550	Jan 2020	-		1.550	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements; validation and verification testing	FFRDC	Sandia National Laboratory : Albuquerque, NM	-	-		-		1.850	Jan 2020	-		1.850	Continuing	Continuing	-
Radionuclide sensor, station, and network Improvements	MIPR	Air Force Technical Application Center : Patrick AFB, FL	-	-		-		0.500	Dec 2019	-		0.500	Continuing	Continuing	-
Radionuclide sensor, station, laboratory and network improvements	C/CPFF	General Dynamics Mission Systems, Inc : Fairfax, VA	-	-		-		0.435	Nov 2019	-		0.435	Continuing	Continuing	-
Station, and network Improvements	C/CPFF	Leidos Innovations Corp : Alexandria, VA	-	-		-		0.200	Apr 2020	-		0.200	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	C/CPFF	Pennsylvania State University : State College, PA	-	-		-		0.400	Feb 2020	-		0.400	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	C/CPFF	University of Alaska Fairbanks : Fairbanks, AK	-	-		-		0.143	Mar 2020	-		0.143	Continuing	Continuing	-
IMEA Software Development	C/CPFF	Applied Research Associates, Inc : Alexandria, VA	-	-		-		0.200	Jan 2020	-		0.200	Continuing	Continuing	-
IMS Gas Background Analysis	FFRDC	Argonne National Laboratory : Argonne, IL	-	-		-		0.200	Dec 2019	-		0.200	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements; validation and verification testing	C/TBD	TBD : TBD	-	-		-		0.160	Mar 2020	-		0.160	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development*	**Project (Number/Name)** RD / *Nuclear Technologies and Capabilities Development*

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
Seismic and Infrasound sensor, station, and network Improvements	MIPR	US Army Corps of Engr : Vicksburg, MS	-	-		-		0.100	Dec 2019	-		0.100	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	MIPR	Missile Defense Agency : Fort Belvoir, VA	-	-		-		0.650	Mar 2020	-		0.650	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	C/TBD	University of Alaska : Fairbanks, AK	-	-		-		0.500	Feb 2020	-		0.500	Continuing	Continuing	-
Radionuclide sensor, station, and network Improvements	FFRDC	Savanah River National Laboratory : Savannah River Site Aiken, SC	-	-		-		0.500	Apr 2020	-		0.500	Continuing	Continuing	-
		Subtotal	-	-		-		7.388		-		7.388	Continuing	Continuing	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
Travel	Reqn	Various : Ft. Belvoir, VA	-	-		-		0.112	Nov 2019	-		0.112	Continuing	Continuing	-
		Subtotal	-	-		-		0.112		-		0.112	Continuing	Continuing	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	-	-		0.000		7.500		-		7.500	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / **Counter Weapons of Mass Destruction Systems Development*	**Project (Number/Name)** RD / *Nuclear Technologies and Capabilities Development*

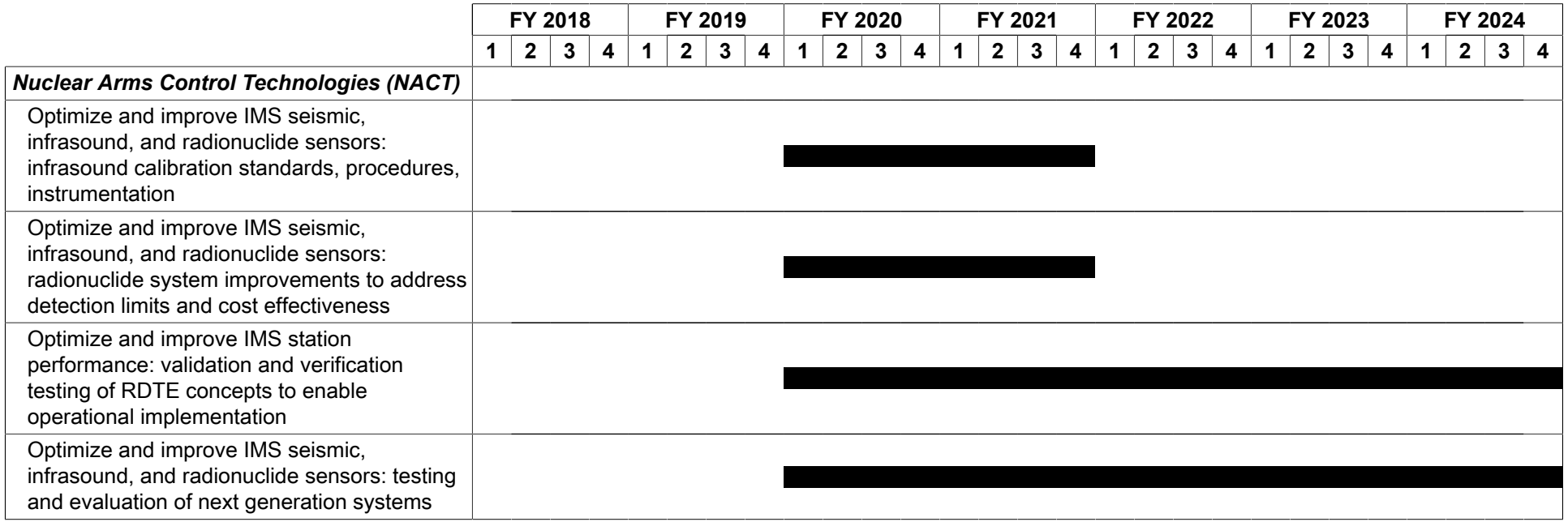


Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / **Counter Weapons of Mass Destruction Systems Development*	**Project (Number/Name)** RD / *Nuclear Technologies and Capabilities Development*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Nuclear Arms Control Technologies (NACT)				
Optimize and improve IMS seismic, infrasound, and radionuclide sensors: infrasound calibration standards, procedures, instrumentation	1	2020	4	2021
Optimize and improve IMS seismic, infrasound, and radionuclide sensors: radionuclide system improvements to address detection limits and cost effectiveness	1	2020	4	2021
Optimize and improve IMS station performance: validation and verification testing of RDTE concepts to enable operational implementation	1	2020	4	2024
Optimize and improve IMS seismic, infrasound, and radionuclide sensors: testing and evaluation of next generation systems	1	2020	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) RF / Forensics Technologies	

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
RF: *Forensics Technologies*	25.169	6.199	6.163	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	37.531
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2020, efforts in this project are captured under project RD-Nuclear Technologies and Capabilities Development.

A. Mission Description and Budget Item Justification

This project supports the development of verification and monitoring capabilities for the Defense Threat Reduction Agency (DTRA) to counter proliferation and weapons of mass destruction (WMD). DTRA's Nuclear Arms Control Technologies (NACT) program performs Research, Development, Test, and Evaluation (RDT&E) to improve the sustainability, reliability, and effectiveness of capabilities related to its operational mission to install, operate, maintain, and sustain the waveform and radionuclide nuclear detonation detection stations comprising the U.S. portion of the International Monitoring System (IMS). This delivers data to the U.S. monitoring and verification community and enables U.S. compliance with the Comprehensive Nuclear Test Ban Treaty (CTBT) in support of U.S. and Department of Defense (DoD) nonproliferation objectives.

The project addresses WMD monitoring, implementation of, and compliance with arms control agreement requirements validated by the Office of the Under Secretary of Defense, Acquisition, Technology, and Logistics. This project conforms to the administration's research and development priorities related to WMD arms control and disablement. Technical assessments are made against CTBT implementation requirements and U.S. objectives to provide the basis for sound project development, evaluate existing programs, provide data required to inform compliance assessments, and support U.S. monitoring policy, decision-makers, and negotiation teams.

The primary RDT&E program emphasis is on improvements that enable the installation of treaty-specific stations, which reduce costs and increase the reliability in diverse and often harsh environments; improve efficiency, performance, reliability, and sustainability of existing stations and treaty-specified verification capabilities; and improve capabilities to detect, characterize, and enable discrimination of, nuclear weapons tests. The NACT program directly supports U.S. and allied warfighter and national technical monitoring requirements and provides vital data used by the treaty monitoring community, warfighter planners, DoD, other U.S. Government agencies, and international agencies.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: RF - Forensics Technologies	6.199	6.163	-	-	-
Description: Project RF supports the NACT Program, conducting RDT&E to meet IMS technology requirements in support of CTBT implementation, compliance, monitoring, inspection, and other emerging nuclear arms control activities.					
FY 2019 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / **Counter Weapons of Mass Destruction Systems Development*	**Project (Number/Name)** RF / *Forensics Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
- Implement use of IMS infrastructure to provide data in support DoD and interagency nuclear-event response missions in order to enhance National Technical Nuclear Forensics (NTNF) and consequence management mission capabilities. - Integrate IMS into appropriate DoD and interagency exercises to ensure stakeholder involvement in system optimization and to leverage, to the fullest extent possible, all IMS data streams in informing partner exercise activities. - Analyze technical requirements for the addition of capabilities within the IMS infrastructure that will support nuclear-event response. - Advance nuclear treaty monitoring capabilities to higher technology readiness levels to establish a resilient, multi-mission, and state-of-the-art IMS capability. - Leverage conventional high-explosive testing events in order to increase opportunities to evaluate U.S. IMS performance. - Participate in CTBT Organization Provisional Technical Secretariat international/interagency- sponsored technology development exchanges to leverage expertise and to provide synergy for R&D activities. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** The decrease from FY 2019 to FY 2020 is due to the realignment of Project RF-Forensics Technologies into Project RD-Nuclear Technologies and Capabilities Development as part of the Agency's RDT&E portfolio restructuring to bring greater agility and efficiency to programmatic and financial operations and better integrate refreshed organizational roles.					
Accomplishments/Planned Programs Subtotals	6.199	6.163	-	-	-

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
• 20/0602718BR/RF: *Counter Weapons of Mass Destruction Applied Research*	6.803	10.257	-	-	-	-	-	-	-	Continuing	Continuing
• 28/0603160BR/RF: *Counter Weapons of Mass Destruction Advanced Technology Development*	25.535	33.578	-	-	-	-	-	-	-	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / **Counter Weapons of Mass Destruction Systems Development*	**Project (Number/Name)** RF / *Forensics Technologies*

D. Acquisition Strategy

Assess government, academic, and industrial performers and make selections based upon a "best fit for task" criteria. Common government awardees include DoD Service Laboratories and the Department of Energy National Laboratories.

E. Performance Metrics

The goal of the NACT RDT&E program is to enable full compliance of all emerging data availability/data quality requirements and other operational requirements as documented in nuclear CTBT treaty requirements, nuclear-event response requirements, language, CTBT-issued Radionuclide and Waveform Operations Manuals, other CTBT Organization communications, and DoD Treaty Implementation Manager directives. The IMS data availability/timeliness performance specifications are currently 98% data availability for IMS waveform and 95% for IMS radionuclide systems. The data quality specifications are various data metrics that allow accurate time, location, and yield estimation of a nuclear event. RDT&E is conducted in support of the NACT's operational mission to operate, maintain, and sustain the Provisional Technical Secretariat certified waveform and radionuclide CTBT IMS monitoring stations and radionuclide laboratory in accordance with CTBT requirements at the lowest cost. CTBT IMS data availability/timeliness performance specifications are currently 98% data availability for IMS waveform and 95% for IMS radionuclide systems. Data quality metrics continue to evolve as the entire CTBT IMS capability is exercised and tested.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Threat Reduction Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development*	Project (Number/Name) RF / *Forensics Technologies*	

Support ($ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 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
Radionuclide sensor, station, laboratory and network improvements	FFRDC	Pacific Northwest National Laboratory : Richland, WA	5.951	1.582	Jan 2018	1.550	Jan 2019	-		-		-	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements; validation and verification testing	FFRDC	Sandia National Laboratory : Albuquerque, NM	5.594	1.827	Jan 2018	1.850	Jan 2019	-		-		-	Continuing	Continuing	-
Radionuclide sensor, station, and network improvements	MIPR	Air Force Technical Application Center : Patrick AFB, FL	2.630	0.724	Nov 2017	0.250	Nov 2018	-		-		-	Continuing	Continuing	-
Engineering & Technical Services	C/CPFF	Engility Corp : Chantilly, VA	1.986	-		-		-		-		-	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	C/CPFF	Dynetics, Inc : Arlington, VA	1.828	-		-		-		-		-	Continuing	Continuing	-
Radionuclide sensor, station, laboratory and network improvements	C/CPFF	General Dynamics Misson Systems, Inc. : Fairfax, VA	2.048	0.441	Dec 2017	0.431	Nov 2018	-		-		-	Continuing	Continuing	-
Station, and network Improvements	C/CPFF	Leidos Innovations Corp. : Alexandria, VA	0.466	0.250	Apr 2018	0.200	Apr 2019	-		-		-	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	C/CPFF	Pennsylvania State University : State College, PA	0.802	0.180	Jan 2018	0.200	Jan 2019	-		-		-	Continuing	Continuing	-
Station failure and logistics modeling and simulation	C/CPFF	Systems Exchange, Inc. : Carmel, CA	0.274	0.039	Jul 2018	-		-		-		-	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	MIPR	Naval Research Laboratory : Washington DC	0.204	-		0.200	Jan 2019	-		-		-	Continuing	Continuing	-
EIF Readiness Planning	C/CPFF	Alion Science and Technology Corp. : McLean, VA	0.300	-		0.100	Jan 2019	-		-		-	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Threat Reduction Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / **Counter Weapons of Mass Destruction Systems Development*	**Project (Number/Name)** RF / *Forensics Technologies*	

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
Radionuclide sensor, station, laboratory and network improvements	C/CPFF	Raytheon Company : Dulles, VA	0.200	-		-		-		-		-	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	C/CPFF	University of Alaska Fairbanks : Fairbanks, AK	0.330	0.129	Mar 2018	0.129	Mar 2019	-		-		-	Continuing	Continuing	-
IMEA Software Development	C/CPFF	Applied Research Associates, Inc. : Alexandria, VA	-	0.200	Dec 2017	0.200	Dec 2018	-		-		-	Continuing	Continuing	-
IMS Gas Background Analysis	FFRDC	Argonne National Laboratory : Argonne, IL	-	0.130	Apr 2018	0.100	Apr 2019	-		-		-	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements; validation and verification testing	C/TBD	TBD : TBD	-	-		0.295	May 2019	-		-		-	Continuing	Continuing	-
Seismic and Infrasound sensor, station, and network Improvements	MIPR	US Army Corps of Engineers : Vicksburg, MS	0.032	0.139	Mar 2018	0.100	Dec 2018	-		-		-	Continuing	Continuing	-
		Subtotal	22.645	5.641		5.605		-		-		-	Continuing	Continuing	N/A

Management Services ($ in Millions)

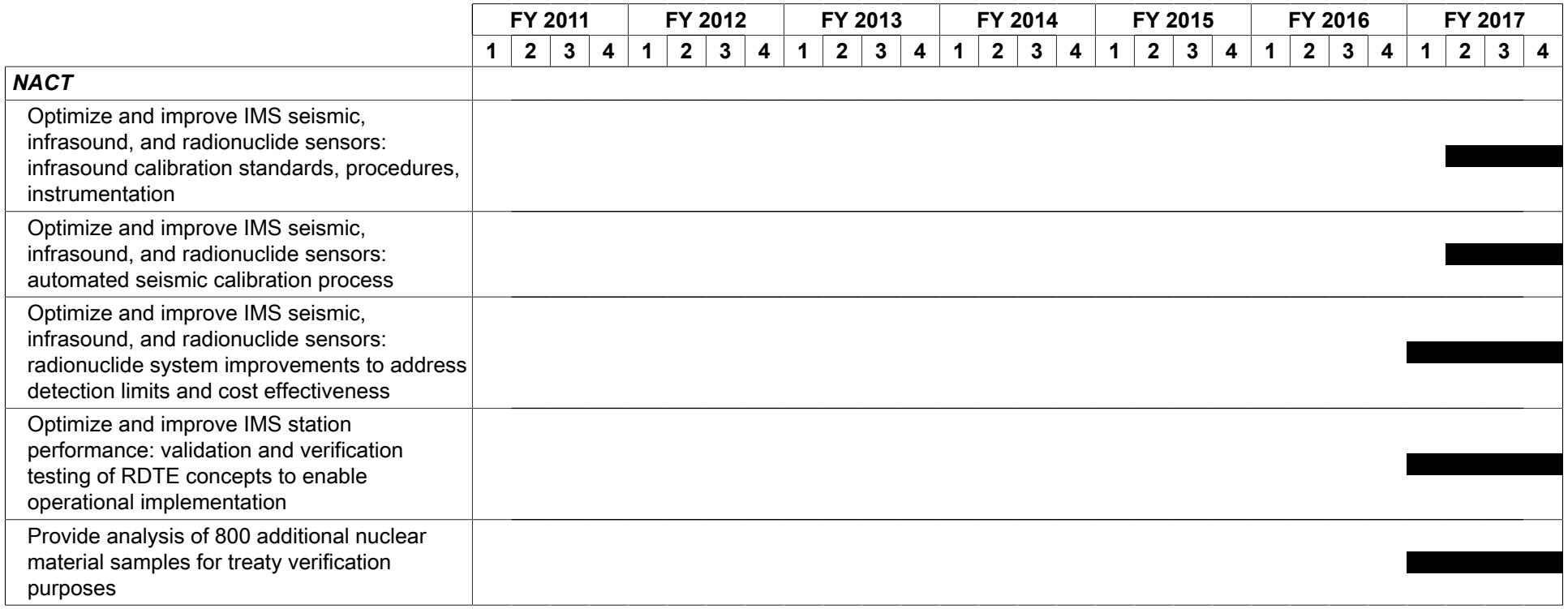
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
A&AS Support to Program Office	C/CPFF	Engility Corp. : Chantilly, VA	1.026	0.446	Dec 2017	0.446	Dec 2018	-		-		-	Continuing	Continuing	-
A&AS Support to Program Office	MIPR	OUSD AT&L : Arlington, VA	0.948	-		-		-		-		-	Continuing	Continuing	-
Travel	Reqn	Various : Ft. Belvoir, VA	0.550	0.112	Nov 2017	0.112	Nov 2018	-		-		-	Continuing	Continuing	-
		Subtotal	2.524	0.558		0.558		-		-		-	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Threat Reduction Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / **Counter Weapons of Mass Destruction Systems Development*	**Project (Number/Name)** RF / *Forensics Technologies*	

	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	25.169	6.199		6.163		-		-		-	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / **Counter Weapons of Mass Destruction Systems Development*	**Project (Number/Name)** RF / *Forensics Technologies*



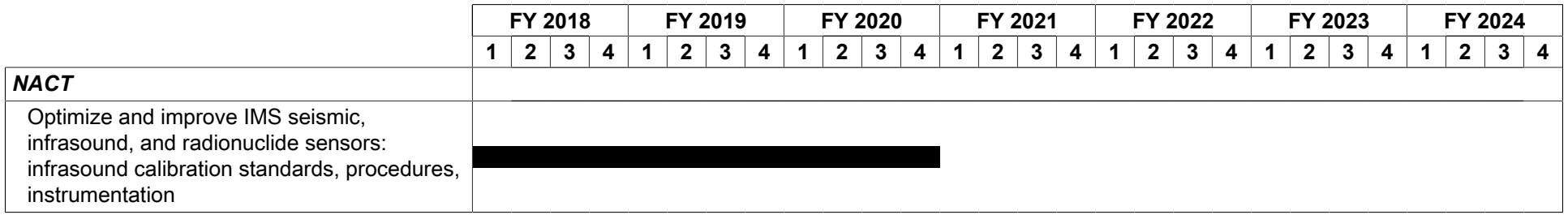


Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / **Counter Weapons of Mass Destruction Systems Development*	**Project (Number/Name)** RF / *Forensics Technologies*

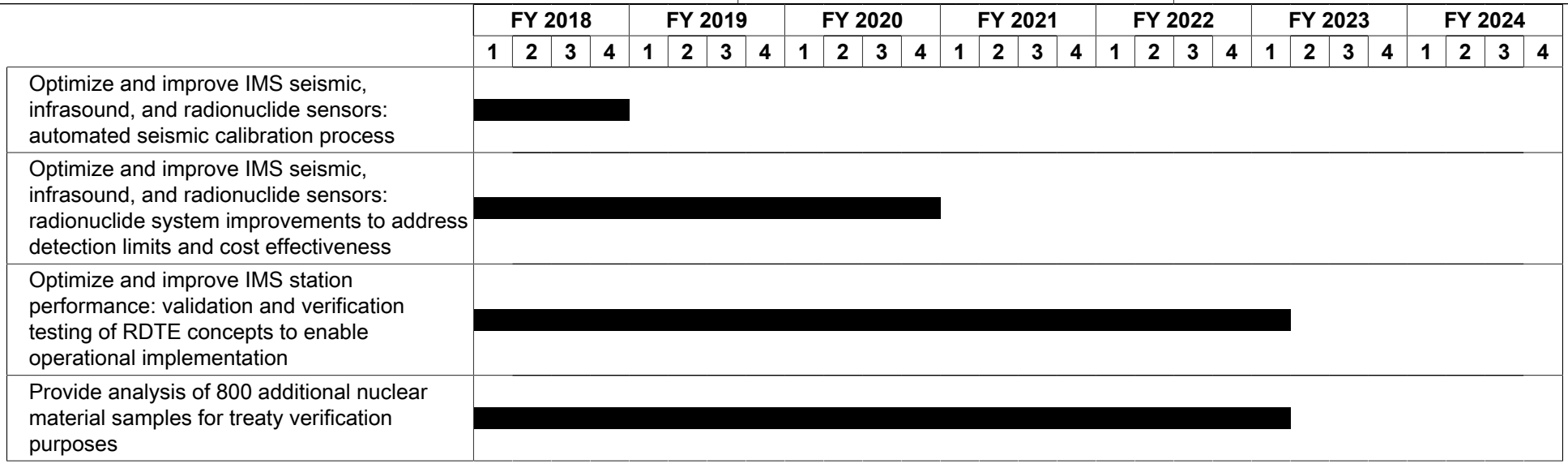


Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / **Counter Weapons of Mass Destruction Systems Development*	**Project (Number/Name)** RF / *Forensics Technologies*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
NACT				
Optimize and improve IMS seismic, infrasound, and radionuclide sensors: infrasound calibration standards, procedures, instrumentation	2	2017	4	2020
Optimize and improve IMS seismic, infrasound, and radionuclide sensors: automated seismic calibration process	2	2017	4	2018
Optimize and improve IMS seismic, infrasound, and radionuclide sensors: radionuclide system improvements to address detection limits and cost effectiveness	1	2017	4	2020
Optimize and improve IMS station performance: validation and verification testing of RDTE concepts to enable operational implementation	1	2017	1	2023
Provide analysis of 800 additional nuclear material samples for treaty verification purposes	1	2017	1	2023

Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development	Project (Number/Name) MA / *Mission Assurance Risk Management System*	

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
MA: *Mission Assurance Risk Management System*	-	0.000	0.000	5.600	-	5.600	5.500	5.500	5.500	5.500	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In an October 29, 2018 memorandum, the Deputy Secretary of Defense directed the transfer of Mission Assurance Risk Management System (MARMS) program management responsibilities from the Department of Defense Chief Management Officer (DoD CIO) to the Defense Threat Reduction Agency (DTRA), in light of DTRA's role in conducting Joint Mission Assurance Assessments. Funding for MARMS prior to FY 2020 is captured in Program Element 0605170D8Z.

A. Mission Description and Budget Item Justification

The Mission Assurance Risk Management System (MARMS) is a Department of Defense (DoD) risk management system that directly supports the Secretary of Defense's Mission Assurance (MA) responsibilities as defined in the DoD Directive (DoDD) 3020.40, Mission Assurance, with the objectives of creating resilience and supporting critical processes to enable the protection of assets and ensuring defense critical missions. MARMS will function as an integration framework spanning multiple security domains that will support risk-informed decision-making, resource investment, and improved synchronization at different levels within DoD. MARMS supports multiple Joint Capability Areas (JCA): Command and Control, Logistics, and Protection. MARMS is an acquisition category (ACAT) III software program and has a "high" impact value for each of the three security objectives (confidentiality, integrity, and availability) in accordance with DoD Instruction (DoDI) 8510.01 and the Committee on National Security Systems Instruction (CNSSI) 1253.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: MA - Mission Assurance Risk Management System	0.000	0.000	5.600	0.000	5.600
Description: MARMS is a Department of Defense (DoD) risk management system that directly supports the Secretary of Defense's Mission Assurance (MA) responsibilities as defined in the DoD Directive (DoDD) 3020.40, Mission Assurance, with the objectives of creating resilience and supporting critical processes to enable the protection of assets and ensuring defense critical missions. MARMS Requirements Definition Package (RDP)-1 defines multiple spirals of major technological improvements. Each spiral is comprised of multiple Capability Drops (CD) that defined specific capabilities. RDP-1 defined 7 capability drops focusing on the collection, analysis, warehousing, sharing, protection, and accessing of Defense Critical Infrastructure (DCI) and AntiTerrorism (AT) data supporting multiple types and levels of trusted users.					
FY 2019 Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / **Counter Weapons of Mass Destruction Systems Development*	**Project (Number/Name)** MA / *Mission Assurance Risk Management System*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Funding for MARMS prior to FY 2020 is captured in Program Element 0605170D8Z. ***FY 2020 Base Plans:*** - Continue System engineering and Agile Development per MARMS RDP-1. - Continue to improve capability of the Information Sharing Data Registry (CD1) and Mission Assurance Assessments (CD2) - Continue development of the Mission Assurance Viewer and Analysis Portal on SIPR (CD6) toward initial capability fielding in 4th Quarter FY22. - Continue the development effort of the Mission Assurance Workspace and Viewer on JWICS (CD5) toward initial capability fielding in 4th Quarter FY20. - Initiate the development effort of the Cross Domain Solutions (CDS) – Low to High (CD6) - Complete the MA Workspace and Viewer which will provide the department's leadership with a consolidated MA Dashboard and Analytical capabilities to perform planning and analysis of Mission Assurance activities per DODD 3020.40 and DODI 3020.45. ***FY 2020 OCO Plans:*** N/A ***FY 2019 to FY 2020 Increase/Decrease Statement:*** The increase from FY 2019 to FY 2020 is due to the functional transfer of MARMS from the Department of Defense Chief Information Officer (DoD CIO) to DTRA's core mission.					
Accomplishments/Planned Programs Subtotals	0.000	0.000	5.600	0.000	5.600

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Defense Threat Reduction Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development*	Project (Number/Name) MA / *Mission Assurance Risk Management System*	

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
MARMS	MIPR	U.S. Army Armament Research, Development and Engineering Center (ARDEC) : Picatinny, NJ	-	-		-		5.600		-		5.600	Continuing	Continuing	-
		Subtotal	-	-		-		5.600		-		5.600	Continuing	Continuing	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	-	-		0.000		5.600		-		5.600	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / **Counter Weapons of Mass Destruction Systems Development*	**Project (Number/Name)** MA / *Mission Assurance Risk Management System*

	FY 2011				FY 2012				FY 2013				FY 2014				FY 2015				FY 2016				FY 2017			
	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
Capability Drop 1: Information Sharing																												
Development																												
Modernization and Integration																												
Capability Drop 2: Assessment Capability																												
Development																												
Modernization and Integration																												
Capability Drop 3: System Upgrades																												
Development																												
Modernization and Integration																												
Capability Drop 4: Workspace/Viewer on SIPR																												
Development																												
Modernization and Integration																												
Capability Drop 5: Workspace/Viewer on JWICS																												
Development																												
Modernization and Integration																												
Capability Drop 6: Cross Domain Solution - Low to High																												
Development																												
Modernization and Integration																												
Capability Drop 7: Cross Domain Solution - High to Low																												
Development																												
Modernization and Integration																												

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / *Counter Weapons of Mass Destruction Systems Development*	**Project (Number/Name)** MA / *Mission Assurance Risk Management System*

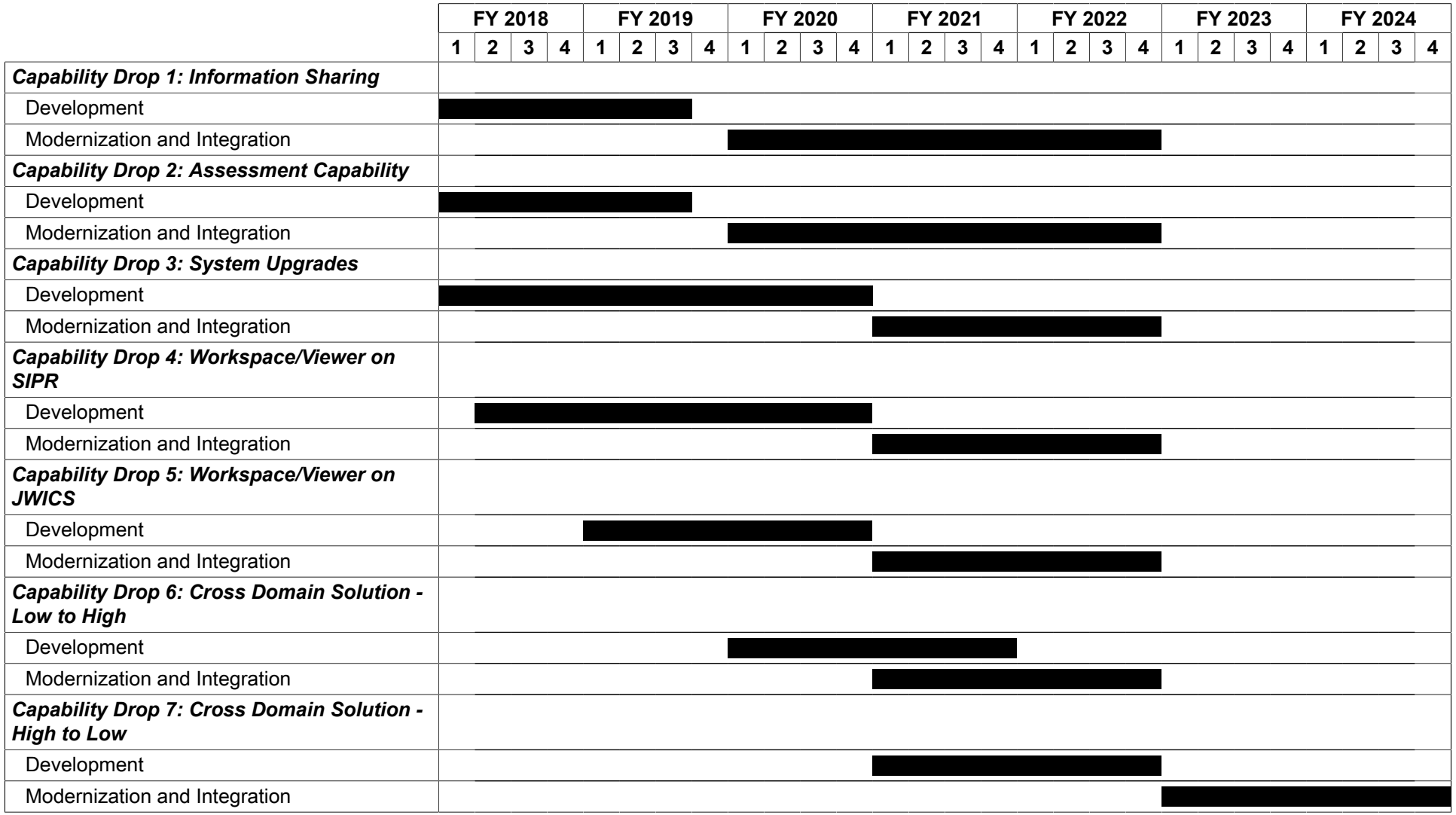


Exhibit R-4A, RDT&E Schedule Details: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0605000BR / **Counter Weapons of Mass Destruction Systems Development*	**Project (Number/Name)** MA / *Mission Assurance Risk Management System*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Capability Drop 1: Information Sharing				
Development	4	2017	3	2019
Modernization and Integration	1	2020	4	2022
Capability Drop 2: Assessment Capability				
Development	1	2018	3	2019
Modernization and Integration	1	2020	4	2022
Capability Drop 3: System Upgrades				
Development	1	2018	4	2020
Modernization and Integration	1	2021	4	2022
Capability Drop 4: Workspace/Viewer on SIPR				
Development	2	2018	4	2020
Modernization and Integration	1	2021	4	2022
Capability Drop 5: Workspace/Viewer on JWICS				
Development	1	2019	4	2020
Modernization and Integration	1	2021	4	2022
Capability Drop 6: Cross Domain Solution - Low to High				
Development	1	2020	4	2021
Modernization and Integration	1	2021	4	2022
Capability Drop 7: Cross Domain Solution - High to Low				
Development	1	2021	4	2022
Modernization and Integration	1	2023	4	2024