Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Defense Threat Reduction Agency	Date: May 2021
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604134BR / *Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing*

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	303.913	105.480	19.931	0.000	-	0.000	-	-	-	-	-	-
JC: *Enable Rapid Capability Delivery*	276.300	103.793	11.491	0.000	-	0.000	-	-	-	-	-	-
JS: *Assist Situational Understanding*	27.613	1.687	8.440	0.000	-	0.000	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This program element supports the development, demonstration, and testing of technologies to advance the analytical infrastructure, methods, and tools to enhance asymmetric countermeasure solutions. Advancements in analytics include the production of tools that leverage machine learning and artificial intelligence, increasing our ability to expedite the understanding of emerging threats and accompanying activities. This investment also enables development and delivery of capabilities to understand, anticipate, illuminate, isolate, and/or mitigate asymmetric threats and their effects.

DTRA expedites technology transition from the laboratory to operational use to reduce risk within the acquisition process. This is done by evaluating integrated technologies or prototype systems in a high quality and realistic operating environment.

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	113.590	19.931	39.432	-	39.432
Current President's Budget	105.480	19.931	0.000	-	0.000
Total Adjustments	-8.110	0.000	-39.432	-	-39.432
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Realignments	-8.110	0.000	-39.432	-	-39.432

Change Summary Explanation

The decrease in FY 2022 from the previous President's Budget is due to 1) the realignment of resources from Project JC - Enable Rapid Capability Delivery to Project RA - CWMD Cross-Cutting Technical and Information Sciences in PE 0602718BR and PE 0603160BR for technology-driven CWMD capability development and evaluation activities to develop organizationally cross-cutting innovative and agile new technologies that more effectively counter the full spectrum of weapons of mass destruction, by anticipating new threats while responding to current and constantly evolving threats, 2) the realignment of resources

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Defense Threat Reduction Agency	Date: May 2021
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0604134BR *I Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing*

from Project JS – Assist Situational Understanding to O&M funding for technology transformation sustainment and combatant command embedded analytical support and 3) the realignment of resources from Project JS – Assist Situational Understanding to the new PE 0604551BR to better reflect the nature of enduring activities in support of Catapult. Although not reflected in this PE, in FY 2020, $8.110 million was appropriately executed in PE 0604134BR for the Catapult Program of Record. Within the exhibit, execution is reflected in PE 0604551BR which was newly established for Catapult beginning in FY 2022.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Threat Reduction Agency			Date: May 2021
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / *Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing*	Project (Number/Name) JC / *Enable Rapid Capability Delivery*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
JC: *Enable Rapid Capability Delivery*	276.300	103.793	11.491	0.000	-	0.000	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

DTRA delivers counter asymmetric threats materiel solutions in support of joint and combined forces, effectively addressing changes to threat tactics, techniques, and procedures (TTPs). DTRA responds to asymmetric threats identified by the forward deployed warfighter as well as academia and industry.

This project builds prototypes and tests and evaluates existing industry systems to meet Combatant Command capability gaps and emerging asymmetric threats. DTRA also provides solutions to prevent or mitigate battlefield operational surprise.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: JC: Enable Rapid Capability Delivery	103.793	11.491	0.000

Description: This project delivers materiel solutions to counter asymmetric threats in support of joint and combined forces supporting contingency operations, effectively addressing changes to threat tactics, techniques, and procedures (TTPs).

FY 2021 Plans:
- Develop two user-friendly technologies to inform and evaluate the autonomous systems and energetics focus areas.
- Develop an aviation sensor fabrication prototype to address detection and identification capability gaps (Split Aces and Hyper Spectral Imaging).
- Provide two to three models and simulations in support of Counter Asymmetric Systems activities.
- Conduct one theater support/ capabilities test in support of asymmetric threats.
- Conduct one vendor demonstration and validate system performance capabilities for asymmetric threats.

FY 2022 Plans:
N/A

FY 2021 to FY 2022 Increase/Decrease Statement:
The decrease from FY 2021 to FY 2022 is due to the realignment of resources from Projects JC - Enable Rapid Capability Delivery to Project RA - CWMD Cross-Cutting Technical and Information Sciences in PE 0602718BR and PE 0603160BR for technology-driven CWMD capability development and evaluation activities to develop organizationally cross cutting innovative and

Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Threat Reduction Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604134BR / *Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing*	**Project (Number/Name)** JC / *Enable Rapid Capability Delivery*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
agile new technologies that more effectively counter the full spectrum of weapons of mass destruction, by anticipating new threats while responding to current and constantly evolving threats.			
Accomplishments/Planned Programs Subtotals	103.793	11.491	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• 11/0602134BR/JC: *Counter Improvised-Threat Advanced Studies*	0.502	2.500	0.000	-	0.000	-	-	-	-	-	-
• 30/0603134BR/JC: *Counter Improvised-Threat Simulation*	49.528	3.861	0.000	-	0.000	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

Assess and select best performer for developmental requirements to meet specific military capability needs. Performer base includes research developers across DoD and other Government agency laboratories, academia, and industry.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Defense Threat Reduction Agency			Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604134BR / *Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing*	**Project (Number/Name)** JC / *Enable Rapid Capability Delivery*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Anti-Armor IED (AAIED)	C/FFP	Battelle : Idaho Falls, ID	9.556	7.052	Nov 2019	-		-		-		-	0.000	16.608	16.608
Booby Trapped Structures (BTS)	C/FFP	Shield AI : San Diego, CA	10.486	4.251	May 2020	-		-		-		-	0.000	14.737	14.737
Buried IED	C/CPFF	Naval Research Lab : Washington, DC	7.553	2.299	Nov 2019	-		-		-		-	0.000	9.852	9.852
Home-Made Explosives (HME)	C/CPFF	Manufacturing Techniques, Inc. (MTEQ) HQ : Lorton, VA	26.781	5.002	Mar 2020	-		-		-		-	0.000	31.783	31.783
Network	C/FFP	John Hopkins : Baltimore, MD	32.084	12.875	Apr 2020	-		-		-		-	0.000	44.959	44.959
Person-Born IED (PBIED)	C/FFP	MIT Lincoln Laboratory (MIT-LL) : Lexington, MA	13.704	5.752	May 2020	-		-		-		-	0.000	19.456	19.456
Radio Controlled IED (RCIED)	C/CPFF	Rampart Technologies, Colorado Springs, CO : Sericore, Hanover, MD	3.015	0.500	Nov 2019	-		-		-		-	0.000	3.515	3.515
RDT&E Technology Enablers	C/CPFF	Various : Various	42.114	12.662	Jan 2020	-		-		-		-	0.000	54.776	54.776
Sensitive Integration Office (SIO) Programs	C/CPFF	Various : Various	33.771	10.000	Nov 2019	-		-		-		-	0.000	43.771	43.771
Tunnel	C/FFP	ERDC: Vicksburg, MS : MIT Lincoln Labs: Boston, MA	10.208	0.000		-		-		-		-	0.000	10.208	10.208
Unmanned Aerial Systems (UAS)	C/FFP	Technology Service Corporation (TSC) Fairfax, VA : BAE Systems, Fridley, MN	16.642	17.005	May 2020	-		-		-		-	0.000	33.647	33.647

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Defense Threat Reduction Agency			Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604134BR / *Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing*	**Project (Number/Name)** JC / *Enable Rapid Capability Delivery*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Vehicle-Attached IED (VAIED)	C/CPFF	Various : TBD	2.770	0.000		-		-		-		-	0.000	2.770	2.770
Vehicle-Borne IED (VBIED)	C/CPFF	Naval Surface Warfare Center (NSWC) Dahlgren : King George County, VA	19.315	5.249	May 2020	-		-		-		-	0.000	24.564	24.564
Water-Borne IED (WBIED)	C/FFP	Various : Various	5.027	0.000		-		-		-		-	0.000	5.027	5.027
Integrated Signatures Program (ISP)	MIPR	Indian Head Explosive Ordnance Technology Division : Indian Head, MD	-	-		4.000	Jul 2021	-		-		-	0.000	4.000	4.000
Split Aces 4.0	MIPR	Naval Air Systems Command PM263 : Patuxent River, MD	-	-		2.841	Jul 2021	-		-		-	0.000	2.841	2.841
Data Science for Emerging Threats	C/CPAF	Massachusetts Institute of Technology : Boston, MA	-	-		1.081	Jul 2021	-		-		-	0.000	1.081	1.081
Image Recognition Proof-of-Concept	SS/T&M	Carnegie Mellon University : Pittsburgh, PA	-	-		0.202	May 2021	-		-		-	0.000	0.202	0.202
		Subtotal	233.026	82.647		8.124		-		-		-	0.000	323.797	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Advisory for Strategic and Emergent Technologies	C/CPAF	Mission Technology Reston : Reston, VA	-	-		0.367	Mar 2021	-		-		-	0.000	0.367	0.367
		Subtotal	-	-		0.367		-		-		-	0.000	0.367	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Defense Threat Reduction Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604134BR / *Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing*	**Project (Number/Name)** JC / *Enable Rapid Capability Delivery*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Test and Evaluation (T&E) 6.4	MIPR	Naval Air Weapons Station : China Lake, CA	22.882	13.637	Nov 2019	-		-		-		-	0.000	36.519	36.519
T&E Threat Support 6.4	MIPR	Intelligence and Information Warfare Directorate (I2WD), Communications-Electronics Research, Development and Engineering Center (CERDEC) : Aberdeen Proving Ground, MD	14.430	7.509	Nov 2019	-		-		-		-	0.000	21.939	21.939
C-sUAS Test & Evaluation	MIPR	Naval Air Warfare Center Weapons Division : China Lake, CA	4.720	-		3.000	Jul 2021	-		-		-	0.000	7.720	7.720
SETA Capability Research Architecture Cell (CRAC)	C/CPAF	Zel Technologies : Reston, VA	1.242	-		-		-		-		-	0.000	1.242	1.242
		Subtotal	43.274	21.146		3.000		-		-		-	0.000	67.420	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	276.300	103.793		11.491		-		-		-	0.000	391.584	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Defense Threat Reduction Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604134BR / *Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing*	**Project (Number/Name)** JC / *Enable Rapid Capability Delivery*

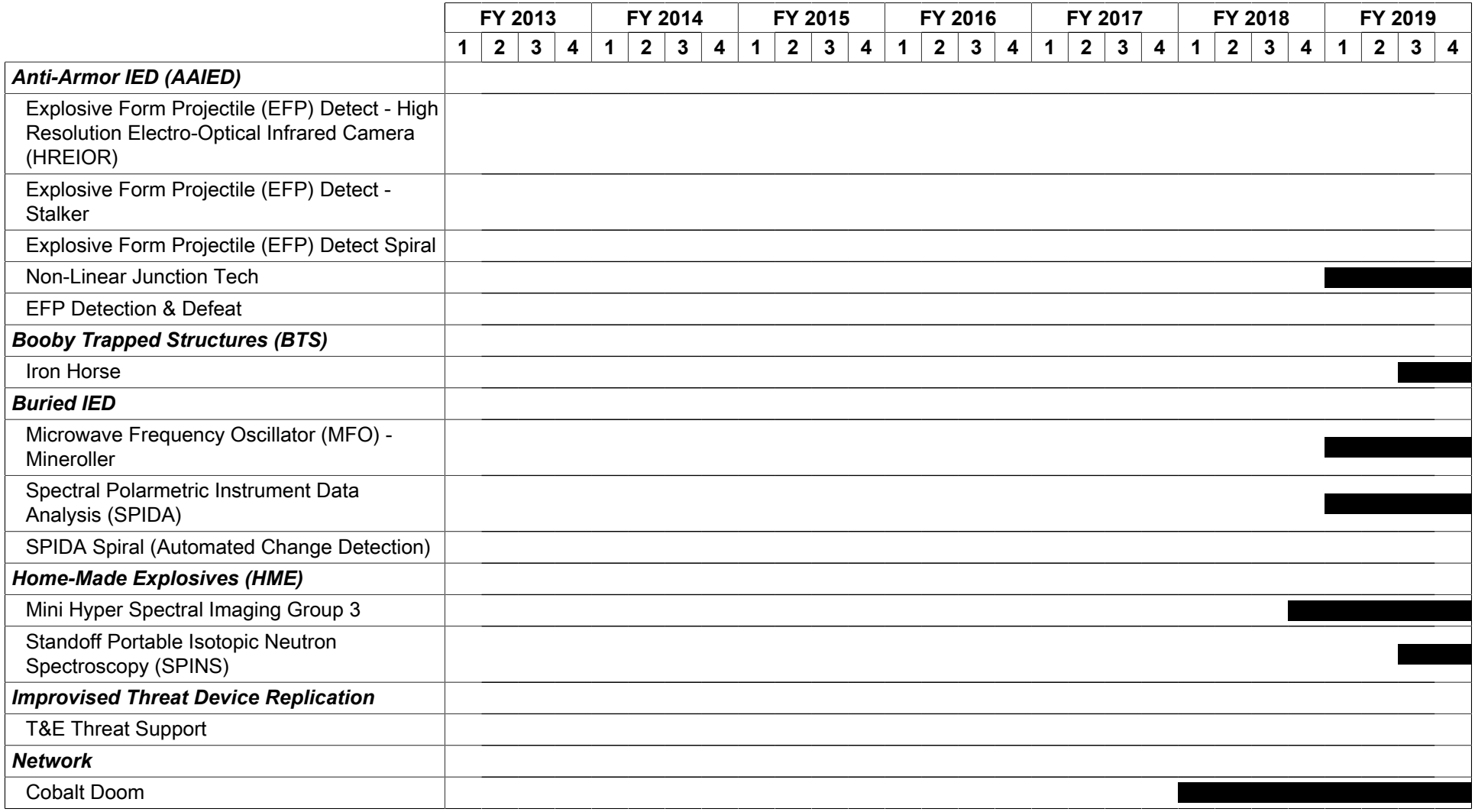


Exhibit R-4, RDT&E Schedule Profile: PB 2022 Defense Threat Reduction Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604134BR / *Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing*	**Project (Number/Name)** JC / *Enable Rapid Capability Delivery*

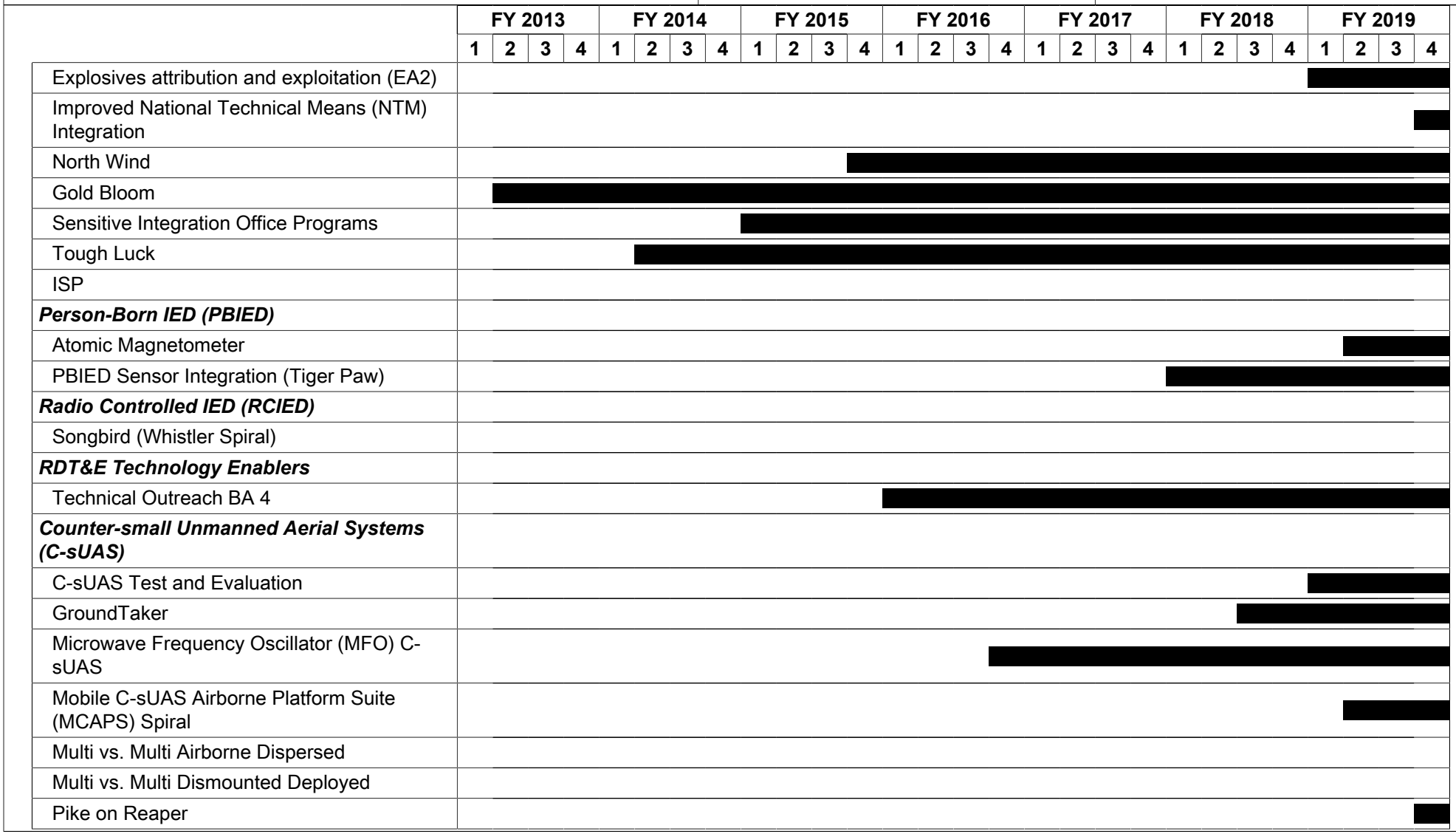
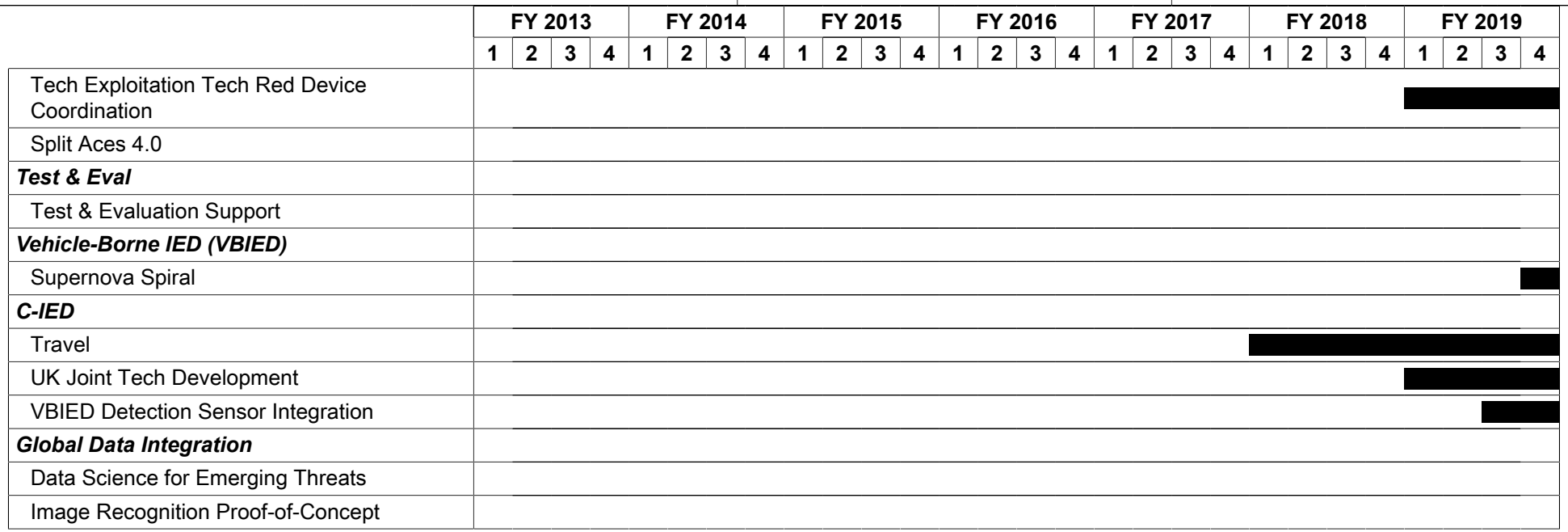


Exhibit R-4, RDT&E Schedule Profile: PB 2022 Defense Threat Reduction Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604134BR / *Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing*	**Project (Number/Name)** JC / *Enable Rapid Capability Delivery*



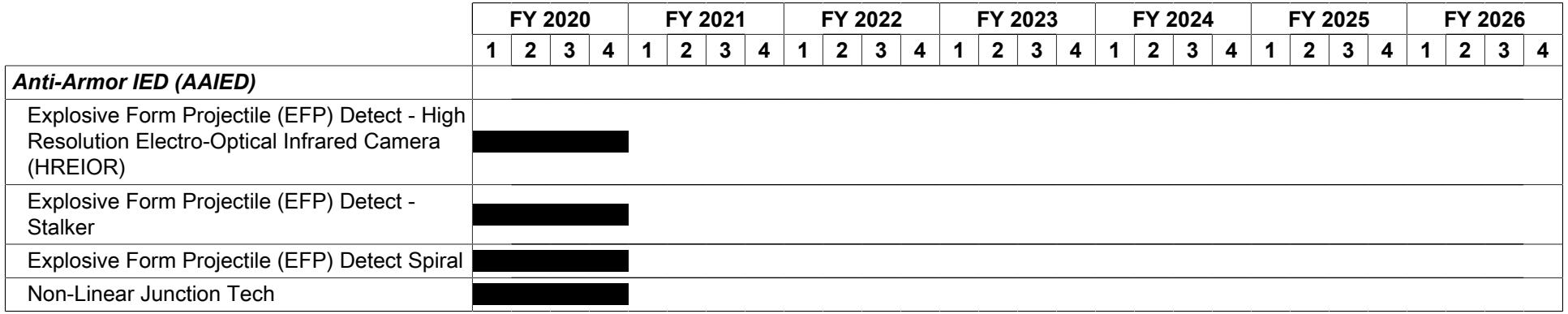


Exhibit R-4, RDT&E Schedule Profile: PB 2022 Defense Threat Reduction Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604134BR / *Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing*	**Project (Number/Name)** JC / *Enable Rapid Capability Delivery*

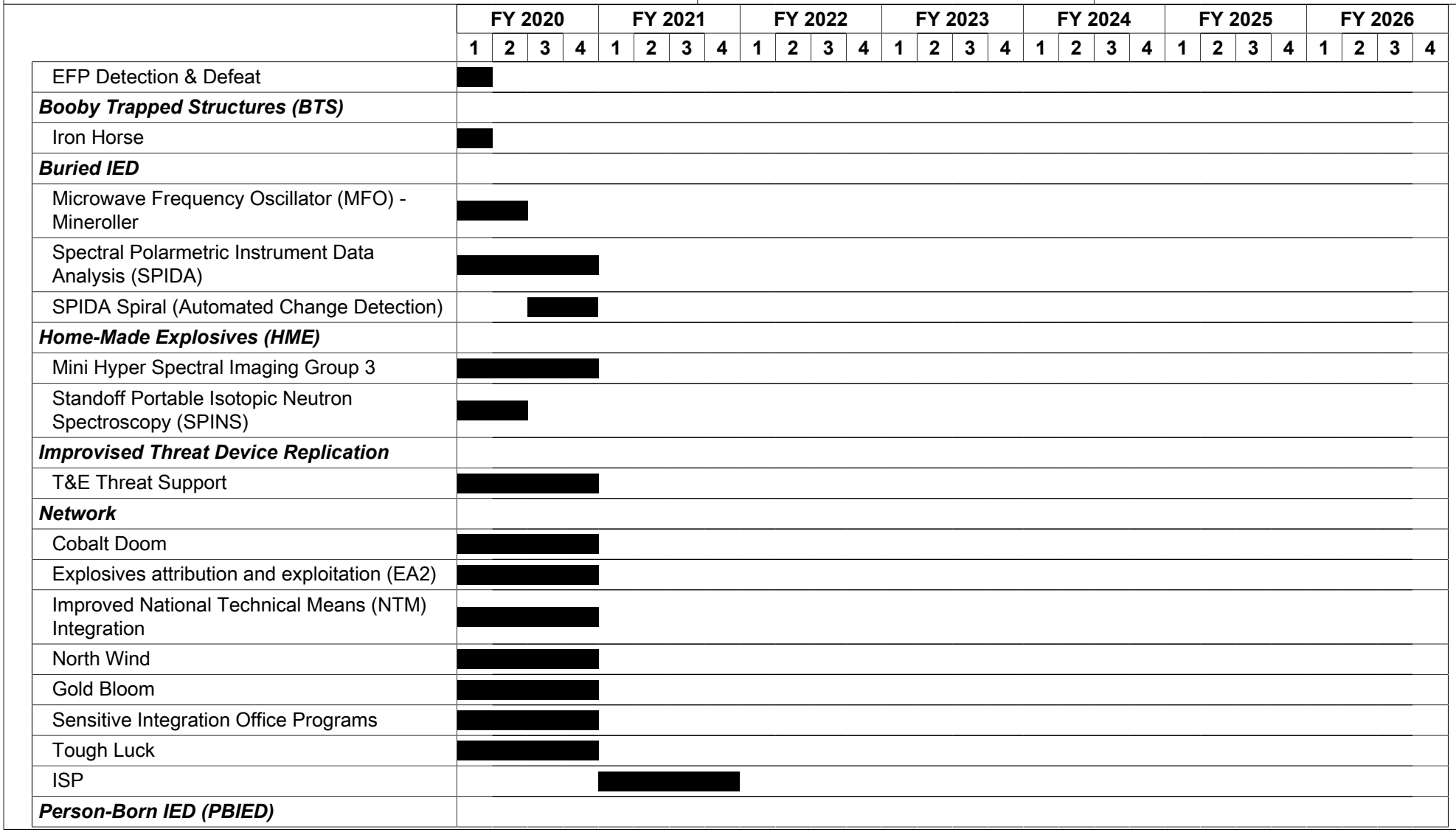


Exhibit R-4, RDT&E Schedule Profile: PB 2022 Defense Threat Reduction Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604134BR / *Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing*	**Project (Number/Name)** JC / *Enable Rapid Capability Delivery*

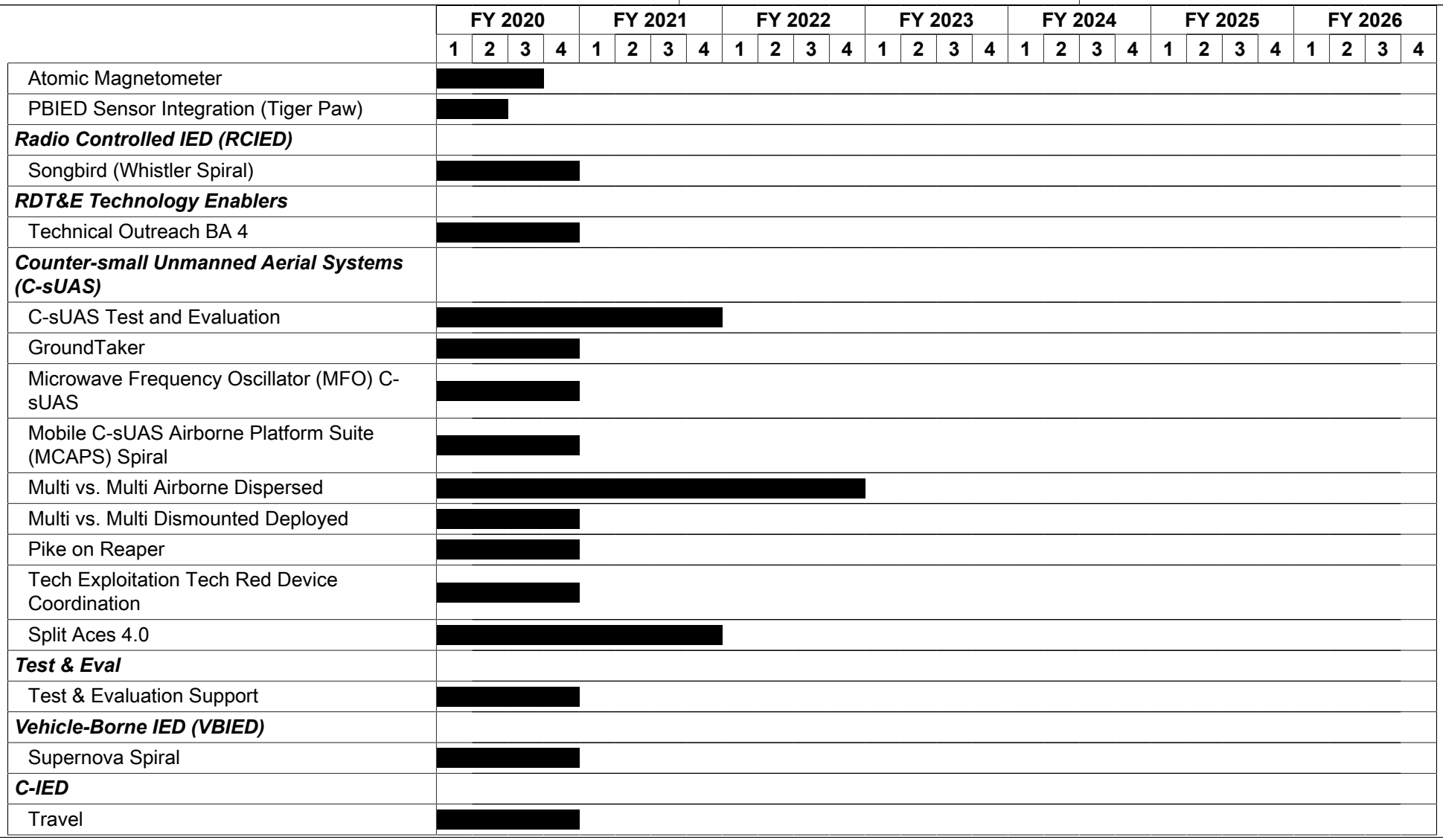


Exhibit R-4, RDT&E Schedule Profile: PB 2022 Defense Threat Reduction Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604134BR / *Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing*	**Project (Number/Name)** JC / *Enable Rapid Capability Delivery*

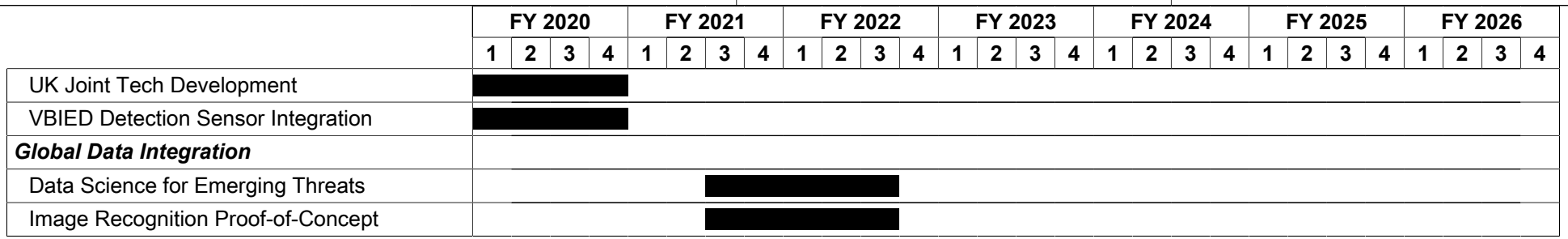


Exhibit R-4A, RDT&E Schedule Details: PB 2022 Defense Threat Reduction Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604134BR / *Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing*	**Project (Number/Name)** JC / *Enable Rapid Capability Delivery*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Anti-Armor IED (AAIED)				
Explosive Form Projectile (EFP) Detect - High Resolution Electro-Optical Infrared Camera (HREIOR)	1	2020	4	2020
Explosive Form Projectile (EFP) Detect - Stalker	1	2020	4	2020
Explosive Form Projectile (EFP) Detect Spiral	1	2020	4	2020
Non-Linear Junction Tech	1	2019	4	2020
EFP Detection & Defeat	1	2020	1	2020
Booby Trapped Structures (BTS)				
Iron Horse	3	2019	1	2020
Buried IED				
Microwave Frequency Oscillator (MFO) - Mineroller	1	2019	2	2020
Spectral Polarmetric Instrument Data Analysis (SPIDA)	1	2019	4	2020
SPIDA Spiral (Automated Change Detection)	3	2020	4	2020
Home-Made Explosives (HME)				
Mini Hyper Spectral Imaging Group 3	4	2018	4	2020
Standoff Portable Isotopic Neutron Spectroscopy (SPINS)	3	2019	2	2020
Improvised Threat Device Replication				
T&E Threat Support	1	2020	4	2020
Network				
Cobalt Doom	1	2018	4	2020
Explosives attribution and exploitation (EA2)	1	2019	4	2020
Improved National Technical Means (NTM) Integration	4	2019	4	2020

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Defense Threat Reduction Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604134BR / *Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing*	**Project (Number/Name)** JC / *Enable Rapid Capability Delivery*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
North Wind	4	2015	4	2020
Gold Bloom	2	2013	4	2020
Sensitive Integration Office Programs	1	2015	4	2020
Tough Luck	2	2014	4	2020
ISP	1	2021	4	2021
Person-Born IED (PBIED)				
Atomic Magnetometer	2	2019	3	2020
PBIED Sensor Integration (Tiger Paw)	1	2018	2	2020
Radio Controlled IED (RCIED)				
Songbird (Whistler Spiral)	1	2020	4	2020
RDT&E Technology Enablers				
Technical Outreach BA 4	1	2016	4	2020
Counter-small Unmanned Aerial Systems (C-sUAS)				
C-sUAS Test and Evaluation	1	2019	4	2021
GroundTaker	3	2018	4	2020
Microwave Frequency Oscillator (MFO) C-sUAS	4	2016	4	2020
Mobile C-sUAS Airborne Platform Suite (MCAPS) Spiral	2	2019	4	2020
Multi vs. Multi Airborne Dispersed	1	2020	4	2022
Multi vs. Multi Dismounted Deployed	1	2020	4	2020
Pike on Reaper	4	2019	4	2020
Tech Exploitation Tech Red Device Coordination	1	2019	4	2020
Split Aces 4.0	1	2020	4	2021
Test & Eval				
Test & Evaluation Support	1	2020	4	2020
Vehicle-Borne IED (VBIED)				

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Defense Threat Reduction Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604134BR / *Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing*	**Project (Number/Name)** JC / *Enable Rapid Capability Delivery*

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Supernova Spiral	4	2019	4	2020
C-IED				
Travel	1	2018	4	2020
UK Joint Tech Development	1	2019	4	2020
VBIED Detection Sensor Integration	3	2019	4	2020
Global Data Integration				
Data Science for Emerging Threats	3	2021	3	2022
Image Recognition Proof-of-Concept	3	2021	3	2022

Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Threat Reduction Agency			Date: May 2021
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604134BR / *Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing*	Project (Number/Name) JS / *Assist Situational Understanding*	

COST ($ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
JS: *Assist Situational Understanding*	27.613	1.687	8.440	0.000	-	0.000	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

A. Mission Description and Budget Item Justification

This project enables DTRA's Catapult Information System Program to design, develop, test, and deliver mission capabilities that support the ability to aggregate, and analyze data and information on global improvised threats and threat networks. Catapult and DTRA's Mission Information Technology (MIT) capability allows DTRA to rapidly develop, engineer, test and deploy analytical tools, threat models and simulations, data science methodologies, and software applications in support of the Warfighter. Catapult and its associated Attack the Network Tool Suite (ANTS) integrates data sources that support the detection and identification of improvised threats, threat networks and actors, command and control, operations, intelligence, and engagement for neutralizing, attacking, and defeating both current and emerging improvised threats and threat networks.

DTRA's MIT capability, with its embedded Combatant Command (CCMD) capability, data integrators, and reachback staff work continuously to create capabilities requested by users from the DoD, the Intelligence Community (IC), interagency partners, and the Whole of Government to ingest, fuse, analyze, and present mission relevant data and information. These capabilities reside in Catapult, a cloud technology-based data analytics platform developed and being delivered by DTRA that provides an extensible, continuously augmented, real-time repository of intelligence on improvised threats and worldwide threat actors and networks. Catapult is fully operational and accredited on the Secret Internet Protocol Router Network (SIPRNet) and Joint Worldwide Intelligence Communications System (JWICS). The Catapult architecture pulls from more than 850 data sources on SIPRNet and more than 170 data sources on JWICS. Catapult uses a set of more than 100 tools (ANTS) and services to provide national-level capabilities for data and information capture, discovery, access, aggregation, correlation, visualization, analysis, sharing, and distribution for users from the strategic level to the tactical edge.

In addition to Catapult, the DTRA MIT created and deployed a significant capability called Voltron. Voltron provides analysts access to signals intelligence (SIGINT) data within a secure and IC-accredited software developer environment. Voltron provides users a single interface to query more than 25 data sources and combines results into dynamic visualizations and exports. Voltron captures analytics techniques and provides a constantly growing toolbox providing analysts with continuously new models in support of analysis and operations. Voltron provides analysts access to methodologies involving multi-INT fusion in an easy to use interface. These methods are based on years of experience supporting the tactical targeting environment and built in collaboration with other teams across the IC. There are currently more than 75 models in Voltron available to the user community.

DTRA's authorities and mission have enabled a unique, Secure Development Operations (DevSecOps) "Path-to-Production" to rapidly develop and deploy mission-driven IT solutions. This unique development environment includes an integrated Cyber Security Assessment and Authorization process, an in-house collateral

Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Threat Reduction Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604134BR / *Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing*	**Project (Number/Name)** JS / *Assist Situational Understanding*

Authorizing Official for SIPRNet and DIA-approved Authorization to Operate on JWICS, creating a strong partnership between technologists and intelligence analysts working real-world problems, and a collaborative and innovative culture that launches practical software solutions rapidly.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: JS: Assist Situational Understanding	1.687	8.440	0.000

Description: This project enables DTRA to design, develop, test, and deliver mission capabilities that support the ability to collect, aggregate, and analyze intelligence data on global improvised threats and threat networks. The project allows DTRA to rapidly develop, engineer, test, and deploy analytical tools, threat models and simulations, data science methodologies, and software applications in support of the Warfighter. Catapult and its associated Attack the Network Tool Suite (ANTS) integrates data sources that support the detection and identification of improvised threats, threat networks and actors, command and control, operations, intelligence, and engagement for neutralizing, attacking, and defeating both current and emerging improvised threats and threat networks.

Provides testing and engineering support for COTS and GOTS intelligence analysis application and software and systems that operate on the mission enclave. Supports cybersecurity testing and security engineering of new or upgraded software and systems prior to authorization to operate on production enclaves.

Sandia / SETA Capability Research Architecture Cell (CRAC) identifies, investigates, explores, evaluates, and tests prototypes of emerging and cutting edge information technology that provides superior advantage to analysts and warfighters. Sandia / CRAC builds partnerships with mission partners in DoD, IC, IA, Academia, National Labs and Industry to support, develop and integrate plans, programs, requirements, resources, technology and innovations across the mission spectrum for DTRA. Facilitates innovation, acceleration of programs, rapid response to emerging events, and rapid development and operationalization of new technologies.

FY 2021 Plans:
- Develop predictive Data Science models through supervised and unsupervised Machine Learning against current and emerging threats; including fusion of multi-INT data across unclassified and classified data sets to identify networks and locations of interest to DTRA and its mission partners.
- Create a new development environment to enable “technology at the edge” to support real-time development of new Data Science models/algorithms at mission partner sites to enhance existing or future Catapult Machine Learning models.
Implement role-based access control and dynamic query analytics across Catapult data through Elastic Search to enable users to quickly retrieve known affiliates, family members, contacts, aliases, email addresses and other information about entities and enemy threat networks without running additional queries.
- Create “Functions as a Service” by commoditizing common used functions and analytics across the ANTS to

Exhibit R-2A, RDT&E Project Justification: PB 2022 Defense Threat Reduction Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604134BR / *Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing*	**Project (Number/Name)** JS / *Assist Situational Understanding*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
enable scalability and elasticity across the tool suite allowing ANTS capabilities to execute analytics against larger and more diverse data sets. - Extend Catapult architecture to allow for shared services across Whole of Government to enable MIT developed analytics to be re-used in other platforms and tools across various IC and DoD organizations. - Develop Active Learning interface and pipeline to enable crowdsourced input for training and tagging data to feed new Data Science machine learning models. - Modularize Catapult's Data Processing Framework to enable targeted data transformation based on data source, artifact mime type, artifact size, or any number of other source specific properties; Add better processing support for structured data, imagery, financial, SIGINT, Measurement and Signature Intelligence (MASINT), Internet of Things (IoT), and cyber data to broaden the scope of the Catapult Analytics stack. - Enable collaborative VR capabilities to assist mission planning and force protection by extending existing VR capabilities to enable multi-user support and shared walkthroughs of 3D models. - Determine the best techniques to shrink neural network algorithms to work on low power and small computer platforms such as cameras or SUASs (Real-time Processing at the Edge wrapping up in early FY 2021). - Determine the capabilities that go beyond simple content identification and labeling, and move toward understanding the story and context of the video or image (Computer Vision for Improvised Threats). - Determine unsupervised and supervised techniques to cluster relevant information and enable accurate insight for analysts to improve the understanding of (1) themes, (2) intent of extracted text, (3) topics, (4) authenticity, etc. within the given data set(s) (Natural Language Processing – Understanding and Context). - Improve processing with alternative hardware (neuromorphic processors, Field Programmable Gate Arrays, etc.) by determining the best next generation hardware designed to maximize the runtime efficiency, accuracy, and limited space/power consumption of select AI/ML solutions. ***FY 2022 Plans:*** N/A ***FY 2021 to FY 2022 Increase/Decrease Statement:*** The decrease from FY 2021 to FY 2022 is due to the realignment of resources from Project JS - Assist Situational Understanding to O&M funding for technology transformation sustainment and combatant command embedded analytical support teams, and 2) the realignment of resources to the new PE 0604551BR to better reflect the nature of these ongoing and enduring activities in support of Catapult.			
Accomplishments/Planned Programs Subtotals	1.687	8.440	0.000

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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
• 11/0602134BR/JS: *Counter Improvised-Threat Advanced Studies*	1.175	1.199	0.000	-	0.000	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

Assessment and selection of best performer to provide contractual services to develop and operationalize requirements through the new Enterprise Acquisition Strategy Initiative (EASI) at the least risk, optimal cost and proven technically. Performer base selection includes research developers across DoD and other Government agency laboratories, academia, and industry.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Defense Threat Reduction Agency			Date: May 2021
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Attack the Network Suite (MIT) - Systems Integration Lab (SIL) - Direct Operations Support	C/CPAF	Booz Allen Hamilton : Reston, VA	2.435	0.000		-		-		-		-	-	-	-
Attack the Network Suite (MIT) - Systems Integration Lab (SIL) - Mission IT Capability Development (Automation and Data Science)	C/CPAF	Booz Allen Hamilton : Reston, VA	3.653	0.000		-		-		-		-	-	-	-
Sandia	MIPR	Sandia National Laboratories : Reston, VA	0.063	0.040	Oct 2019	-		-		-		-	-	-	-
IRTM	MIPR	Office of Naval Research : Arlington, VA	0.257	-		-		-		-		-	-	-	-
Network	C/FFP	John Hopkins : Baltimore, MD	1.815	-		-		-		-		-	-	-	-
Vehicle-Borne IED (VBIED)	C/CPFF	Naval Surface Warfare Command : Dahlgren, VA	8.500	-		-		-		-		-	-	-	-
Catapult Information System	C/CPAF	Booz Allen Hamilton : Reston, VA	-	-		5.374	Aug 2021	-		-		-	-	-	-
		Subtotal	16.723	0.040		5.374		-		-		-	-	-	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Defense Threat Reduction Agency			Date: May 2021
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Attack the Network Suite (MIT) - Systems Integration Lab (SIL) - Direct Operations Support	C/CPAF	Booz Allen Hamilton : Reston, VA	0.812	-		-		-		-		-	-	-	-
Attack the Network Suite (MIT) - Systems Integration Lab (SIL) - Mission IT Capability Development (Automation and Data Science)	C/CPAF	Booz Allen Hamilton : Reston, VA	1.217	0.000		-		-		-		-	-	-	-
QRC IT Network (OIR)	C/CPAF	Booz Allen Hamilton : Reston, VA	1.366	0.090	Mar 2020	-		-		-		-	-	-	-
QRC IT Network (RS)	C/CPAF	Booz Allen Hamilton : Reston, VA	0.258	0.090	Mar 2020	-		-		-		-	-	-	-
Sandia	MIPR	Sandia National Laboratories : Reston, VA	0.226	0.120	Oct 2019	-		-		-		-	-	-	-
Carnegie Mellon University-Software Engineering Institute (CMU-SEI)	MIPR	Carnegie Mellon University/SEI : Hanscomb AFB, MA	0.215	0.000		-		-		-		-	-	-	-
Catapult Information System Support	C/CPAF	Booz Allen Hamilton : Reston, VA	-	-		0.515	Aug 2021	-		-		-	-	-	-
		Subtotal	4.094	0.300		0.515		-		-		-	-	-	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Defense Threat Reduction Agency			Date: May 2021
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2020 Cost	FY 2020 Award Date	FY 2021 Cost	FY 2021 Award Date	FY 2022 Base Cost	FY 2022 Base Award Date	FY 2022 OCO Cost	FY 2022 OCO Award Date	FY 2022 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Attack the Network Suite (MIT) - Systems Integration Lab (SIL) - Direct Operations Support	C/CPAF	Booz Allen Hamilton : Reston, VA	0.812	0.000		-		-		-		-	-	-	-
Attack the Network Suite (MIT) - Systems Integration Lab (SIL) - Mission IT Capability Development (Automation and Data Science)	C/CPAF	Booz Allen Hamilton : Reston, VA	1.217	0.639		-		-		-		-	-	-	-
QRC IT Network (OIR)	C/CPAF	Booz Allen Hamilton : Reston, VA	1.078	0.234	Mar 2020	-		-		-		-	-	-	-
QRC IT Network (RS)	C/CPAF	Booz Allen Hamilton : Reston, VA	1.030	0.234	Mar 2020	-		-		-		-	-	-	-
Sandia	MIPR	Sandia National Laboratories : Reston, VA	0.378	0.240	Oct 2019	-		-		-		-	-	-	-
SETA Capability Research Architecture Cell (CRAC)	C/CPAF	Zel Technologies : Reston, VA	2.281	0.000		-		-		-		-	-	-	-
Catapult Information System	C/CPAF	Booz Allen Hamilton : Reston, VA	-	-		0.944	Aug 2021	-		-		-	-	-	-
SETA Capability Research Architecture Cell (CRAC)	C/CPAF	Zell Technologies : Reston, VA	-	-		1.607	Sep 2021	-		-		-	-	-	-
		Subtotal	6.796	1.347		2.551		-		-		-	-	-	N/A

	Prior Years	FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	27.613	1.687		8.440		-		-		-	-	-	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Defense Threat Reduction Agency			Date: May 2021
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	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Defense Threat Reduction Agency		Date: May 2021
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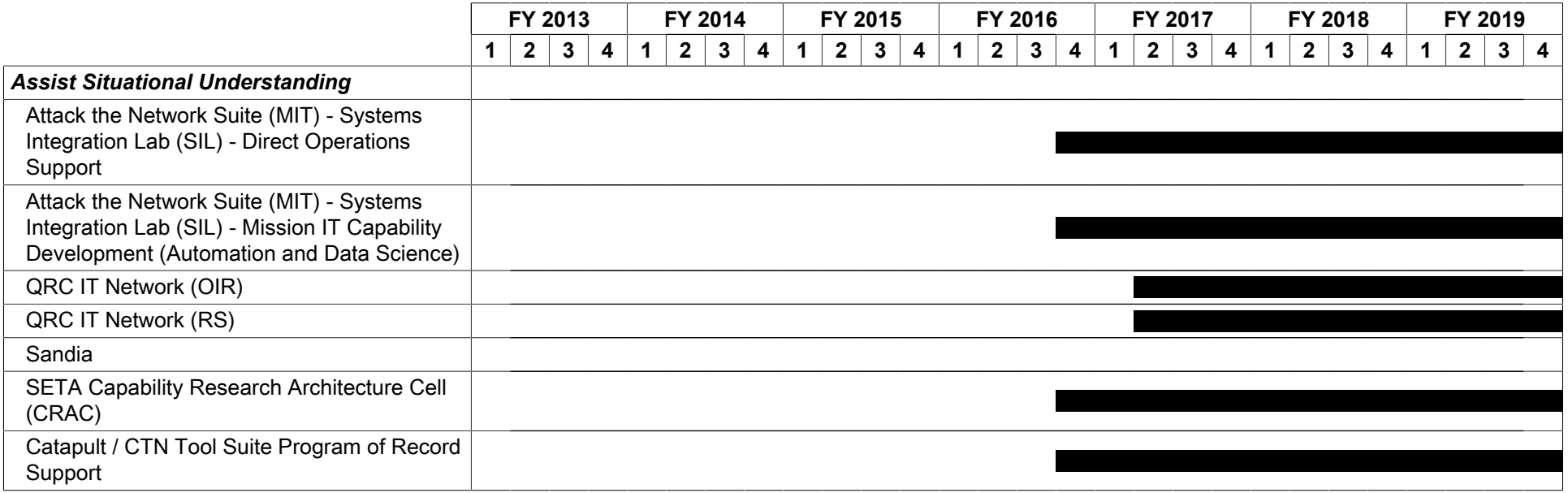

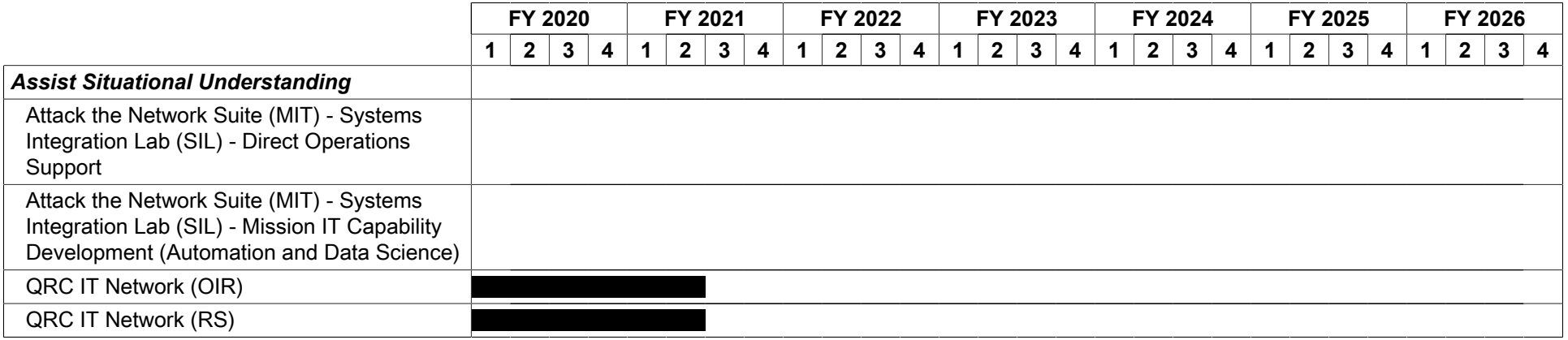

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Defense Threat Reduction Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604134BR / *Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing*	**Project (Number/Name)** JS / *Assist Situational Understanding*

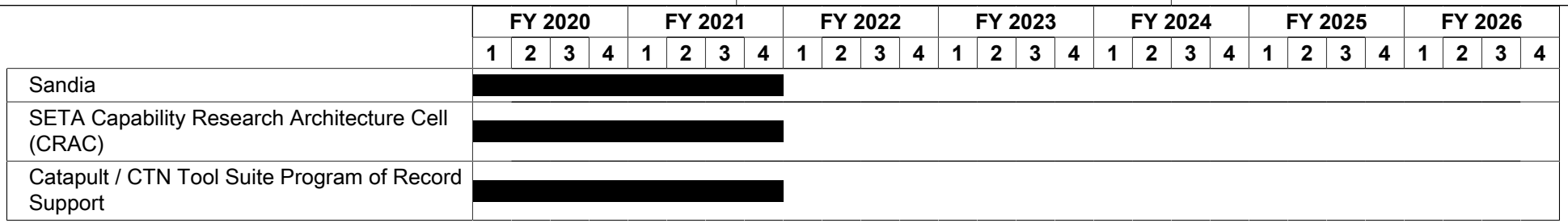

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Defense Threat Reduction Agency		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604134BR / *Counter Improvised-Threat Technology Demonstration, Prototype Development, and Testing*	**Project (Number/Name)** JS / *Assist Situational Understanding*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Assist Situational Understanding				
Attack the Network Suite (MIT) - Systems Integration Lab (SIL) - Direct Operations Support	4	2016	4	2019
Attack the Network Suite (MIT) - Systems Integration Lab (SIL) - Mission IT Capability Development (Automation and Data Science)	4	2016	4	2019
QRC IT Network (OIR)	2	2017	2	2021
QRC IT Network (RS)	2	2017	2	2021
Sandia	1	2020	4	2021
SETA Capability Research Architecture Cell (CRAC)	4	2016	4	2021
Catapult / CTN Tool Suite Program of Record Support	4	2016	4	2021