Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Chemical and Biological Defense Program	Date: May 2021
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*

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	-	417.723	356.472	299.848	-	299.848	-	-	-	-	-	-
CA5: *Contamination Avoidance (SDD)*	-	126.019	128.954	82.295	-	82.295	-	-	-	-	-	-
CM5: *Homeland Defense (SDD)*	-	9.414	0.000	0.000	-	0.000	-	-	-	-	-	-
CO5: *Collective Protection (SDD)*	-	7.138	7.885	3.028	-	3.028	-	-	-	-	-	-
DE5: *Decontamination (SDD)*	-	9.113	21.954	7.874	-	7.874	-	-	-	-	-	-
IP5: *Individual Protection (SDD)*	-	12.179	12.960	18.941	-	18.941	-	-	-	-	-	-
IS5: *Information Systems (SDD)*	-	20.723	6.019	0.000	-	0.000	-	-	-	-	-	-
MB5: *Medical Biological Defense (SDD)*	-	170.345	117.956	137.348	-	137.348	-	-	-	-	-	-
MC5: *Medical Chemical Defense (SDD)*	-	55.269	54.392	50.362	-	50.362	-	-	-	-	-	-
TE5: *Test & Evaluation (SDD)*	-	7.523	6.352	0.000	-	0.000	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The projects in this program element (PE) support the development, build, and test of products to verify that all operational and derived requirements have been met, and to support production or deployment decisions. The activities include mature system development, integration, and demonstration to support Milestone C decisions, and conducting operational test and evaluation of production representative articles.

Individual projects include:
- Contamination Avoidance (CA5): system development of reconnaissance, detection, identification, and warning systems that minimize chemical and biological (CB) contamination and prevent further cross-contamination during operations.

- Homeland Defense (CM5): system development of common analytical laboratory system capabilities to conduct on-site analysis of any unknown sample and test potential life-threatening substances.

- Collective Protection. (CO5): system development of collectively protected systems that are smaller, lighter, less costly to produce and maintain, and more logistically supportable enabling mission accomplishment in spaces safe from the effects of CB contamination.

- Decontamination (DE5): system development of Contamination Mitigation (ConMit) systems utilizing solutions that will remove/eliminate and/or detoxify contaminated material without damaging combat equipment, personnel, or the environment.

- Individual Protection (IP5): system development of the next generation protective ensembles (e.g., suits, boots, and gloves) and respiratory and ocular protection equipment (e.g., protective masks) which enable the Joint Force to operate in a contaminated CB environment with little or no degradation to his/her performance.

- Information Systems (IS5): system development of information architectures, applications, and cybersecurity hardening for shaping the battlespace against CB threats.

- Medical Biological Defense (MB5): product development of medical biological countermeasure platform technologies, medical biological countermeasures (vaccines and therapeutics), reagents, assays, and diagnostic equipment to provide an effective capability for medical defense against biological warfare agent threats facing U.S. Forces in the field.

- Medical Chemical Defense (MC5): product development of medical materiel and other medical equipment items (e.g., diagnostic equipment, prophylactic, pre-treatment, and therapeutic drugs, and individual/casualty decontamination compounds) necessary to provide an effective capability for medical defense against chemical warfare agent threats facing U.S. Forces in the field.

- Test and Evaluation (TE5): critical test capabilities, planning, and infrastructure improvements/modifications necessary to evaluate CB Defense systems in realistic operating environments.

The projects in this PE support the engineering and manufacturing development phase of the Department of Defense (DoD) acquisition system and are therefore correctly placed in Budget Activity 5.

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	385.047	319.976	211.037	-	211.037
Current President's Budget	417.723	356.472	299.848	-	299.848
Total Adjustments	32.676	36.496	88.811	-	88.811
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	0.000	36.496			
• Congressional Directed Transfers	0.000	-			
• Reprogrammings	40.100	-			
• SBIR/STTR Transfer	-7.424	-			
• Other Adjustments	0.000	-	88.811	-	88.811

Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Chemical and Biological Defense Program	Date: May 2021
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604384BP *I CHEMICAL/BIOLOGICAL DEFENSE (EMD)*

Congressional Add Details ($ in Millions, and Includes General Reductions)	**FY 2020**	**FY 2021**
Project: DE5: *Decontamination (SDD)*		
Congressional Add: *1) Decontamination Technologies - Development and Testing*	-	5.000
Congressional Add Subtotals for Project: DE5	-	5.000
Project: MB5: *Medical Biological Defense (SDD)*		
Congressional Add: *1) Antiviral Prophylaxis Studies*	11.000	4.500
Congressional Add: *2) Recombinant Botulinum and Plague Vaccines - Storage*	-	1.040
Congressional Add: *3) Recombinant Botulinum and Plague Vaccines - Adaptive Clinical Trial*	-	21.456
Congressional Add: *4) Recombinant Botulinum and Plague Vaccines - Stability Testing*	-	4.500
Congressional Add Subtotals for Project: MB5	11.000	31.496
Congressional Add Totals for all Projects	11.000	36.496

Change Summary Explanation

Funding: FY20 (+$40.100 Million): Internal Reprogramming (FY20-31 IR) for the Coronavirus Aid, Relief, and Economic Security (CARES) Act.

FY20 (-$7.424 Million): Transfer of funding to support Small Business Innovative Research/Small Business Technology Transfer efforts.

FY21 (+$36.496 Million): Congressional Add for Joint vaccine for botulinum and plague vaccines funding restoration (+$26.996 Million), Congressional Add for decontamination technologies (+$5.000 Million), and Congressional Add for smallpox antiviral (+$4.500 Million).

FY22 (+$88.811 Million): Increase focuses on the Botulinum Monoclonal Antibodies (BOT MAB) advanced development program, the Countering Emerging Threats - Rapid Acquisition and Investigation of Drugs for Repurposing (CET RAIDR) program which supports continuation of CARES Act funded efforts, and the Aerosol & Vapor Chemical Agent Detector (AVCAD) advanced development program (+$90.742 Million). Departmental inflation/travel adjustments (-$1.931 Million).

Schedule: N/A

Technical: N/A

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program			Date: May 2021
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	Project (Number/Name) CA5 / *Contamination Avoidance (SDD)*	

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
CA5: *Contamination Avoidance (SDD)*	-	126.019	128.954	82.295	-	82.295	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports Engineering and Manufacturing Development (EMD) and Low Rate Initial Production (LRIP) of an array of reconnaissance, detection and identification equipment, and warning systems.

Efforts included in this Project are:
(1) Aerosol & Vapor Chemical Agent Detector (AVCAD)
(2) Multi-Phase Chemical Agent Detector (MPCAD)
(3) Chemical Biological Radiological and Nuclear (CBRN) Sensor Integration on Robotics Platforms (CSIRP)
(4) Enhanced Maritime Biological Detection (EMBD)
(5) Joint Biological Tactical Detection System (JBTDS)
(6) Joint Nuclear Biological Chemical Radiological System (JNBCRS) 1
(7) Nuclear Biological Chemical Reconnaissance Vehicle Sensor Suite Upgrade (NBCRV SSU)
(8) Mounted Manned Platform Radiological Detection System (MMPRDS)
(9) Mounted Enhanced Radiac Long Range Imaging Networkable (MERLIN).
(10) Non-Traditional Agent Defense (NTA DEFENSE)
(11) Advanced Emerging Threat Defense (AET DEFENSE), and
(12) Reactive Chemistry Orthogonal Surface and Environmental Threat Ticket Array (ROSETTA)

The AVCAD is a man portable system to detect aerosol and vapor chemical agents. AVCAD fills critical gaps in current Joint Force chemical sensor capabilities, in the areas of liquid, solid and dusty aerosol Chemical Warfare Agent detection, and detection of specific advanced threats/Non-Traditional Agents. The AVCAD will also detect low-level off-gassing, or residual vapors, to prevent/mitigate health effects associated with low concentration exposures, and perform remote alarm warning and reporting. AVCAD will support chemical and biological defense missions, including monitoring, collective protection, base defense, decontamination, unmasking, reconnaissance, and shipboard and aviation platform chemical detection. In FY22, AVCAD will continue chemical chamber testing and start multiple test efforts to support Multi-Service Operational Test and Evaluation.

The MPCAD is a two-man portable system that will conduct near real-time, near-laboratory grade analysis of solid, liquid, and vapor samples collected by the operator in a presumptively contaminated area. The MPCAD results will support the Commander's tactical and operational decisions regarding maneuver, protection, decontamination, and treatment measures. The Army and Marine Corps will employ MPCAD in Dismounted Reconnaissance and Site Assessment missions to substantiate presumptive detector results. The Air Force will employ the MPCAD to support Post-Event Reconnaissance in support of Reconnaissance and Surveillance

missions by monitoring the environment at airbases after a chemical release. The Air Force will continuously monitor contaminated areas for chronic health effects levels through analysis of samples from collectors deployed at the contamination site and brought back to the analyzer for identification and quantification. This information will support commander decisions to determine Mission Oriented Protective Posture (MOPP) levels and eventual termination of cordon restrictions. In FY 22, MPCAD will continue two LRIP contracts, systems engineering support, complete LRIP testing and prepare for full rate production decision.

CSIRP is a prototyping and fielding effort that will focus on repackaging and integrating modular CBRN sensor solutions to enhance Unmanned Aircraft Systems (UAS) and Unmanned Ground Vehicles (UGV) to provide situational awareness across the echelons of command in order to enable freedom of maneuver and action on the battlefield. An integrated CSIRP capability will exploit advances in artificial intelligence, machine learning and autonomy, sensing and communication capabilities that enable timely and accurate detection, warning and reporting of CBRN hazards. This reduces risk at tactical and operational echelons in mounted and dismounted configurations. CSIRP gives the Joint Force an opportunity to enhance capabilities and maintain operational advantage in a lethal and sophisticated operating environment. FY22 CSIRP continues multiple sensor integration efforts for unmanned ground and air platforms for multiple Services.

The EMBD is the Navy's automated biological point detection, collection and identification system. EMBD replaces/upgrades the 135 Joint Biological Point Detection Systems (JBPDS) currently fielded to the Navy and provides 40 systems for new construction ships. EMBD improves detection sensitivity providing the Navy the ability to "detect to inform" reducing the number of contaminated ships during a biological warfare agent attack and minimizing sailor casualties. EMBD reduces false alarm rates, modernizes the computing architecture and increases reliability and sailors' confidence in the system. These improvements decrease fleet O&S costs and reduce the obsolescence issues with current biological detection capability. The EMBD program provides a lower cost biological point detection system.

The JBTDS is the first tactical lightweight, low-cost biological surveillance system to detect, collect, and identify Biological Warfare Agent (BWA) aerosols. JBTDS components are man-portable, battery operable and easy to employ by any military user. JBTDS provides notification of a hazard and enhances battle-space awareness to protect and preserve the forces and can archive a sample for follow up analysis. When networked, JBTDS augments existing biological detection systems providing a theater-wide array capable of biological detection, identification and warning to support time sensitive force protection decisions. The JBTDS provides surface sampling capability which interfaces with the JBTDS identifier to support sensitive site exploitation missions. FY22 JBTDS completes EMD and the Operational Evaluation Report (OER), finalizes development of TEMP update to support MS C, and conducts LRIP testing.

The JNBCRS 1, renamed NBCRV SSU in FY22, provides maneuver formations with the ability to conduct mounted reconnaissance and surveillance missions of CBRN named areas of interest (NAIs). The NBCRV SSU will answer the commanders' priority intelligence requirements (PIR) and facilitate proactive risk-based decisions to ensure freedom of action and survivability. A modern and capable NBCRV SSU is a critical component for Joint Force success when operating in the complex CBRN environment. Operating with combat vehicles fighting against increasingly capable and determined enemies requires like capability in protection, mobility, and lethality. The NBCRV SSU will accomplish this by integrating the capability for command and control of unmanned systems with CBRN payload. The NBCRV SSU will provide a CBRN detection, tipping and queuing system to accomplish desired standoff distances to keep the warfighter out of harm's way and reduce sustainment costs over the current system. A Chemical Surface Detector (CSD) will be developed to replace the Dual Wheel Sampling System to increase maneuver speed when conducting NBC missions and increase reliability. In FY22 the NBCRV SSU will complete Government Developmental and Operational Test to support a production decision.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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The MMPRDS program includes two sets of mounted radiological and nuclear sensors: the MERLIN and the Vehicle Integrated Platform Enhanced Radiac (VIPER), both of which originate with technology transitions from the Defense Threat Reduction Agency (DTRA). MMPRDS will sunset at the end of FY20. Only the MERLIN program will be funded and complete development in FY21.

MERLIN is a set of externally mounted sensors used in joint operations on the Stryker NBCRV Sensor Suite Upgrade with the potential for integration on other Army platforms within the formation. The system supports manned and unmanned platform-mounted reconnaissance and surveillance of radiological and nuclear hazards at standoff distances. It is the first and only standoff radiological and nuclear detection capability for the Army; all previously fielded detectors require platforms to travel dangerously close to hazardous areas to detect radiological threats, which puts manned platform crews at risk of radiation exposure and presents contamination issues for the vehicle (be it manned or unmanned). The MERLIN funding in FY21 supports integration of the MERLIN system designed for the NBCRV.

The AET DEFENSE program, formerly known as the NTA DEFENSE program, continues to address the highest priority CBRN gaps and supports the Chemical Biological Defense Program (CBDP) Strategic Line of Effort to meet current and emerging threats by anticipating CB hazards and developing capabilities to counter emerging and future threats. The AET Defense program collaborates with the Joint Services, interagency, and international partners to align RDT&E resources to determine readiness against emerging threats, to include NTAs, such as Novichoks and Pharmaceutical-Based Agents (PBA) (e.g. synthetic opioids), emerging biological threats, and other advanced and emerging threats as they are identified across the entire CBDP enterprise portfolio. NTA DEFENSE efforts transition to the AET DEFENSE program in FY22 to better align with strategic guidance and expand to threats beyond those identified specifically as NTAs. In FY22, AET Defense continues to broaden data set for emerging biological threats and PBSs to better assess detection and decontamination capabilities.

The ROSETTA is a modernization effort to provide a higher confidence chemical hazard detection tickets in the currently fielded M256A2 kit for the Warfighter to make timely decisions for the general forces. These decisions will reduce casualties and improve the combat effectiveness of troops engaged in conflicts involving the use of chemical threats. ROSETTA is based on colorimetric technologies and will be eye-readable and ease the Warfighter from current training and operational burden. In addition, the ROSETTA tickets will provide improved hazard detection performance with reduced false alarm rate, potential for increased number of chemicals detected, reduced detection time especially for compounds of interest (CWAs, PBAs, NTAs and TICs), and potential for integration onto unmanned platforms especially micro-sized unmanned aerial sensors. In FY22, ROSETTA will continue program management and transition to TACOM including initial 12 month supply of M8 tickets.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: 1) Aerosol & Vapor Chemical Agent Detector (AVCAD)	14.626	17.343	12.745
Description: Product Development			
FY 2021 Plans: Continue EMD development contracts, Systems Engineering, and other IPTs for product development of AVCAD and award LRIP long lead items.			
FY 2022 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *Contamination Avoidance (SDD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Completion of EMD Phase of development contracts and initiation of P&D Phase of Development contracts pending MS C decision. Continue Systems Engineering and other IPTs for product development of AVCAD. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase. Post-MS C decision contract support to complete EMD DT, OA and purchase LRIP Long Leads in FY21			
Title: 2) Aerosol & Vapor Chemical Agent Detector (AVCAD) ***Description:*** Test and Evaluation ***FY 2021 Plans:*** Continue chemical chamber testing, conduct multiple test requirements to support operational assessment in support of Milestone C decision. ***FY 2022 Plans:*** Initiate and complete LRIP chemical chamber testing, conduct multiple test requirements to support Multi-Service Operational Test and Evaluation. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease due to change in program/project technical parameters. Complete remainder of EMD Record DT, and execute OA.	6.801	6.955	5.133
Title: 3) Aerosol & Vapor Chemical Agent Detector (AVCAD) ***Description:*** Program Management Support ***FY 2021 Plans:*** Continue Program Management including program/financial management, costing, travel and overhead. ***FY 2022 Plans:*** Continue Program office management and administration processes to include but not limited to program oversight, resource justification, budgeting and programming, milestone and schedule tracking. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	2.007	4.585	3.441
Title: 4) Aerosol & Vapor Chemical Agent Detector (AVCAD) ***Description:*** Support Costs - OGA Support costs for logistics, test evaluation results and safety and reliability. ***FY 2021 Plans:***	-	2.164	1.250

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
EMD support for Milestone C. ***FY 2022 Plans:*** Continue OGA Support for logistics and test evaluation results in support of MS C decision. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.			
Title: 5) Multi-Phase Chemical Agent Detector (MPCAD) ***Description:*** Product Development ***FY 2021 Plans:*** Continue two EMD contract(s), Government and contracted Integrated Product Development team, systems engineering and IPT Support. Conduct Milestone C / Low Rate Initial Production (LRIP) and purchase 15 test articles to conduct LRIP testing and operational testing in FY22. ***FY 2022 Plans:*** Continue two LRIP contracts, Government and contracted Integrated Product Development team, systems engineering and IPT Support. Purchase an additional 15 items at $200K each to complete LRIP testing. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.	24.045	18.800	4.503
Title: 6) Multi-Phase Chemical Agent Detector (MPCAD) ***Description:*** Testing ***FY 2021 Plans:*** Continue EMD testing started in FY20. Continue OGA support of development and testing of MPCAD systems including development of logistics products, test plans, and reports. ***FY 2022 Plans:*** Complete LRIP testing and prepare for full rate production decision. Continue OGA support of development and testing of MPCAD systems including development of logistics products, test plans, and reports. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.	4.188	10.658	4.035
Title: 7) Multi-Phase Chemical Agent Detector (MPCAD)	5.052	4.499	2.216

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: Program Management Support ***FY 2021 Plans:*** Continue Program Management including Government system engineering, program/financial management, costing, personnel support, travel and overhead. ***FY 2022 Plans:*** Continue Program office management and administration processes to include but not limited to program oversight, resource justification, budgeting and programming, milestone and schedule tracking. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.			
Title: 8) CBRN Sensor Integration onto Robotic Platforms (CSIRP) ***Description:*** Product Development, Program Management, Test and Evaluation and Support. ***FY 2021 Plans:*** Transition form BA4. Continue multiple sensor integration efforts for unmanned ground and air platforms. Continue coordination of demonstrations and test events for end users evaluating the capabilities of the integrated sensors onto the Unmanned Air Systems (UAS) and Unmanned Ground Vehicles (UGV). Program management including government system engineering, program/financial management, costing, personnel support, travel and overheard. Initiate evaluation of capability and development of CONOPS. ***FY 2022 Plans:*** Prototype #2 will continue multiple sensor integration efforts to improve on Prototype #1 for unmanned ground and air platforms for multiple services. Continue coordination of demonstrations and test events for additional service end users evaluating the capabilities of the integrated sensor prototypes onto the Unmanned Air Systems (UAS) and Unmanned Ground Vehicles (UGV). Continue Program office management and administration processes to include but not limited to program oversight, resource justification, budgeting and programming, milestone and schedule tracking. Initiate evaluation of capability and development of CONOPS. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project transitioned to Advanced Development. BA4 funding ends in FY21 and program fully transitions to BA5 to continue efforts on robotic integration.	-	11.251	16.581
Title: 9) EMBD	5.814	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: Product Development			
Title: 10) EMBD ***Description:*** Program management support and Test & Evaluation	7.078	-	-
Title: 11) JBTDS ***Description:*** EMD Contract & Program Management ***FY 2021 Plans:*** Continue Government systems engineering, program/financial management, and costing in support of the JBTDS program. Continue EMD contract to support testing events. Complete EMD testing and prepare for milestone C decision. ***FY 2022 Plans:*** Continue program office management and administration processes to include but not limited to program oversight, resource justification, budgeting and programming, milestone and schedule tracking. Conduct failure analysis and corrective action of issues identified in EMD testing. Complete preparation of MS C documents, negotiate and award LRIP contract. Conduct a Milestone C decision and move into Low Rate Initial Production (LRIP). ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase. BA5 funding decreases in FY22 as program completes EMD and prepares for MS C.	6.856	6.887	1.620
Title: 12) JBTDS ***Description:*** Test & Evaluation ***FY 2021 Plans:*** Continue combat developer and test support. Complete EMD testing which include Detector/Collector aerosol agent testing, agent identification testing, collector characterization, false alarm testing, Mil-STD, interoperability, outdoor simulant testing, logistics demonstration, operational assessment, cyber adversarial assessment, and modeling and simulation. Continue updates to the JBTDS Test & Evaluation Master Plan (TEMP) to prepare for milestone C decision. ***FY 2022 Plans:***	8.033	7.175	5.767

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Complete Engineering Manufacturing and Development (EMD) and Operational Evaluation Report (OER). Finalizing development of TEMP update to support MS C. Conduct Low Rate Initial Production (LRIP) testing, continue combat developer and test community support. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase. BA5 funding decreases in FY22 as program completes EMD and prepares for MS C.			
Title: 13) JNBCRS 1 (NBCRV SSU) ***Description:*** CBRN Sensor Development and Integration ***FY 2021 Plans:*** Continue CBRN sensor and integrated sensor suite prototype development, maturation, and procurement. Continue government strategic planning, systems engineering, logistics, training, test and evaluation, technical support, and the bulk of integration product development for the acceleration of the program. Conduct system level development testing. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project funding transferred to another funding line. In FY22, funding line will be renamed NBCRV SSU.	24.095	22.789	-
Title: 14) JNBCRS 1 (NBCRV SSU) ***Description:*** Program Management Support ***FY 2021 Plans:*** Continue Program Management including Government system engineering, program/financial management, costing, personnel support, travel and overhead. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project funding transferred to another funding line. In FY22, funding line will be renamed NBCRV SSU.	4.227	4.073	-
Title: 15) NBCRV SSU ***Description:*** CBRN Sensor Development and Integration ***FY 2022 Plans:***	-	-	17.714

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Continue CBRN sensor and integrated sensor suite prototype development, maturation, and procurement. Continue government strategic planning, systems engineering, logistics, training, test and evaluation, technical support, integration, and the bulk of component and system level developmental testing. Conduct Limited User Test. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project funding transferred from another funding line. In FY22 the program name will change from JNBCRS 1 to NBCRV SSU.			
Title: 16) NBCRV SSU ***Description:*** Program Management Support ***FY 2022 Plans:*** Continue program office management and administration processes to include but not limited to program oversight, resource justification, budgeting and programming, milestone and schedule tracking. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project funding transferred from another funding line. In FY22 the program name will change from JNBCRS 1 to NBCRV SSU	-	-	3.627
Title: 17) Mounted Manned Platform Radiological Detection System (MMPRDS) ***Description:*** Capability Development (Vehicle Integrated Platform Enhanced Radiac (VIPER) and Mounted Enhanced Radiac Long Range Imaging Networkable (MERLIN))	5.705	-	-
Title: 18) Mounted Enhanced Radiac Long Range Imaging Networkable (MERLIN) ***Description:*** Risk reduction efforts for integration onto Army platforms. ***FY 2021 Plans:*** Initiate contract to begin integration kit design to mount MERLIN onto Army platforms in the formation. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project is entering completion and all activities will be closed.	-	1.294	-
Title: 19) NTA Defense ***Description:*** Program Management, Product Development, Support, and Testing of technologies that have been demonstrated to be TRL 6 or higher in order to rapidly field solutions to combat emerging threats. ***FY 2021 Plans:***	2.762	3.679	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Continue purchase of detection prototypes for user assessment. Continue performance assessment of existing capabilities against PBAs. Finalize development of prototype decontamination system. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project funding transferred to another funding line. NTA Defense funding and efforts will be continued under the AET Defense funding line. The purpose of the AET Defense program remains the same as that of the NTA Defense program, though the scope of threats being addressed has expanded from just NTAs to other advanced and emerging threats in order to better align with strategic guidance.			
Title: 20) NTA Defense ***Description:*** Government Integrated Product Team program management and IPT Support.	0.751	-	-
Title: 21) Advanced Emerging Threat (AET) Defense ***Description:*** Program Management, Product Development, Support, and Testing of technologies that have been demonstrated to be TRL 6 or higher in order to rapidly field solutions to combat emerging threats. ***FY 2022 Plans:*** Continue efforts from NTA Defense to leverage expanded requirements to broaden data set for emerging biological threats and PBAs. Produce additional data to better assess detection and decontamination capabilities against new requirements and inform rapid fielding decisions. Conduct table top exercises and field exercises to support Joint Service and interagency tactics, techniques, and procedures (TTP) development and gap analysis for materiel solutions. Assess potential upgrades to systems in the Engineering and Manufacturing Development (EMD) phase of acquisitions to add emerging threat capability prior to or shortly after fielding. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project funding transferred from another funding line. AET Defense is a continuation of NTA Defense funding and efforts. The purpose of the AET Defense program remains the same as that of the NTA Defense program, though the scope of threats being addressed has expanded from just NTAs to other advanced and emerging threats in order to better align with strategic guidance.	-	-	2.626
Title: 22) ROSETTA (M8) ***Description:*** Program Management, Product Development, T&E, Support, Technical Assessment to modernize the M256A2 Vapor Card. ***FY 2021 Plans:***	3.979	6.802	1.037

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *Contamination Avoidance (SDD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Continue OTA contract and complete testing of ROSETTA M8 prototypes, support operational demonstrations of prototypes and development of technical data package for transition to production. ***FY 2022 Plans:*** Continue program management and transition to TACOM including initial 6 month supply of ROSETTA M8 tickets. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project funding transferred to another funding line. ECP to existing M256A2 kit. Rosetta efforts continue in BA7 (Project CA7) in FY22.			
Accomplishments/Planned Programs Subtotals	126.019	128.954	82.295

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
• CA4: *Contamination Avoidance (ACD&P)*	18.806	10.326	32.923	-	32.923	-	-	-	-	-	-
• JF0100: *JOINT CHEMICAL AGENT DETECTOR (JCAD)*	2.246	0.000	0.000	-	0.000	-	-	-	-	-	-
• MC0100: *JOINT NBC RECONNAISSANCE SYSTEM (JNBCRS)*	1.900	0.000	0.000	-	0.000	-	-	-	-	-	-
• MC0101: *CBRN DISMOUNTED RECONNAISSANCE SYSTEMS (CBRN DRS)*	58.020	52.393	21.799	-	21.799	-	-	-	-	-	-
• MX0001: *JOINT BIO TACTICAL DETECTION SYSTEM (JBTDS)*	0.000	0.000	17.060	-	17.060	-	-	-	-	-	-
• SA0015: *AEROSOL VAPOR CHEMICAL AGENT DETECTOR (AVCAD)*	0.000	0.000	0.000	-	0.000	-	-	-	-	-	-
• SA0017: *MULTIPHASE CHEMICAL AGENT DETECTOR (MPCAD)*	0.000	0.000	9.302	-	9.302	-	-	-	-	-	-

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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D. Acquisition Strategy

AEROSOL VAPOR CHEMICAL AGENT DETECTOR (AVCAD)

Aerosol & Vapor Chemical Agent Detector (AVCAD) awarded two MS B Engineering and Manufacturing Development (EMD) contracts with production options. The AVCAD program is conducting full EMD DT Record Testing in support of the Milestone C decision. If supported by EMD Test Data and funding, the program may conduct P&D phase testing with LRIP units from both vendors to promote FRP price competition.

MULTI-PHASE CHEMICAL AGENT DETECTOR (MPCAD)

The Multi-Phase Chemical Agent Detector (MPCAD) (formerly NGCD 3) is using a streamlined acquisition strategy. The MPCAD contract(s) are utilizing the Countering Weapons of Mass Destruction (CWMD) Other Transaction Authority (OTA) for EMD and LRIP items. The MPCAD will procure production items through a follow-on Federal Acquisition Regulation based contract. The program will develop and validate the systems during EMD and LRIP utilizing two contractors to increase competition.

CBRN SENSOR INTEGRATION ON ROBOTIC PLATFORMS (CSIRP)

CSIRP is a streamlined acquisition effort to rapidly prototype and field capabilities distinct from the traditional acquisition system. CSIRP will provide unmanned CBRN payload prototypes in 2-3 year prototyping plan cycles based on service requirements. The prototyping plans will utilize a streamlined acquisition process in order to keep pace with industry and the rapid advancement of technologies. The CSIRP strategy is to utilize the rapid prototyping process enabled by the Other Transactional Agreements (OTA) contract vehicle. Upon award, the awardees will have up to two years to produce prototype sensors that are integrated onto service chosen (air and/or ground) platforms. These prototypes will be demonstrated, evaluated and tested by the Services as well as laboratories and academia. The most successful will be transitioned to the services for the next steps in acquisition, production and eventual fielding across the services. BA4 funding will provide market research to support the refinement and the building of technologically mature prototypes. BA5 funding will provide demonstrations, testing and operational assessments of prototypes to support transition decisions and final configurations to POR or sustained capability.

ENHANCED MARITIME BIOLOGICAL DETECTION (EMBD)

The Enhanced Maritime Biological Detection (EMBD) program uses a streamlined acquisition strategy and acquired a Milestone B decision in June 2018. EMBD will replace/upgrade 135 Joint Biological Point Detection Systems (JBPDS) in the Navy and provide 40 systems for new construction ships. In July 2018 EMBD awarded a contract through Joint Enterprise Research, Development, Acquisition and Production/Procurement (JE-RDAP) contract for Engineering and Manufacturing Development (EMD) with options for Low Rate Initial Production (LRIP) in FY20. EMBD plans to award a Full Rate Production contract in FY21 with options for production of EMBD kits and Obsolescence Support in Production (OSIP). OSIP will address obsolescence concerns that may arise during the production of the EMBD kit.

JOINT BIO TACTICAL DETECTION SYSTEM (JBTDS)

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The Joint Biological Tactical Detection System (JBTDS) program awarded a full and open contract to Chemring Sensors and Electronic Systems (CSES) in the 3rd Quarter of FY15 for Engineering and Manufacturing Development (EMD) with options for Low Rate Initial Production (LRIP) and Full Rate Production (FRP). The JBTDS program uses an evolutionary acquisition strategy. Under this approach, capability is developed based on current technologies, recognizing up front the need for potential technology insertion as technology advances to provide better and more cost effective capabilities. Technology insertions will provide militarily useful and supportable operational capabilities that can be developed, produced, deployed, and sustained. Based on the results at Biological Point System Assessment (BPSA), JBTDS selected integration with the TacBio2 as the detector and Joint Handheld Biological Identifier (JHBI) as the identification capability. These technologies will offer significant production and O&S cost savings.

JOINT NBC RECONNAISSANCE SYSTEM - STRYKER (JNBCRS)

Joint Nuclear Biological Chemical Radiological System (JNBCRS), includes the Stryker Nuclear Biological Chemical Reconnaissance Vehicle Sensor Suite Upgrade (NBCRV SSU). The acquisition strategy for the Stryker NBCRV SSU is to integrate mature sensors into the Stryker NBCRV to support the Joint Modernization Focused Assessment and system level testing. Following the testing and demonstration, the hardware and software will be fixed and updated for government developmental and operational testing. The Joint Modernization Command Focused Assessment will provide user feedback and operational data to support programmatic and technical decisions. An In Progress Review will be held after the Joint Modernization Command Focused Assessment and system testing to approve a Production Decision and Modification Work Order for fielding. The production and fielding are funded using Army funds. This schedule was accelerated from the previous schedule based on the maturity of the sensor and guidance from the Chief of Staff of the Army.

NBCRV SSU (NBCRV SSU)

Joint Nuclear Biological Chemical Radiological System (JNBCRS), includes the Stryker Nuclear Biological Chemical Reconnaissance Vehicle Sensor Suite Upgrade (NBCRV SSU). The acquisition strategy for the Stryker NBCRV SSU is to integrate mature sensors into the Stryker NBCRV to support Joint Warfighter Assessment 2020 and system level testing. Following the testing and demonstration, the hardware and software will be fixed and updated for government developmental and operational testing. The Joint Warfighter Assessments will provide user feedback and operational data to support programmatic and technical decisions. An In Progress Review will be held after Joint Warfighter Assessment 2020 and system testing to approve a Production Decision and Modification Work Order for fielding. The production and fielding are funded using Army funds. This schedule was accelerated from the previous schedule based on the maturity of the sensor and guidance from the Chief of Staff of the Army.

MOUNTED MANNED PLATFORM RADIOLOGICAL DETECTION SYSTEM (MMPRDS)

The MMPRDS program continued development of the VIPER and MERLIN radiological/nuclear sensor technologies originally developed by the Defense Threat Reduction Agency (DTRA). Sensor development and testing continued in FY20 using separate Countering Weapons of Mass Destruction (CWMD) Other Transaction Authority (OTA) for VIPER and MERLIN. The program awarded a MERLIN production contract in FY20 to support production verification testing, advanced vehicle integration, and initial/rapid fielding to the Joint Nuclear Biological and Chemical Reconnaissance Systems (JNBCRS) sensor suite upgrade platform under conditional

materiel release. MMPRDS will sunset at the end of FY20 and transition to a separate line of effort for MERLIN. MERLIN will complete development in FY21 and deliver systems to the NBCRV SSU program.

MOUNTED ENHANCED RADIAC LONG RANGE IMAGING NETWORKABLE (MMPRDS MERLIN)

The MERLIN BA5 line covers risk reduction efforts for the possible integration of the MERLIN system onto other Army platforms within the formation. The work will be accomplished through competition using an Other Transaction Authority (OTA) utilizing the Countering Weapons of Mass Destruction (CWMD) OTA.

NON TRADITIONAL AGENT DEFENSE (NTA DEFENSE)

The NTA Defense program will use a variety of acquisition approaches to survey, develop, assess, and rapidly field technologies to inform and fill NTA gaps. The program will utilize an existing Multiple Award Indefinite Delivery Indefinite Quantify Task Order Contract to provide technical support to studies and assessments of performance against emerging threats. For Program of Record (PoR) systems currently in development that will be assessed for performance against NTAs, those PoR's existing contracts will be modified to incorporate development engineering and test support for additional NTA capability. The NTA Defense program will utilize OTAs for system development and prototyping activities and Government Agencies and Federally Funded Research and Development Centers to provide development, testing and technical support.

ADVANCED AND EMERGING THREAT DEFENSE (AET DEFENSE)

The AET Defense program will use a variety of acquisition approaches to survey, develop, assess, and rapidly field technologies to inform and fill advanced and emerging threat gaps. The program will utilize an existing Multiple Award Indefinite Delivery Indefinite Quantify Task Order Contract to provide technical support to studies and assessments of performance against emerging threats. For Program of Record (PoR) systems currently in development that will be assessed for performance against emerging threats, those PoR's existing contracts will be modified to incorporate development engineering and test support for emerging threat capability. The AET Defense program will utilize OTAs for system development and prototyping activities and Government Agencies and Federally Funded Research and Development Centers to provide development, testing and technical support. BA5 activities focus on engineering and manufacturing of technologies that have demonstrated TRL 6 or higher.

REACTIVE CHEMISTRY ORTHOGONAL SURFACE AND ENVIRONMENTAL THREAT TICKET ARRAY (ROSETTA)

ROSETTA will use a streamlined approach to rapidly field multiple modernizations of currently fielded components of the M256 kit via engineering change proposals (ECPs). This approach is based on technology that will transition from Science and Technology Efforts and/or commercial off the shelf (COTS) products to the M256 kit. These efforts will utilize multiple contract vehicles including Countering Weapons of Mass Destruction (CWMD) OTA and JERDAP in order to streamline the acquisition of the products. The ROSETTA funding completed the acquisition of the M8 component to the M256 kit and will support the acquisition of a PBA ticket, the M256 vapor unmasking tool, and the other NTAs and TICs. These products will be transitioned to TACOM for production and sustainment.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		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
AVCAD - HW S - P&D Contract- Chemring	C/CPIF	Chemring Detection Systems : Inc., Charlotte, NC	1.719	5.724	Oct 2019	6.104	Jun 2021	5.750	Nov 2021	0.000		5.750	0.000	19.297	0.000
AVCAD - HW S - P&D Contract- Smiths Detection	C/CPIF	Smiths Detection : Edgewood, MD	4.801	8.358	Oct 2019	9.185	Jun 2021	5.750	Nov 2021	0.000		5.750	0.000	28.094	0.000
AVCAD - HW P&D - Government Product Development Team Labor (core, matrix & contract services)	MIPR	Various : Various	1.657	0.511		2.054	Nov 2020	1.303	Nov 2021	0.000		1.303	0.000	5.525	0.000
MPCAD - PM/MS S - Government Product Development Team Labor	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	1.686	1.987	Jan 2020	2.289	Nov 2020	1.329	Nov 2021	0.000		1.329	0.000	7.291	0.000
MPCAD - HW S - EMD Contract - FLIR	C/CPFF	FLIR Systems : Inc., West Lafayette, IN	4.678	9.974	Mar 2020	7.868	Dec 2020	1.487	Dec 2021	0.000		1.487	0.000	24.007	0.000
MPCAD - HW S - EMD Contract - Sig Sci	C/CPFF	Signature Science : Austin, TX	11.995	11.876	Mar 2020	8.443	Dec 2020	1.487	Dec 2021	0.000		1.487	0.000	33.801	0.000
MPCAD - HW C - Contractor Product Development Team Labor	C/FFP	Kalman & Company Inc. : Virginia Beach, VA	0.000	0.208	Nov 2019	0.200	Feb 2021	0.200	Dec 2021	0.000		0.200	0.000	0.608	0.000
CSIRP - HW C - Chem Sensor Design	Various	Various : Various	0.000	0.000		1.050	Apr 2021	8.100	Nov 2021	0.000		8.100	0.000	9.150	0.000
CSIRP - SW C - Sensor Integration	C/CPFF	Charles Stark Draper Laboratories : Inc., Cambridge, MA	0.000	0.000		2.100	Mar 2021	0.000		0.000		0.000	0.000	2.100	0.000
CSIRP - HW C - UAS Manufacturing and design	MIPR	Various : Various	0.000	0.000		0.760	Apr 2021	0.000	Nov 2021	0.000		0.000	0.000	0.760	0.000

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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
CSIRP - SW C - UAS and Sensor Manufacturing and Design	C/CPFF	T2S Solutions (T2S : LLC), Belcamp, MD	0.000	0.000		1.225	Mar 2021	0.000		0.000		0.000	0.000	1.225	0.000
CSIRP - HW C - HW C RN Sensor Prototype and Integration	C/FFP	Radiation Monitoring Devices : Inc, Boston, MA	0.000	0.000		0.730	Apr 2021	0.000		0.000		0.000	0.000	0.730	0.000
CSIRP - HW C - Government Product Development Team Labor	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.000		1.335	Mar 2021	1.901	Nov 2021	0.000		1.901	0.000	3.236	0.000
CSIRP - HW C - Chemical sensor Prototype and Integration	C/FFP	Intelligent Optical Systems (IOS) : Torrance, CA	0.000	0.000		1.040	Mar 2021	1.000	Nov 2021	0.000		1.000	0.000	2.040	0.000
CSIRP - HW C - Contractor Product Development Team Labor	C/FFP	Patricio Enterprises : Inc., Woodbridge, VA	0.000	0.000		0.016	Apr 2021	0.000		0.000		0.000	0.000	0.016	0.000
EMBD - HW S - Product Development Support	MIPR	Various : Various	2.957	1.227	Mar 2020	0.000		0.000		0.000		0.000	0.000	4.184	0.000
EMBD - HW S - Contractor Product Development Team labor	C/FFP	Patricio Enterprises : Inc., Woodbridge, VA	0.216	0.478	Feb 2020	0.000		0.000		0.000		0.000	0.000	0.694	0.000
EMBD - HW C - Prototype Development	FFRDC	MA Institute of Tech - Lincoln Labs (MIT-LL) : Lexington, MA	2.980	0.150	Feb 2020	0.000		0.000		0.000		0.000	0.000	3.130	0.000
EMBD - HW S - Prototype Development and Manufacturing	C/CPIF	Chemring Detection Systems : Inc., Charlotte, NC	13.397	3.959	Feb 2020	0.000		0.000		0.000		0.000	0.000	17.356	0.000
JBTDS - HW C - LRIP Contract Award	C/CPIF	Chemring Sensors & Electronic Systems : Charlotte, NC	0.000	0.000		0.000		0.423	Jun 2022	0.000		0.423	0.000	0.423	0.000

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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
JBTDS - Product Development	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.594	0.353	Nov 2019	0.200	Jan 2021	0.206	Jan 2022	0.000		0.206	0.000	1.353	0.000
JBTDS - HW SB - Prototype Development	C/CPFF	ATI Solutions : Inc., Tysons Corner, VA	3.500	0.246	Nov 2019	0.000		0.000		0.000		0.000	0.000	3.746	0.000
JBTDS - HW GFPR - LRIP Test Hardware	C/CPFF	Army Contracting Command : Natick, MA	0.000	0.000		0.000		0.654	Jun 2022	0.000		0.654	0.000	0.654	0.000
JBTDS - HW - EMD Contract Award	C/CPIF	Chemring Detection Systems : Inc., Charlotte, NC	31.614	3.340	Nov 2019	1.337	Feb 2021	0.000		0.000		0.000	0.000	36.291	0.000
JBTDS - Cotractor Product Development Team labor	C/FFP	Patricio Enterprises : Inc., Woodbridge, VA	1.452	0.132	Feb 2020	0.299	Feb 2021	0.000		0.000		0.000	0.000	1.883	0.000
JBTDS - Government Product Development Team Labor	MIPR	Various : Various	22.313	2.886	Nov 2019	2.966	Nov 2020	1.197	Nov 2021	0.000		1.197	0.000	29.362	0.000
JNBCRS 1 - SW C Integration	C/FFP	FLIR Systems Inc. : Elkridge, MD	7.957	11.318	Nov 2019	14.549	Nov 2020	0.000		0.000		0.000	0.000	33.824	0.000
JNBCRS 1 - HW C - Chemical Surface Detector Development	C/CPFF	Various : Various	0.000	1.932	Jul 2020	1.600	Nov 2020	0.000		0.000		0.000	0.000	3.532	0.000
JNBCRS 1 - HW C - Government Product Development Team Labor	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	2.496	1.324	Nov 2019	1.835	Nov 2020	0.000		0.000		0.000	0.000	5.655	0.000

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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
JNBCRS 1 - HW-Sensor Suite Development	Various	Various : Various	7.845	0.000		0.606	Nov 2020	0.000		0.000		0.000	0.000	8.451	0.000
JNBCRS 1 - HW C - Contractor Team Labor	C/FFP	Various : Various	0.000	1.101	Feb 2020	0.704	Feb 2021	0.000		0.000		0.000	0.000	1.805	0.000
JNBCRS 1 - HW C - UAV CBRN Sensor Development	C/CPFF	Various : Various	0.000	2.900	Feb 2020	0.000		0.000		0.000		0.000	0.000	2.900	0.000
NBCRV SSU - Contractor Team Labor	C/FFP	Various : Various	0.000	0.000		0.000		0.260	Feb 2022	0.000		0.260	0.000	0.260	0.000
NBCRV SSU - Chemical Surface Detector Development	C/CPFF	TBD : N/A	0.000	0.000		0.000		1.000	Feb 2022	0.000		1.000	0.000	1.000	0.000
NBCRV SSU - Integration	C/FFP	FLIR Systems Inc. : Elkridge, MD	0.000	0.000		0.000		6.991	Nov 2021	0.000		6.991	0.000	6.991	0.000
NBCRV SSU - Government Product Development Team Labor	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.951	Nov 2021	0.000		0.951	0.000	0.951	0.000
MMPRDS - HW C - Government SE Product Development Team Labor	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.800	Nov 2019	0.000		0.000		0.000		0.000	0.000	0.800	0.000
MMPRDS - HW S - Product Development	Various	Various : Various	0.000	0.762	May 2020	0.000		0.000		0.000		0.000	0.000	0.762	0.000
MMPRDS - HW C MERLIN System Refinement	C/CPFF	H3D INC : Ann Arbor, MI	0.793	1.792	Nov 2019	0.000		0.000		0.000		0.000	0.000	2.585	0.000

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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
MMPRDS - HW C - VIPER System Refinement	C/CPFF	Spectral Labs Inc. : San Diego, CA	0.750	1.178	Nov 2019	0.000		0.000		0.000		0.000	0.000	1.928	0.000
MERLIN - HW C - Army Platform Integration Kit Development	C/CPFF	TBD : N/A	0.000	0.000		0.784	Nov 2020	0.000		0.000		0.000	0.000	0.784	0.000
MERLIN - HW C - Government Product Development Team Labor	MIPR	CCDC CBC : Aberdeen Proving Ground, MD	0.000	0.000		0.330	Nov 2020	0.000		0.000		0.000	0.000	0.330	0.000
NTA DEFENSE - HW C - Systems Prototyping & Development	C/FFP	ATI Solutions : Inc., Tysons Corner, VA	0.000	1.362	Feb 2020	0.000		0.000		0.000		0.000	0.000	1.362	0.000
NTA DEFENSE - HW C - Systems Prototyping & Development #2	C/CPFF	Various : Various	0.000	0.815	Mar 2020	0.671	Dec 2020	0.000		0.000		0.000	0.000	1.486	0.000
AET DEFENSE - SW C - Prototyping and Modification	Various	Various : Various	0.000	0.000		0.000		0.931	Jan 2022	0.000		0.931	0.000	0.931	0.000
AET DEFENSE - HW S - System Prototyping and Modification	Various	Various : Various	0.000	0.000		0.000		0.178	Dec 2021	0.000		0.178	0.000	0.178	0.000
AET DEFENSE - HW S - Emerging threat detection/ decontamination/protection capability engineering development	Various	Various : Various	0.000	0.000		0.000		0.191	Dec 2021	0.000		0.191	0.000	0.191	0.000
ROSETTA - HW C - Product Development	C/FFP	ATI Solutions : Inc., Tysons Corner, VA	1.512	1.224	Jul 2020	1.278	Jul 2021	0.000		0.000		0.000	0.000	4.014	0.000
ROSETTA - HW C - Government Product Development Core Team Labor	MIPR	JPM CBRN Sensors : JPEO-CBRND, Aberdeen Proving Ground, MD	0.000	0.277	Feb 2020	0.300	Nov 2021	0.054	Nov 2022	0.000		0.054	0.000	0.631	0.000
ROSETTA - HW C - Government Product	MIPR	U.S. Army Combat Capabilities Development	0.128	0.597	Feb 2020	0.937	Nov 2021	0.680	Nov 2022	0.000		0.680	0.000	2.342	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *Contamination Avoidance (SDD)*

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
Development Team Matrix Labor		Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD													
ROSETTA - HW C - Contractor Product Development Team Labor	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	0.000		0.075	Dec 2020	0.000		0.000		0.000	0.000	0.075	0.000
		Subtotal	127.040	78.791		72.870		42.023		0.000		42.023	0.000	320.724	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
AVCAD - ES C - ALD support (Logistics & Packaging)	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.212	Dec 2019	0.000		0.000		0.000		0.000	0.000	0.212	0.000
AVCAD - Non-test OGA support	MIPR	Various : Various	0.000	0.000		2.164	Jan 2021	0.000		0.000		0.000	0.000	2.164	0.000
AVCAD - ES P&D - ALD, ISA & TACOM Support	MIPR	Various : Various	0.000	0.000		0.000		1.250	Nov 2021	0.000		1.250	0.000	1.250	0.000
CSIRP - ES C - Eng support	Various	Various : Various	0.000	0.000		0.406	Apr 2021	1.450	Nov 2021	0.000		1.450	0.000	1.856	0.000
EMBD - ES S - Test Planning Support	MIPR	Navy Operational Test and Eval Force (OPTEVFOR) : Norfolk, VA	0.389	0.342	Feb 2020	0.000		0.000		0.000		0.000	0.000	0.731	0.000
EMBD - ES C - Service Support	MIPR	Naval Surface Warfare Center	1.521	0.359	Feb 2020	0.000		0.000		0.000		0.000	0.000	1.880	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *Contamination Avoidance (SDD)*

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
		(NSWC) - Dahlgren Center : Dahlgren, VA													
EMBD - ES - OTA/OGA Service Representation	MIPR	Various : Various	0.000	0.636	Mar 2020	0.000		0.000		0.000		0.000	0.000	0.636	0.000
JBTDS - ES - Engineering Support	MIPR	Various : Various	0.000	1.166	Mar 2020	0.297	Nov 2020	0.494	Jun 2022	0.000		0.494	0.000	1.957	0.000
JBTDS - ES - Engineering Support #2	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	2.635	0.000		0.620	Jan 2021	0.000		0.000		0.000	0.000	3.255	0.000
JBTDS - ES - Biosensor Calibration Effort	MIPR	Naval Research Lab (NRL) : Washington, DC	2.781	0.078	Nov 2019	0.000	Mar 2021	0.000		0.000		0.000	0.000	2.859	0.000
JBTDS - ES - OTA/OGA Service Representation	MIPR	Various : Various	11.149	2.229	Nov 2019	1.071	Jan 2021	0.000		0.000		0.000	0.000	14.449	0.000
JNBCRS 1 - ES C - Stryker NBCRV Maintenance	Various	Various : Various	0.000	0.268	Dec 2019	0.200	Feb 2021	0.000		0.000		0.000	0.000	0.468	0.000
JNBCRS 1 - ES - Engineering Support	MIPR	Various : Various	2.445	0.373	Nov 2019	0.251	Nov 2020	0.000		0.000		0.000	0.000	3.069	0.000
JNBCRS 1 - ES C - Contract and Product Support	Various	Various : Various	0.000	1.068	Feb 2020	1.214	Dec 2020	0.000		0.000		0.000	0.000	2.282	0.000
JNBCRS 1 - ILS C - Logistics Support	C/FFP	Various : Various	0.000	1.893	Mar 2020	0.560	Nov 2020	0.000		0.000		0.000	0.000	2.453	0.000
NBCRV SSU - ES C - Contract and Product Support	Various	Various : Various	0.000	0.000		0.000		0.820	Nov 2021	0.000		0.820	0.000	0.820	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *Contamination Avoidance (SDD)*

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
NBCRV SSU - ES C - Stryker NBCRV Maintenance	Various	Various : Various	0.000	0.000		0.000		2.000	Nov 2021	0.000		2.000	0.000	2.000	0.000
NBCRV SSU - ILS C - Logistic Support	C/FFP	TBD : N/A	0.000	0.000		0.000		0.442	Nov 2021	0.000		0.442	0.000	0.442	0.000
NBCRV SSU - ES C - Engineering Support	MIPR	Various : Various	0.000	0.000		0.000		0.250	Nov 2021	0.000		0.250	0.000	0.250	0.000
MMPRDS - ILS C - Logistics Support	MIPR	U.S. Army Tank-automotive & Armaments Command (TACOM) : Warren, MI	0.000	0.271	Mar 2020	0.000		0.000		0.000		0.000	0.000	0.271	0.000
ROSETTA - ES C - Engineering and technical services for ROSETTA	MIPR	Various : Various	0.000	0.090	May 2020	0.975	Nov 2020	0.000		0.000		0.000	0.000	1.065	0.000
		Subtotal	20.920	8.985		7.758		6.706		0.000		6.706	0.000	44.369	N/A

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
AVCAD - DTE C and P&D	MIPR	Various : Various	0.764	3.226	Oct 2019	4.129	Apr 2021	1.775	Nov 2021	0.000		1.775	0.000	9.894	0.000
AVCAD - P&D - DT/ OT Chem Chamber & Chemicals	MIPR	West Desert Test Center : Dugway, UT	0.000	0.000		0.000		3.300	Nov 2021	0.000		3.300	0.000	3.300	0.000
AVCAD - DTE C - DT/ OT Chemical Chamber & Chemical Purchase for Chamber	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	3.330	Oct 2019	2.826	Mar 2021	0.000		0.000		0.000	0.000	6.156	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program			Date: May 2021
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	Project (Number/Name) CA5 / *Contamination Avoidance (SDD)*	

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
MPCAD - DTE C - Various	MIPR	Various : Various	0.000	0.635	Dec 2019	2.677	Jan 2021	0.407	Jan 2022	0.000		0.407	0.000	3.719	0.000
MPCAD - DTE C - MPCAD support	MIPR	Aberdeen Test Center (ATC) : Aberdeen Proving Ground, MD	0.000	0.996	Nov 2019	1.268	Feb 2021	0.655	Nov 2021	0.000		0.655	0.000	2.919	0.000
MPCAD - DTE C - DT/OT Chemical Chamber Event	MIPR	West Desert Test Center : Dugway, UT	0.000	2.458	Nov 2019	3.892	Dec 2020	1.652	Jan 2022	0.000		1.652	0.000	8.002	0.000
MPCAD - DTE C - OT Limited Users Test	MIPR	Aberdeen Test Center (ATC) : Aberdeen Proving Ground, MD	0.000	0.000		1.671	Mar 2021	0.000		0.000		0.000	0.000	1.671	0.000
MPCAD - DTE C - Program Management Evaluation for Solid/Liquid Vapor Testing	MIPR	West Desert Test Center : Dugway, UT	0.736	0.099	Apr 2020	0.000		0.000		0.000		0.000	0.000	0.835	0.000
MPCAD - OTE S - Multi-Service Operational Test (OTC)	MIPR	Operational Test Command (OTC) : Ft. Hood, TX	0.000	0.000		1.150		1.321	Feb 2021	0.000		1.321	0.000	2.471	0.000
CSIRP - DTE C Prototype Testing and Evaluation	Various	TBD : N/A	0.000	0.000		0.337	May 2021	2.280	Nov 2021	0.000		2.280	0.000	2.617	0.000
CSIRP - DTE C - CSIRP Testing & Evalution	MIPR	CCDC CBC : Aberdeen Proving Ground, MD	0.000	0.000		0.250	Apr 2021	0.000		0.000		0.000	0.000	0.250	0.000
CSIRP - DTE C - CSIRP JHU-APL	MIPR	Johns Hopkins University - Applied Physics Lab : Laurel, MD	0.000	0.000		0.400	Apr 2021	0.000		0.000		0.000	0.000	0.400	0.000
EMBD - DTE S	C/CPFF	Battelle Memorial Institute : Aberdeen, MD	0.000	0.640	Apr 2020	0.000		0.000		0.000		0.000	0.000	0.640	0.000
EMBD - DTE C	MIPR	U.S. Army Tank-automotive & Armaments Command	0.000	0.498	Feb 2020	0.000		0.000		0.000		0.000	0.000	0.498	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *Contamination Avoidance (SDD)*

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
		(TACOM) : Warren, MI													
EMBD - DTE S - DT/OT Live Agent Aerosol Testing	MIPR	Dugway Proving Ground (DPG) : Dugway, UT	0.000	0.661	Feb 2020	0.000		0.000		0.000		0.000	0.000	0.661	0.000
EMBD - DTE C - DT/OT - OA/CVPA/RAM	MIPR	Navy Operational Test and Eval Force (OPTEVFOR) : Norfolk, VA	0.030	0.296	Feb 2020	0.000		0.000		0.000		0.000	0.000	0.326	0.000
EMBD - OTE S - DT - MIL-STD	MIPR	Aberdeen Test Center (ATC) : Aberdeen Proving Ground, MD	0.000	0.276	Feb 2020	0.000		0.000		0.000		0.000	0.000	0.276	0.000
EMBD - DTE - Live Agent Testing	MIPR	Johns Hopkins University - Applied Physics Lab : Laurel, MD	0.843	0.193	Jan 2020	0.000		0.000		0.000		0.000	0.000	1.036	0.000
EMBD - DTE - Consumable Procurement	MIPR	JPM CBRN Medical : Ft. Detrick, MD	0.530	0.309	Dec 2019	0.000		0.000		0.000		0.000	0.000	0.839	0.000
EMBD - Various Testing Support -28th T&E, NTS	MIPR	Various : Various	0.259	0.702	Feb 2020	0.000		0.000		0.000		0.000	0.000	0.961	0.000
JBTDS - OTHT S - JHBI	C/CPFF	Biomeme : Philadelphia, PA	0.000	1.315	Apr 2020	0.314	Nov 2020	0.000		0.000		0.000	0.000	1.629	0.000
JBTDS - DTE SB - Identifier Live Agent Trials	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.000	Nov 2020	1.485	Nov 2020	0.452	Nov 2021	0.000		0.452	0.000	1.937	0.000
JBTDS - DTE - Developmental Testing	MIPR	U.S. Army Combat Capabilities Development Command	6.236	0.348	Nov 2019	1.096	Jan 2021	0.431	Nov 2022	0.000		0.431	4.740	12.851	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program			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
		(DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD													
JBTDS - DTE - Testing	MIPR	Various : Various	0.380	0.000		0.310	Nov 2020	0.504	Nov 2022	0.000		0.504	0.000	1.194	0.000
JBTDS - DTE - ARCA Chamber and Record Test Support	C/FFP	Battelle Memorial Institute : Columbus, OH	0.877	0.287	Nov 2019	0.300	Jan 2021	0.284	Nov 2022	0.000		0.284	0.000	1.748	0.000
JBTDS - DTE - V&V of JBTDS Military Utility Model	FFRDC	Institute for Defense Analysis (IDA) : Alexandria, VA	0.000	0.200	Nov 2019	0.575	Nov 2020	0.000		0.000		0.000	0.000	0.775	0.000
JBTDS - OT - Operational Assessment	MIPR	Various : Various	0.592	0.000		1.107	Jan 2021	1.262	Nov 2022	0.000		1.262	0.000	2.961	0.000
JBTDS - JHU SOLITUDE	C/FFP	Johns Hopkins University - Applied Physics Lab : Laurel, MD	3.632	0.382	Apr 2020	0.000		0.000		0.000		0.000	0.000	4.014	0.000
JNBCRS 1 - DTE - Test and Evaluation	MIPR	Various : Various	4.023	1.790	Nov 2019	1.270	Nov 2020	0.000		0.000		0.000	0.000	7.083	0.000
NBCRV SSU - DTE C - Test and Evaluation	Various	TBD : N/A	0.000	0.000		0.000		5.000	Nov 2021	0.000		5.000	0.000	5.000	0.000
MMPRDS - DTE S - VIPER Production Qualification Testing	MIPR	White Sands Missile Range (WSMR) : Mesa, AZ	0.000	0.175	Jul 2020	0.000		0.000		0.000		0.000	0.000	0.175	0.000
NTA DEFENSE - DTE C - System Prototype Development	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.255	Mar 2020	1.000	Apr 2021	0.000		0.000		0.000	0.000	1.255	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *Contamination Avoidance (SDD)*

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
NTA DEFENSE - DTE C - Field-forward PBA Detection	Various	TBD : N/A	0.000	0.000		1.416	Nov 2020	0.000		0.000		0.000	0.000	1.416	0.000
NTA DEFENSE - DTE S - Capability Assessments	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	1.361	0.746	Dec 2019	0.000		0.000		0.000		0.000	0.000	2.107	0.000
AET DEFENSE - OTHT C - Product Demonstration Events for Users	MIPR	Various : Various	0.000	0.000		0.000		0.500	Feb 2022	0.000		0.500	0.000	0.500	0.000
AET DEFENSE - DTE S - Technology Assessments	Various	Various : Various	0.000	0.000		0.000		0.745	Dec 2021	0.000		0.745	0.000	0.745	0.000
ROSETTA - DTE C - Development Testing	MIPR	Various : Various	0.000	1.123	Oct 2019	2.391	Nov 2020	0.000		0.000		0.000	0.000	3.514	0.000
		Subtotal	20.263	20.940		29.864		20.568		0.000		20.568	4.740	96.375	N/A

Remarks

EMBD: $529k for misc organizations

Management Services ($ 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
AVCAD - PM/MS S - Program Management Support	MIPR	Various : Various	1.239	2.073	Jan 2020	4.585	Jan 2021	3.441	Nov 2021	0.000		3.441	0.000	11.338	0.000
MPCAD - PM/MS S - Program Management Support	MIPR	Various : Various	2.119	5.052	Dec 2019	4.499	Dec 2020	2.216	Dec 2021	0.000		2.216	0.000	13.886	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program			Date: May 2021
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Management Services ($ 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
CSIRP - PM/MS S Program Management Support	Various	Various : Various	0.000	0.000		1.602	Sep 2021	1.850	Nov 2021	0.000		1.850	0.000	3.452	0.000
EMBD - Program Management Support	MIPR	Various : Various	4.807	2.166	Nov 2019	0.000		0.000		0.000		0.000	0.000	6.973	0.000
JBTDS - PM/MS S - Program Management Support	MIPR	Various : Various	18.299	1.927	Nov 2019	2.085	Nov 2020	1.480	Nov 2021	0.000		1.480	0.000	23.791	0.000
JNBCRS 1 - PM/MS S - Program Management Support	MIPR	Various : Various	4.580	4.355	Nov 2019	4.073	Nov 2020	0.000		0.000		0.000	0.000	13.008	0.000
NBCRV SSU - PM/MS S - Program Management Support	MIPR	Various : Various	0.000	0.000		0.000		3.627	Jan 2022	0.000		3.627	0.000	3.627	0.000
MMPRDS - Program Management Support	MIPR	JPM CBRN Sensors : JPEO-CBRND, Aberdeen Proving Ground, MD	0.423	0.727	May 2020	0.000		0.000		0.000		0.000	0.000	1.150	0.000
MERLIN - PM/MS S - Program Management Support	MIPR	Various : Various	0.000	0.000		0.180	Nov 2020	0.000		0.000		0.000	0.000	0.180	0.000
NTA DEFENSE - PM/MS S - IPT Support/Program Management	MIPR	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	6.263	0.335	Dec 2019	0.592	Nov 2020	0.000		0.000		0.000	0.000	7.190	0.000
AET DEFENSE - PM/MS S - IPT Support/Program Management	MIPR	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	0.000	0.000		0.000		0.081	Dec 2021	0.000		0.081	0.000	0.081	0.000
ROSETTA - PM/MS S - Program Management Support	MIPR	Various : Various	0.000	0.298	Oct 2019	0.846	Oct 2020	0.303	Oct 2021	0.000		0.303	0.000	1.447	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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Management Services ($ 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
ROSETTA - PM/MS S - Program Management Support #2	MIPR	Various : Various	0.106	0.370	Oct 2019	0.000		0.000		0.000		0.000	0.000	0.476	0.000
		Subtotal	37.836	17.303		18.462		12.998		0.000		12.998	0.000	86.599	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	206.059	126.019		128.954		82.295		0.000		82.295	4.740	548.067	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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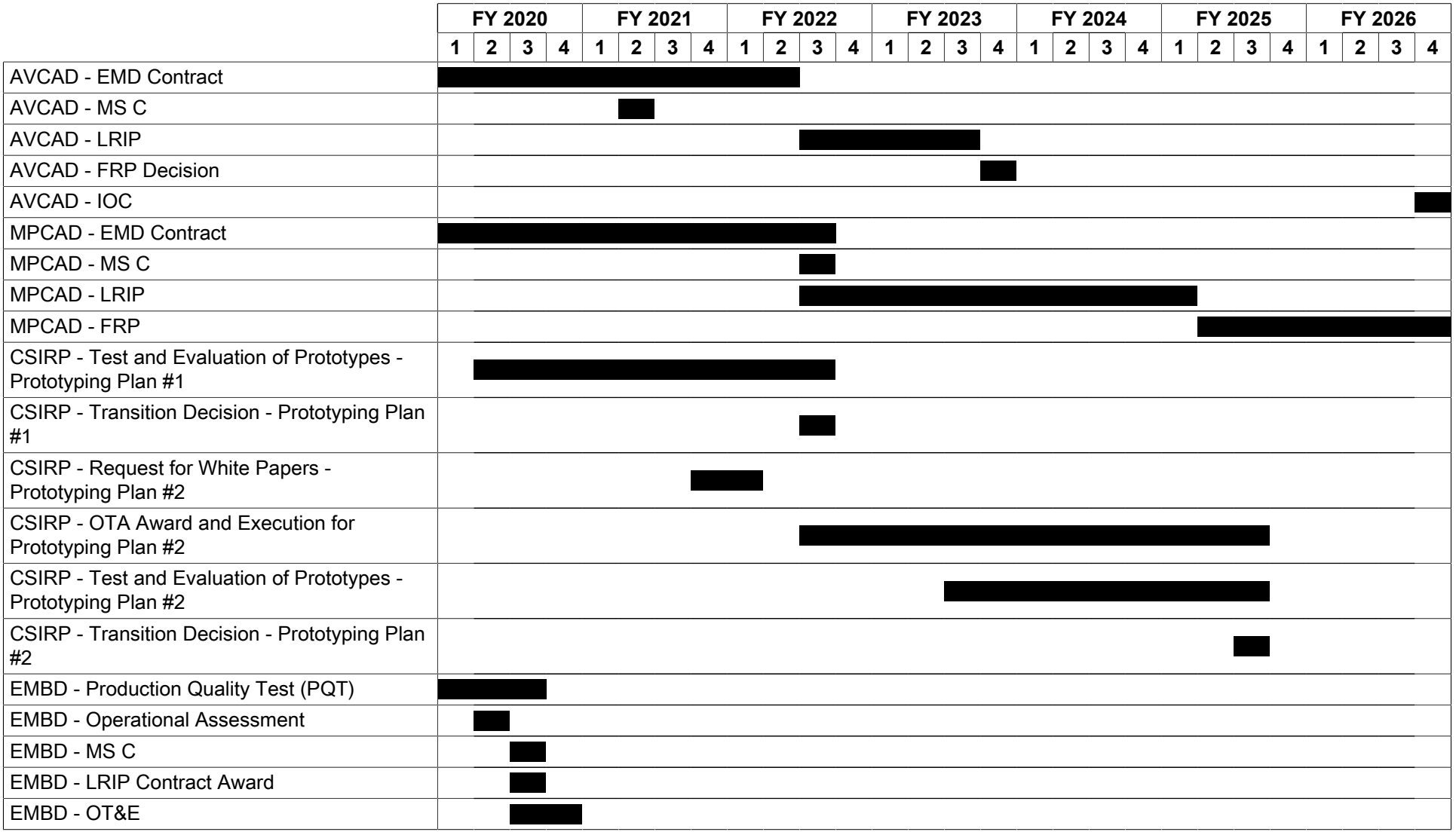

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *Contamination Avoidance (SDD)*

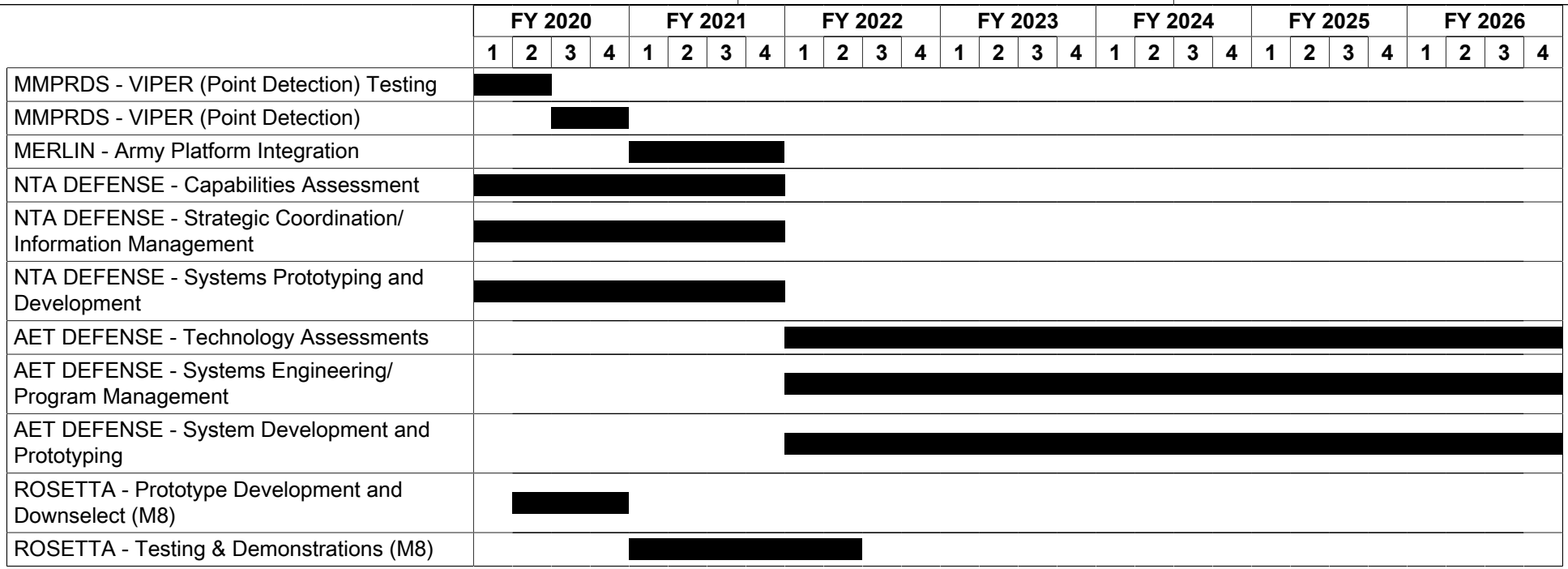

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *Contamination Avoidance (SDD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
AVCAD - EMD Contract	1	2020	2	2022
AVCAD - MS C	2	2021	2	2021
AVCAD - LRIP	3	2022	3	2023
AVCAD - FRP Decision	4	2023	4	2023
AVCAD - IOC	4	2026	4	2026
MPCAD - EMD Contract	1	2020	3	2022
MPCAD - MS C	3	2022	3	2022
MPCAD - LRIP	3	2022	1	2025
MPCAD - FRP	2	2025	4	2026
CSIRP - Test and Evaluation of Prototypes - Prototyping Plan #1	2	2020	3	2022
CSIRP - Transition Decision - Prototyping Plan #1	3	2022	3	2022
CSIRP - Request for White Papers - Prototyping Plan #2	4	2021	1	2022
CSIRP - OTA Award and Execution for Prototyping Plan #2	3	2022	3	2025
CSIRP - Test and Evaluation of Prototypes - Prototyping Plan #2	3	2023	3	2025
CSIRP - Transition Decision - Prototyping Plan #2	3	2025	3	2025
EMBD - Production Quality Test (PQT)	1	2020	3	2020
EMBD - Operational Assessment	2	2020	2	2020
EMBD - MS C	3	2020	3	2020
EMBD - LRIP Contract Award	3	2020	3	2020
EMBD - OT&E	3	2020	4	2020
EMBD - FRP Decision	2	2021	3	2021
EMBD - FRP Production	2	2021	4	2026

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *Contamination Avoidance (SDD)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JBTDS - Developmental Testing	1	2020	4	2020
JBTDS - PQT	4	2020	4	2021
JBTDS - Milestone C	4	2022	4	2022
JBTDS - LRIP Contract Award	3	2022	3	2022
JBTDS - LRIP Production	3	2022	3	2023
JBTDS - PVT	1	2023	3	2023
JBTDS - MOT&E	1	2023	2	2023
JBTDS - FRP Decision	1	2024	1	2024
JBTDS - FRP Award	1	2024	1	2024
JBTDS - IOC	1	2024	1	2024
JNBCRS 1 - Design and Fabrication Phase 2	1	2020	3	2021
JNBCRS 1 - Joint Warfighter Assessment 2020	3	2020	3	2020
JNBCRS 1 - Component Test	3	2021	3	2022
JNBCRS 1 - System Level Test 1	3	2021	3	2022
NBCRV SSU - Modification Work Order Executing IPR	2	2022	3	2022
NBCRV SSU - Production/Fielding	3	2022	4	2024
MMPRDS - MERLIN (Standoff Detection) Production Ready Test Assets	1	2020	2	2020
MMPRDS - Testing MERLIN (Standoff Detection)	1	2020	2	2020
MMPRDS - MERLIN (Standoff Detection) Production	3	2020	4	2020
MMPRDS - VIPER (Point Detection) Production Ready Test Assets	1	2020	1	2020
MMPRDS - VIPER (Point Detection) Testing	1	2020	2	2020
MMPRDS - VIPER (Point Detection)	3	2020	4	2020
MERLIN - Army Platform Integration	1	2021	4	2021
NTA DEFENSE - Capabilities Assessment	1	2020	4	2021
NTA DEFENSE - Strategic Coordination/Information Management	1	2020	4	2021

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CA5 / *Contamination Avoidance (SDD)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
NTA DEFENSE - Systems Prototyping and Development	1	2020	4	2021
AET DEFENSE - Technology Assessments	1	2022	4	2026
AET DEFENSE - Systems Engineering/Program Management	1	2022	4	2026
AET DEFENSE - System Development and Prototyping	1	2022	4	2026
ROSETTA - Prototype Development and Downselect (M8)	2	2020	4	2020
ROSETTA - Testing & Demonstrations (M8)	1	2021	2	2022

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program			Date: May 2021
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	Project (Number/Name) CM5 / *Homeland Defense (SDD)*	

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
CM5: *Homeland Defense (SDD)*	-	9.414	0.000	0.000	-	0.000	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports Engineering and Manufacturing Development of common analytical laboratory system capabilities to conduct on-site analysis of any unknown sample and test potential life-threatening substances.

The effort included in this project is:
(1) Common Analytical Laboratory System capability (CALS)

The CALS program will provide common analytical capabilities packaged to meet the specific CONOPS and mission of the gaining unit to detect and identify Chemical Warfare Agents (CWAs), Toxic Industrial Chemicals (TICs), Toxic Industrial Materials (TIMs) and Biological Warfare Agents (BWAs). Users of the system will include the National Guard Bureau, the Army 20th Support Command, the Army Medical Laboratory, the Air Force, and the Navy. CALS is comprised of two variants, the Theater Validation Integrated System (TV-IS) variant which will be built for a longer duration mission and for semi-permanent applications, and the Field Confirmatory Analytical Capability Sets (FC-ACS) variant designed for shorter duration field confirmatory missions.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: 1) CALS	9.414	-	-
Description: TV IS Developmental Testing and Support			
Accomplishments/Planned Programs Subtotals	9.414	-	-

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
• JS0005: *COMMON ANALYTICAL LABORATORY SYSTEM (CALS)*	7.293	37.173	64.708	-	64.708	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

COMMON ANALYTICAL LABORATORY SYSTEM (CALS)

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CM5 / *Homeland Defense (SDD)*

The Common Analytical Laboratory System (CALS) will be developed leveraging both Commercial Off the Shelf (COTS) and Government Off the Shelf (GOTS) analytical components to support the identification of Chemical, Biological, Radiological and Nuclear (CBRN) agent materials in environmental samples. CALS is comprised of two program of records, the Theater Validation Integrated System (TV-IS) and the Field Confirmatory Analytical Capability Sets (FC-ACS), which will be fielded in accordance with mission need, to components of the Air Force, Army, Marines, Navy and National Guard Bureau requiring CBRN field confirmatory analytical detection capability. A theatre validation variant will be designed and built for a longer duration mission and for semi-permanent applications. An analytical capability suite variant will be designed for shorter duration field confirmatory missions. JPdM CBRNE A&RS awarded one contract during the EMD Phase. The contract was awarded to Battelle Memorial Institute (BMI) (prime) to develop, deliver, manage, and maintain a CALS Technical Data Package (TDP) throughout the EMD Phase. The TDP to be delivered to the Government at the end of the EMD Phase is to include all product data required by the Production Level specifications outlined in Military Standard (MIL-STD)-31000A, and will reflect the tested baseline configuration incorporating all approved changes. As part of the common acquisition strategy, CALS is incorporating the NGDS platform to meet this threshold requirement; specifically to identify various bacterial and viral agents in the CALS integrated systems. This platform provides the ability to analyze for bacterial and viral agents in various environmental, food, and water matrices (sample types).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CM5 / *Homeland Defense (SDD)*

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
CALS - HW S - NGDS Tactical Variant Alpha Prototype	SS/CPFF	BioFire Dx : Salt Lake City, UT	1.855	0.439	Nov 2019	0.000		0.000		0.000		0.000	0.000	2.294	0.000
		Subtotal	1.855	0.439		0.000		0.000		0.000		0.000	0.000	2.294	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
CALS - ES S - Other Government Agencies Services	MIPR	Various : Various	1.183	0.164	Jan 2020	0.000		0.000		0.000		0.000	0.000	1.347	0.000
		Subtotal	1.183	0.164		0.000		0.000		0.000		0.000	0.000	1.347	N/A

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
CALS - OTE S - Test Agency	MIPR	Army Test and Evaluation Command (ATEC) : Aberdeen Proving Ground, MD	0.000	1.158	Apr 2020	0.000		0.000		0.000		0.000	0.000	1.158	0.000
CALS - DTE S - PVT, NET, LOG DEMO, OT Support	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	4.650	Mar 2020	0.000		0.000		0.000		0.000	0.000	4.650	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CM5 / *Homeland Defense (SDD)*

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
CALS - DTE C - BMI Test Support	C/CPIF	Battelle Memorial Institute : Columbus, OH	0.150	0.982	Dec 2019	0.000		0.000		0.000		0.000	0.000	1.132	0.000
		Subtotal	0.150	6.790		0.000		0.000		0.000		0.000	0.000	6.940	N/A

Management Services ($ 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
CALS - PM/MS HW - Program Management Support	MIPR	CCDC CBC : Aberdeen Proving Ground, MD	10.355	2.021	Nov 2019	0.000		0.000		0.000		0.000	0.000	12.376	0.000
		Subtotal	10.355	2.021		0.000		0.000		0.000		0.000	0.000	12.376	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	13.543	9.414		0.000		0.000		0.000		0.000	0.000	22.957	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CM5 / *Homeland Defense (SDD)*

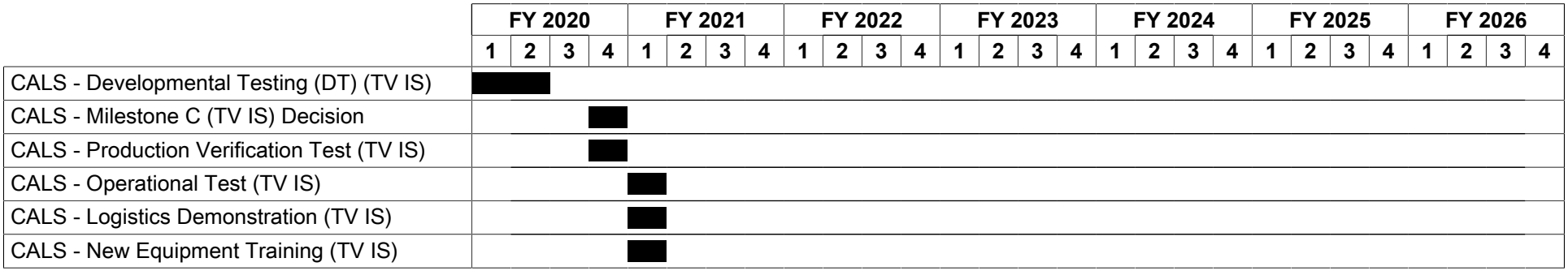

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CM5 / *Homeland Defense (SDD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
CALS - Developmental Testing (DT) (TV IS)	1	2020	2	2020
CALS - Milestone C (TV IS) Decision	4	2020	4	2020
CALS - Production Verification Test (TV IS)	4	2020	4	2020
CALS - Operational Test (TV IS)	1	2021	1	2021
CALS - Logistics Demonstration (TV IS)	1	2021	1	2021
CALS - New Equipment Training (TV IS)	1	2021	1	2021

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program			Date: May 2021
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	Project (Number/Name) CO5 / *Collective Protection (SDD)*	

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
CO5: *Collective Protection (SDD)*	-	7.138	7.885	3.028	-	3.028	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports Engineering and Manufacturing Development and Low Rate Initial Production of Joint Service Chemical, Biological, and Radiological (CBR) Collective Protection (CP) systems that are smaller, lighter, less costly to produce and maintain, and more logistically supportable. CP systems provide spaces safe from the effects of CBR contamination enabling mission accomplishment in CBR environments.

The systems included in this project are:
(1) Chemical Biological Aircraft Survivability Barrier (CASB), and
(2) Joint Expeditionary Collective Protection (JECP) Family of Systems

The CASB program provides a lightweight, low-cost, expendable, negative-pressure enclosure that will protect the interior of DoD multi-Service aircraft assets (MH-47, CV22, MC-130) capable of airlifting/exfiltrating chemically or biologically contaminated personnel, equipment, and cargos while preserving the aircraft for continued unrestricted operations without the need for extensive decontamination.

The JECP program provides the Joint Expeditionary Forces a collective protection capability that is lightweight, compact, modular, and affordable. JECP is a family of systems, developed in two phases that will allow the application of CP to transportable soft-side shelters, enclosed spaces of opportunity and in remote austere locations as a standalone resource. Phase 1 includes standalone CP systems and kits that provide existing host platforms and structures with CBRN protection. Phase 2 includes kits that provide CBRN protection to other host platforms and structures that were not explicitly designed in Phase 1. JECP will be capable of protecting personnel groups of varying size, unencumbered by Individual Protective Equipment (IPE), from the effects of CB agents, Toxic Industrial Materials (TIMs), radiological particles, heat, dust, and sand. The employment of JECP will reduce the need for personnel and equipment decontamination and is a strategic deterrence against state adversaries and non-state actors from using weapons of mass destruction. In FY22 the JECP program finalizes logistics products and program acquisition documentation in support of a Full Rate Production decision.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: 1) Chemical and Biological Aircraft Survivability Barrier (CASB) ***Description:*** CASB prototype development and testing through the EMD Phase.	0.827	-	-
Title: 2) JECP ***Description:*** Phase 2 system Development and Demonstration Events	6.311	7.885	3.028

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2021 Plans: Complete DT testing and reporting. Complete LRIP manufacturing for OT (Qty 2 - Tent Kit Single Skin, Qty 3 - Tent Kit 1, Qty 1 - Tent Kit 3). Conduct MOT&E, Logistics Demonstration and TM verification events. Finalize technical data, logistics products and update/draft program acquisition documentation. ***FY 2022 Plans:*** Complete Technical Manual verification event. Finalize logistics products and finalize program acquisition documentation in support of a Full Rate Production decision. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.			
Accomplishments/Planned Programs Subtotals	7.138	7.885	3.028

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
• JP1111: *JOINT EXPEDITIONARY COLLECTIVE PROTECTION (JECP)*	17.193	14.496	22.719	-	22.719	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

CHEMICAL BIOLOGICAL AIRCRAFT SURVIVABILITY BARRIER (CASB)

The Chemical Biological Aircraft Survivability Barrier (CASB) overall strategy is to utilize primary materials (air filtration and flexible barrier material) currently in use by other programs in the CB defense portfolio. CASB reviewed existing materials and technology as well as designs, configurations, and test data from legacy systems developed for ColPro applications. Using this information, systems are being developed to meet the broader range of airframes and airframe specific requirements, chemical biological protection, and logistic supportability that are now required. Based on commonality between the requirements of the CASB and the requirements of similar programs (i.e. Joint Expeditionary Collective Protection, Transport Isolation System, and Aeromedical Biological Containment System), CASB initiated at MS B EMD phase to meet these expanded requirements within the various airframes. CASB is leveraging an Indefinite Delivery/Indefinite Quantity contract to pursue a Commercial-of-the-Shelf (COTS) development strategy using full and open competition for awards following MS C. During the EMD phase, CASB awarded a Cost Plus Incentive Fee (CPIF) delivery order for the development and delivery of prototypes for airworthiness certification within two years.

JOINT EXPEDITIONARY COLLECTIVE PROTECTION (JECP)

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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JECP Family of Systems (FoS) (Phase 1 and Phase 2) involves multiple contract types throughout the Engineering and Manufacturing Development (EMD) and Production and Deployment Phases of the program. Having achieved a Full Rate Production (FRP) decision for Phase 1 Systems in December 2016, the program exercised Fixed Price Incentive (FPI) production options in FY17 & FY18 through the now expired contract with Leidos in support of Initial Operational Capability (IOC). A competitive build-to print follow-on production delivery order contract was awarded June 2019 to Production Products Manufacturing and will support the remaining production of Phase 1 Systems to meet Full Operational Capability (FOC). Phase 2 systems will be developed as engineering changes to the Phase 1 systems under a separate competitive delivery order awarded March 2019 to Leidos and undergo limited developmental and operational testing in pursuit of a FRP decision. Production options are included in the delivery order to meet FOC for Phase 2 systems. Additionally, BA7 funding will develop incremental improvements to fielded JECP FoS. BA7 efforts include a range of improvements intended to enhance filtration protection, provide a field leakage test capability and update various fielded Environmental Control Unit (ECU) interface types for use with collective protection. These efforts involve development of designs and prototyping under the Other Transaction Authority (OTA) through the Countering Weapons Mass Destruction (CWMD) Consortium contract as well as exploitation of commercial off-the-shelf items.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CO5 / *Collective Protection (SDD)*

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
JECP - HW S - Phase 2 System Product Development/Phase 2 Prototype Manufacturing	C/FPIF	Leidos : Abingdon, MD	3.351	3.381	Nov 2019	2.052	Oct 2020	0.808	Nov 2021	0.000		0.808	0.000	9.592	0.000
		Subtotal	3.351	3.381		2.052		0.808		0.000		0.808	0.000	9.592	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
CASB - ES S - IPT and Technical Support	MIPR	Various : Various	1.365	0.252	Jan 2020	0.000		0.000		0.000		0.000	0.000	1.617	0.000
JECP - ES S/ILS S - Engineering, Logistics, Technical, IPT Support	MIPR	Various : Various	2.886	0.557	Nov 2019	3.359	Nov 2020	1.407	Nov 2021	0.000		1.407	0.000	8.209	0.000
		Subtotal	4.251	0.809		3.359		1.407		0.000		1.407	0.000	9.826	N/A

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
CASB - OTE S - Operational Testing	MIPR	Various : Various	0.315	0.470	Apr 2020	0.000		0.000		0.000		0.000	0.000	0.785	0.000
JECP - OTHT SB - Test & Evaluation IPT/OTE S - Operational Testing/DTE S - Phase 2 Developmental testing	MIPR	Various : Various	9.466	1.533	Nov 2019	1.292	Oct 2020	0.215	Nov 2021	0.000		0.215	0.000	12.506	0.000
		Subtotal	9.781	2.003		1.292		0.215		0.000		0.215	0.000	13.291	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CO5 / *Collective Protection (SDD)*

Management Services ($ 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
CASB - PM/MS S - Program Management Support	MIPR	Various : Various	0.958	0.105	Nov 2019	0.000		0.000		0.000		0.000	0.000	1.063	0.000
JECP - PM/MS S - Program Management Support	MIPR	Various : Various	12.809	0.840	Jan 2020	1.182	Oct 2020	0.598	Nov 2021	0.000		0.598	0.000	15.429	0.000
		Subtotal	13.767	0.945		1.182		0.598		0.000		0.598	0.000	16.492	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	31.150	7.138		7.885		3.028		0.000		3.028	0.000	49.201	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CO5 / *Collective Protection (SDD)*

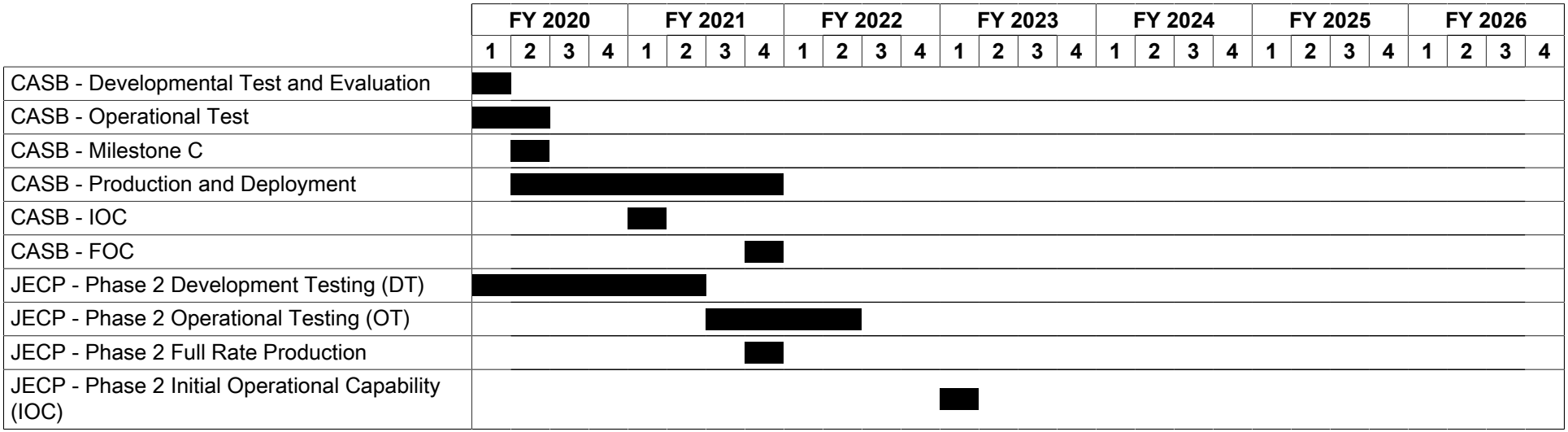

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** CO5 / *Collective Protection (SDD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
CASB - Developmental Test and Evaluation	1	2020	1	2020
CASB - Operational Test	1	2020	2	2020
CASB - Milestone C	2	2020	2	2020
CASB - Production and Deployment	2	2020	4	2021
CASB - IOC	1	2021	1	2021
CASB - FOC	4	2021	4	2021
JECP - Phase 2 Development Testing (DT)	1	2020	2	2021
JECP - Phase 2 Operational Testing (OT)	3	2021	2	2022
JECP - Phase 2 Full Rate Production	4	2021	4	2021
JECP - Phase 2 Initial Operational Capability (IOC)	1	2023	1	2023

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program			Date: May 2021
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	Project (Number/Name) DE5 / *Decontamination (SDD)*	

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
DE5: *Decontamination (SDD)*	-	9.113	21.954	7.874	-	7.874	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports the development of Contamination Mitigation (ConMit) systems utilizing solutions that remove and/or detoxify contaminated material without damaging combat equipment, personnel, or the environment, helping sustain a resilient force posture, one of the efforts outlined in the National Defense Strategy. ConMit systems provide a force restoration capability for units that become contaminated. Development efforts will provide systems that reduce operational impact and logistics burden, reduce sustainment costs, increase safety, and minimize environmental effects associated with decontamination and contamination mitigation operations. Experimentation and demonstration will be used in this phase to reduce risk and inform supporting materiel solutions, Concept of Operations and Tactics, Techniques & Procedures.

Efforts included in this Project are:
(1) Contaminated Human Remains System (CHRS)
(2) Decontamination Family of Systems (DFoS) Contamination Indicator Decontamination Assurance System (CIDAS)
(3) DFoS CIDAS Blister
(4) Forward Area Mobility Spray - System (FAMS-S)
(5) Joint Biological Agent Decontamination System (JBADS)
(6) Joint Biological Agent Decontamination System Lite (JBADS Lite) (Congressional Interest Item)
(7) Major Defense Acquisition Program (MDAP), and
(8) Mass Personnel Decontamination (MPD)

The CHRS program will provide a Contaminated Human Remains Transfer Case (CHRT) packaging solution to safely return chemical, biological, or radiological contaminated human remains to the Continental United States. The CHRT is a containment system that will protect personnel from the hazards associated with transporting human remains that are potentially contaminated with chemical, biological or radiological agents and Toxic Industrial Materials (TIM) without posing additional risk to the handlers or the environment in accordance with federal and international transportation standards. The CHRS program will address a capability gap identified within both the Contaminated Mitigation (ConMit) Initial Capabilities Document (ICD), dated March 2011, and the Mortuary Affairs ICD, dated October 2008

Decontamination Family of Systems (DFoS) Contamination Indicator Decontamination Assurance System (CIDAS) is a contamination indicator and decontamination assurance technology. The indicator will be sprayed on tactical vehicles, aircraft, ships, crew-served weapons, and individual weapons that may have been exposed to traditional and non- traditional chemical contamination. DFoS CIDAS is a new capability for the Joint Forces that will reduce the logistics burden of decontamination by indicating presence and location of traditional (Nerve and Blister) and non-traditional chemical agents on militarily relevant surfaces pre- and post-decontamination. This helps sustain a resilient force posture, making the Joint Force more adaptable against the uncertainty in a changing global strategic environment, an effort listed in the

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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National Defense Strategy under building a more lethal force. It will consist of an indicator and an applicator, with three applicator configurations -- small-scale, tactical large scale, and reusable large scale applicators -- and three indicator formulations -- nerve training, nerve and blister indicators.

Starting in FY21, the DFoS CIDAS program is being broken into separate CIDAS Nerve and CIDAS Blister programs as the capabilities are intended to fulfill distinct solutions to meet Warfighter needs. The CIDAS Nerve program will address the visual disclosure of traditional and non-traditional nerve agents while the CIDAS Blister program addresses traditional blister agents, two separate threat scenarios that require different materiel solutions, modernizing a key capability to help build a more lethal force, as outlined in the National Defense Strategy. In FY22 the DFoS CIDAS Blister program will complete Sustainment Cost Reduction efforts with Prime Contractor to reduce the sustainment unit cost, award contract option, and continue developmental testing (DT)/operational testing (OT) in support of Milestone (MS) C/ FRP.

FAMS-S will provide Special Operations Forces (SOF) and SOF Task Forces (SOTFs) a man-portable and mobile platform capable of rapidly decontaminating chemical and biological (CB) agents from the exterior of aircraft, helicopters, boats, vehicles, or support equipment to a level that is clean enough for re-use without the need for additional CB protective equipment. This will maximize tactical flexibility and fighting strength while minimizing the logistical burden and the cost of conducting Countering Weapons of Mass Destruction (CWMD) and CB operations. Up to three FAMS-S system variants are envisioned, to include a Man-Portable configuration that will provide the SOF tactical forces to advance decontamination technology to meet the operational tenants of decontamination.

The Joint Biological Agent Decontamination System (JBADS) will provide the capability to conduct biological agent decontamination of the interior and exterior of aircraft. There is currently no capability to decontaminate both the inside and outside of aircraft. Additionally, this design incorporates a chemical liner for potential chemical agent decontamination ability. The JBADS capability set will include a decontamination delivery system using hot-humid air, shelter to encapsulate an airframe, an environmental control and monitoring system(s), and other ancillary components. It will provide the capability to decontaminate biologically contaminated airframes to safe levels, allow more rapid return to service and provides a key cornerstone to future decontamination capability. The JBADS focus is on the biological agent decontamination of the C-130 aircraft and future efforts may address chemical and biological decontamination of other airframes and vehicles.

The JBADS Lite (Congressional Interest Item) effort will research and analyze, in coordination with the Department of Homeland Security, how JBADS decontamination technology could be utilized in the pandemic preparedness of civilian transportation systems. The JBADS Lite was created in response to the Coronavirus Disease 2019 (COVID-19) global pandemic. The JBADS Lite uses Biothermal Decontamination which is hot, humid air to decontaminate the interior of aircraft.

The MDAP Chemical Biological Radiological and Nuclear (CBRN) Survivability Initiative ensures weapon system programs at all Acquisition Category (ACAT) levels, as well as non-DoD agency programs such as those programs at the Department of Homeland Security (DHS), meet their CBRN defense requirements. This effort facilitates and coordinates the research, development, test and evaluation, procurement, delivery, and life cycle sustainment of affordable CBRN defense materiel solutions for each program's documented CBRN requirements.

The Mass Personnel Decontamination (MPD) program will develop an array of rugged and reliable best-of-breed hardware in a manageably sized, easy-to-erect, modular system that can be quickly tailored to different mass casualty events in order to support decontamination of ambulatory and non-ambulatory patients, and allow for the processing of contaminated human remains. The program addresses capability gaps identified within the Consequence Management ICD dated 14 October

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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2010, the ConMit ICD dated 1 March 2011, and the Mortuary Affairs Operations ICD dated October 2008, modernizing a key capability under the National Defense Strategy's line of effort of building a more lethal force. The MPD program funding ends in FY21 and all program contract, test, and acquisition documentation will be archived and the Joint Requirements Office will enter the Draft Capability Development Document into Knowledge Management/Decision Support tool for archiving. The MPD program funding ends in FY21 and all program contract, test, and acquisition documentation will be archived and the Joint Requirements Office will enter the Draft Capability Development Document into Knowledge Management/Decision Support tool for archiving.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: 1) Contaminated Human Remains System (CHRS) ***Description:*** Contaminated Human Remains Transfer Case (CHRT) Development and Support	2.074	-	-
Title: 2) DFoS CIDAS ***Description:*** Blister (Small and Large Kits)	2.018	-	-
Title: 3) DFoS CIDAS ***Description:*** Large Scale Applicators (LSA) and Nerve	2.455	-	-
Title: 4) DFoS CIDAS BLISTER ***Description:*** Blister Indicator Kits and Large Scale Applicators ***FY 2021 Plans:*** Continue Sustainment Cost Reduction effort with Prime contractor to reduce the sustainment unit cost of the blister indicator by qualifying alternate sources of raw materials and changing manufacturing processes to increase efficiencies. Award option on Blister contract to procure 70 Small Scale Applicator (SSA) Blister Kits, 50 Large Scale Applicator (LSA) Blister Kits, 218 Confidence Check Cards (CCC) and associated Contract Data Requirements Lists (CDRLs) to initiate Developmental Testing (KPP) (i.e. Level of Indication, Individual Protective Equipment (IPE), Equipment Compatibility, and User Demonstration) in support of Milestone (MS) C/Full Rate Production (FRP). ***FY 2022 Plans:*** Complete Sustainment Cost Reduction efforts with Prime Contractor. Award contract with option with Prime Contractor to acquire 225 Small Scale Applicator (SSA) Blister and 75 Large Scale Kit Blister (LSK-B) production representative kits to continue Developmental Testing (DT), and plan for Logistics Demonstration and Operational Testing (OT) in support of MS C/FRP. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease due to change in program/project technical parameters.	-	5.467	2.840
Title: 5) Forward Area Mobility Spray - System	-	1.828	2.743

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: Prototype Development ***FY 2021 Plans:*** Award system development contract to begin prototype build, and initiate early developmental and operational test planning for integration suitability and interoperability effectiveness. ***FY 2022 Plans:*** Award follow-on development contract for improved prototype variants; conduct developmental and operational testing on 30 backpack variant prototypes to measure decontamination levels, user suitability and system interoperability effectiveness. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to change in program/project technical parameters. Program completing prototype refinement and entering developmental and operational testing phase in FY22.			
Title: 6) Joint Biological Agent Decontamination System (JBADS) ***Description:*** Development and Testing ***FY 2021 Plans:*** Initiate/Complete Initial Operational Test and Evaluation (IOT&E). Complete Future Capabilities Analysis. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.	1.560	4.799	-
Title: 7) Major Defense Acquisition Program (MDAP) ***Description:*** CBRN Survivability Support ***FY 2021 Plans:*** Continue to ensure CBRN survivability requirements are met for MDAP's by cross-walking requirements documents with program execution plans. Attend meetings to address integration needs and present CBRN system and hardware options. Provide subject matter expertise in the execution of CBRN survivability requirements for both materiel and non-material solutions. Review and assist in document preparation for milestones and programs reviews. Conduct CBRN survivability compliance reviews for Optionally Manned Fighting Vehicle, Robotic Combat Vehicle, Future Long Range Assault Aircraft, Future Attack Reconnaissance Aircraft, Synthetic Training Environment, Precision Navigation and Timing, multiple Soldier Lethality programs, and other CBRN survivability system integration in preparation for various program acquisition milestones, design reviews and low rate initial production reviews. ***FY 2022 Plans:***	1.006	1.035	2.291

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Continue to ensure CBRN survivability requirements are met for MDAP's by cross-walking requirements documents with program execution plans. Attend meetings to address integration needs and present CBRN system and hardware options. Provide subject matter expertise in the execution of CBRN survivability requirements for both materiel and non-material solutions. Review and assist in document preparation for milestones and programs reviews. Conduct CBRN survivability compliance reviews for Optionally Manned Fighting Vehicle, Robotic Combat Vehicle, Future Long Range Assault Aircraft, Future Attack Reconnaissance Aircraft, Littoral Combat Ship, European Reassurance Initiative, and other CBRN survivability system integration in preparation for various program acquisition milestones, system and subsystem test events, design reviews and low rate initial production reviews. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to change in program/project technical parameters. Increase is due to additional prototyping efforts within the MDAP programs.			
Title: 8) Mass Personnel Decontamination (MPD) ***Description:*** Engineering and Manufacturing Development (EMD) activities and Product Development ***FY 2021 Plans:*** Award contract for DT systems and conduct DT. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project is entering completion and all activities will be closed.	-	3.825	-
Accomplishments/Planned Programs Subtotals	9.113	16.954	7.874

	FY 2020	FY 2021
Congressional Add: 1) Decontamination Technologies - Development and Testing ***FY 2021 Plans:*** Commence research and analysis into how JBADS decontamination technology could aid in pandemic preparedness of civilian transportation systems.	-	5.000
Congressional Adds Subtotals	-	5.000

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
• JD0050: *DECONTAMINATION FAMILY OF SYSTEMS (DFoS)*	14.932	10.804	4.166	-	4.166	-	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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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

Remarks

D. Acquisition Strategy

CONTAMINATED HUMAN REMAINS SYSTEM (CHRS)

The CHRS program will leverage previous efforts under a Joint Urgent Operational Needs Statement (JUONS) which have accelerated the CHRT project. Additional minor design modifications, developmental and operational testing is part of the overall acquisition strategy. Product development consists of the design and prototyping of a CHRT. The contracting strategy will use the Countering Weapons of Mass Destruction Other Transaction Agreement (CWMD OTA) to procure prototype units, followed by Developmental Testing (DT). Following DT completion, an In-Process Review will be conducted. A Logistics Demonstration (LD) and Operational Testing (OT) will be conducted. An Operational Test Agency (OTA) Evaluation Report (OER) will be written, and technical reviews will be conducted, in preparation for a Milestone C/Full Rate Production decision.

DFoS CONTAMINATION INDICATOR DECONTAMINATION ASSURANCE SYSTEM (DFoS CIDAS)

The DFoS CIDAS program will follow an evolutionary acquisition strategy in consonance with user developed capability documents. Following MS A in 2011, the program office collaborated with external efforts, including the Hazard Mitigation, Materiel and Equipment Restoration (HaMMER) Advanced Technology Development (ATD) Operational Demonstration and Extended User Evaluations, and conducted technology demonstrations on candidate indicator and applicator technologies to mitigate risk and identify affordable mature technologies that meet requirements. The DFoS CIDAS program determined the need for and initiated Government designed reusable and tactical large scale applicators to provide affordable solutions to meet specific User requirements. Following MS B in 2015, the program used full and open competition to award a performance based indefinite quantity contract with fixed price incentive successive target contract line items, with options for Low Rate Initial Production (LRIP) and Full Rate Production (FRP) for nerve indicator and small scale applicator systems. The program will integrate the Contractor and Government designed indicator and applicators and conduct developmental and operational testing.

DFoS CONTAMINATION INDICATOR DECON ASSURANCE SPRAY BLISTER (DFoS CIDAS BLISTER)

The DFoS CIDAS Blister program will follow an evolutionary acquisition strategy. The program office coordinated with Science and Technology efforts to identify blister technologies that met Service requirements. After further development, in 4QFY19 a sole-source performance based indefinite delivery indefinite quantity contract was awarded to develop blister indicator and small scale applicator systems with options for production. The program will leverage the contract to procure blister indicator kits and conduct test and evaluation events for the EMD phase in preparation of MS C/FRP.

FORWARD AREA MOBILITY SPRAY SYSTEM (FAMS-S)

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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The FAMS-S will be developed using an incremental acquisition strategy to advance decontamination technology for Special Operations Force (SOF) application to tactical and strategic platforms. FAMS-S will reduce technological risk by reviewing existing materials and technologies as well as designs, configurations, and test data from mature legacy and commercial decontamination systems. In accordance with the Capability Development Document (CDD), the PMO will provide New Equipment Training (NET) and fielding to Army Special Operations Command (USASOC), Marine Corps Special Operations Command (MARSOC), Naval Special Warfare Command (NSWC), and Air Force Special Operations Command (AFSOC) to meet IOC/FOC. The program office with work with the Users to develop a more mature fielding as we get closer to that stage of the program.

JOINT BIOLOGICAL AGENT DECONTAMINATION SYSTEM (JBADS)

The JBADS acquisition approach is to leverage information and technology from the JBADS Joint Capability Technology Demonstration (JCTD) to support entry into the Engineering and Manufacturing Development (EMD) phase of the acquisition cycle. Following testing, the JBADS will transition to Full Rate Production (FRP). The JBADS will utilize Commercial-off-the-Shelf components for the shelter, the decontamination delivery system, the environmental control and monitoring system(s), and other ancillary components with the award of a competitive delivery order to produce, operate, and sustain the system. The program as a whole utilizes the evolutionary acquisition approach for future increments that may expand JBADS capabilities to include other platforms (aircraft and vehicles) as requirements dictate. The Future Capabilities Analysis will conduct studies, analyses, and prototyping based on the current JBADS concept to improve its readiness to meet potential future requirements with minimal impact to the JBADS program.

MAJOR DEFENSE ACQUISITION PROGRAM (MDAP)

The MDAP program provides assistance to non-CBD programs with meeting and or optimizing their Chemical, Biological, Radiological, and Nuclear (CBRN) survivability and force protection capabilities. The MDAP also provides systems engineering analyses to develop CBRN specific operational and technical requirements, identifies performance gaps between existing materiel and technical requirements, develops cost and schedule estimates, conducts preliminary CBRN T&E and logistics planning, develops CBRN defense architectures products, and performs trade space analyses for a number of non-CBD programs.

MASS PERSONNEL DECON (MPD)

The MPD program will develop the equipment, processes and procedures for DoD-affiliated personnel contaminated by chemical, biological, and radiological agents to achieve ambulatory and non-ambulatory throughput requirements as dictated by the needs of the Services, while considering various mission scenarios. As part of the acquisition strategy, key product developmental efforts the program achieved MS A in February 2020, and includes efforts for the reduction of current MPD System costs by assessing existing Mass Casualty Decontamination (MCD) equipment and processes as well as new technology through the use of Requests For Information (RFI's), Market Research Analyses and Technology Demonstrations. Data collected from prior equipment demonstrations as well as fieldings of commercial MCD systems in support of two validated Operational Needs Statements will inform the program as well. A competitive/sole source contract for prototyping and production units will be awarded, followed by Milestone B. Results of Prototyping will inform developmental and operational testing effort, followed by Milestone C/Full Rate Production Approval. These efforts will additionally support the development of hazardous waste disposal and integration with a Contaminated Human Remains capability. The

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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MPD program funding ends in FY21 and all program contract, test, and acquisition documentation will be archived and the Joint Requirements Office will enter the Draft Capability Development Document into Knowledge Management/Decision Support tool for archiving.

CONGRESSIONAL INTEREST ITEMS

DECONTAMINATION TECHNOLOGIES:
The Joint Biological Agent Decontamination System (JBADS) Lite project will research and analyze how JBADS Lite could aid in the pandemic preparedness of civilian transportation systems in coordination with the Department of Homeland Security (DHS). Using existing contract vehicles, this effort will research, analyze, and test prototypes to aid in decontamination of other platforms with DHS to aid in civilian transportation pandemic preparedness.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		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
CHRS - HW C - Advanced Design & Manufacturing Support	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.062	Feb 2020	0.000		0.000		0.000		0.000	0.000	0.062	0.000
DFoS CIDAS - HW S - SSA/LSA - Blister/Nerve	SS/FPIF	FLIR Systems : Inc., Stillwater, OK	0.847	1.831	Jan 2020	0.000		0.000		0.000		0.000	0.000	2.678	0.000
DFoS CIDAS BLISTER - HW S - Small Scale Applicators	SS/FPIF	FLIR Systems : Inc., Stillwater, OK	0.000	0.000		2.259	Dec 2020	1.000	Dec 2021	0.000		1.000	0.000	3.259	0.000
FAMS-S - HW S - System Development and Prototype Refinement	C/CPIF	TBD : N/A	0.000	0.000		1.100	Aug 2021	1.372	Jan 2022	0.000		1.372	0.000	2.472	0.000
MPD - HW S - Developmental Testing Assets	C/FFP	TBD : N/A	0.000	0.000		1.526	Dec 2020	0.000		0.000		0.000	0.000	1.526	0.000
CONG - HW S - JBADS Lite - Prototype Development & Testing	Various	TBD : N/A	0.000	0.000		3.750	Apr 2021	0.000		0.000		0.000	0.000	3.750	0.000
		Subtotal	0.847	1.893		8.635		2.372		0.000		2.372	0.000	13.747	N/A

Remarks

CONG: Includes development, prototyping and testing to support pandemic preparedness of civilian transportation systems.

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
CHRS - TD/D S - IPT CHRT Support and Readiness Assessments	MIPR	Various : Various	0.000	0.726	Nov 2019	0.000		0.000		0.000		0.000	0.000	0.726	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		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
DFoS CIDAS - TD/D S - Logistics, Engineering, and IPT Support	MIPR	Various : Various	4.913	0.257	Nov 2019	0.000		0.000		0.000		0.000	0.000	5.170	0.000
DFoS CIDAS BLISTER - TD/D S - IPT and Technical Support	MIPR	Various : Various	0.000	0.000		1.760	Dec 2020	0.585	Dec 2021	0.000		0.585	0.000	2.345	0.000
FAMS-S - ES S - Systems Engineer/Technical SME Support	MIPR	Various : Various	0.000	0.000		0.472	Mar 2021	0.686	Jan 2022	0.000		0.686	0.000	1.158	0.000
JBADS - TD/D S - Logistics, Engineering, and IPT Support	MIPR	Various : Various	4.454	0.000		0.597	Dec 2020	0.000		0.000		0.000	0.000	5.051	0.000
MDAP - TD/D SB - IPT and Technical Support	MIPR	Various : Various	0.801	0.808	Nov 2019	0.831	Nov 2020	2.081	Nov 2021	0.000		2.081	0.000	4.521	0.000
MPD - ES SB S - Logistics, Engineering, and IPT Support	Various	Various : Various	0.000	0.000		0.417	Jan 2021	0.000		0.000		0.000	0.000	0.417	0.000
		Subtotal	10.168	1.791		4.077		3.352		0.000		3.352	0.000	19.388	N/A

Remarks

CONG: Tech Scouting and Analysis to include prototyping and testing to support pandemic preparedness of civilian transportation systems.

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
CHRS - DTE S IPT Test & Evaluation Reporting	Various	Various : Various	0.000	0.718	Feb 2020	0.000		0.000		0.000		0.000	0.000	0.718	0.000
DFoS CIDAS - OTHT S - Live Agent / Lab, Developmental, and Operational Testing	Various	Various : Various	7.243	1.713	Nov 2019	0.000		0.000		0.000		0.000	0.000	8.956	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** DE5 / *Decontamination (SDD)*

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
DFoS CIDAS BLISTER - OTHT S - DT/OT	MIPR	Various : Various	0.000	0.000		0.628	Dec 2020	0.829	Dec 2021	0.000		0.829	0.000	1.457	0.000
FAMS-S - DTE SB - Decon Solution Analysis	Various	TBD : N/A	0.000	0.000		0.000		0.356	Feb 2022	0.000		0.356	0.000	0.356	0.000
JBADS - OTE S - Initial Operational Test and Evaluation	C/CPIF	AeroClave : LLC, Winter Park, FL	0.000	0.000		3.483	Dec 2020	0.000		0.000		0.000	0.000	3.483	0.000
JBADS - Future Capability Analysis/MIL-STD 810-G Test Planning/Testing/ other T&E activities	Various	Various : Various	1.157	1.542	Dec 2019	0.000		0.000		0.000		0.000	0.000	2.699	0.000
MPD - DTE SB - Developmental Testing	Various	TBD : N/A	0.000	0.000		1.080	Mar 2021	0.000		0.000		0.000	0.000	1.080	0.000
CONG - OTHT S - JBADS Lite - Analysis and Test Support	Various	TBD : N/A	0.000	0.000		1.250	Apr 2021	0.000		0.000		0.000	0.000	1.250	0.000
		Subtotal	8.400	3.973		6.441		1.185		0.000		1.185	0.000	19.999	N/A

Remarks

CONG: Support for JBADS Lite test events.

Management Services ($ 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
CHRS - PM/MS C - Program Management and Technical Support	MIPR	Various : Various	0.000	0.568	Nov 2019	0.000		0.000		0.000		0.000	0.000	0.568	0.000
DFoS CIDAS - PM/MS S - Program Management Support	MIPR	Various : Various	3.063	0.672	Nov 2019	0.000		0.000		0.000		0.000	0.000	3.735	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** DE5 / *Decontamination (SDD)*

Management Services ($ 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
DFoS CIDAS BLISTER - PM/MS S - Program Management Support	MIPR	Various : Various	0.000	0.000		0.820	Dec 2020	0.426	Dec 2021	0.000		0.426	0.000	1.246	0.000
FAMS-S - PM/MS S - Indirect Program Management	MIPR	Various : Various	0.000	0.000		0.256	Mar 2021	0.329	Dec 2021	0.000		0.329	0.000	0.585	0.000
JBADS - PM/MS S - Program Management Support	MIPR	Various : Various	4.707	0.018	Feb 2020	0.719	Dec 2020	0.000		0.000		0.000	0.000	5.444	0.000
MDAP - PM/MS S - Program Management Support	MIPR	Various : Various	0.161	0.198	Nov 2019	0.204	Nov 2020	0.210	Nov 2021	0.000		0.210	0.000	0.773	0.000
MPD - PM/MS S - Program Management Support	MIPR	Various : Various	0.000	0.000		0.802	Jan 2021	0.000		0.000		0.000	0.000	0.802	0.000
		Subtotal	7.931	1.456		2.801		0.965		0.000		0.965	0.000	13.153	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	27.346	9.113		21.954		7.874		0.000		7.874	0.000	66.287	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** DE5 / *Decontamination (SDD)*

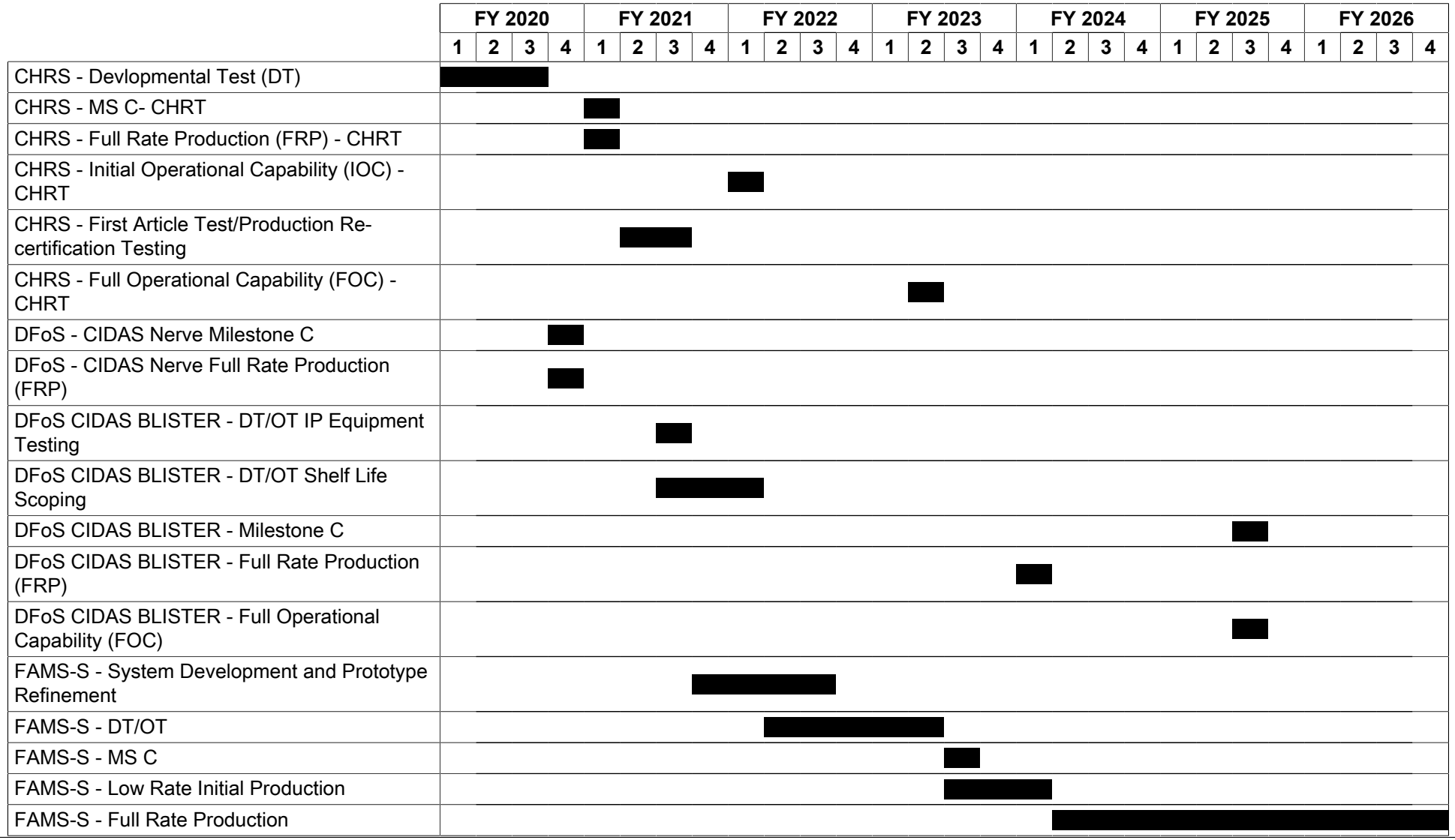

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** DE5 / *Decontamination (SDD)*

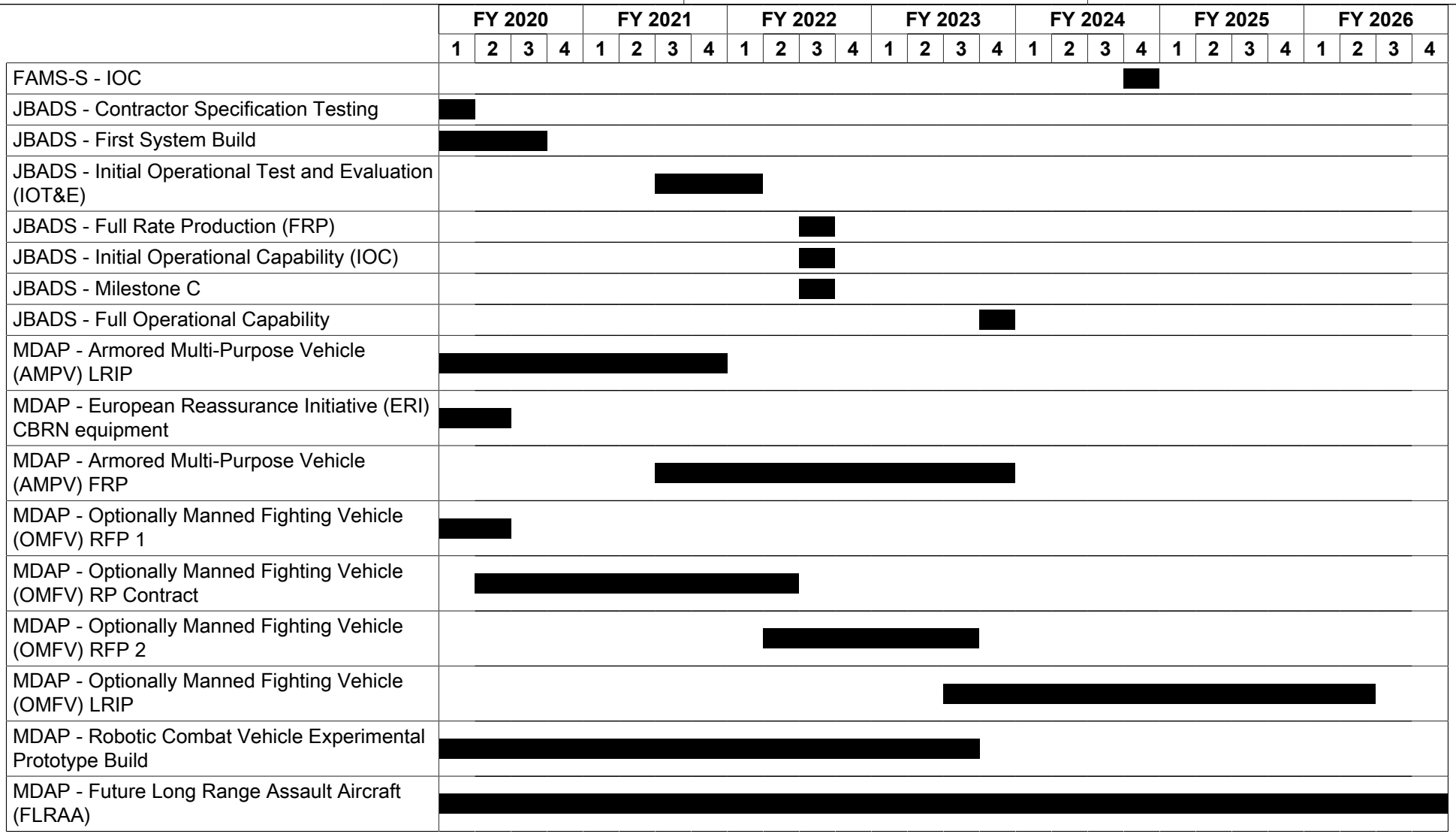

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** DE5 / *Decontamination (SDD)*

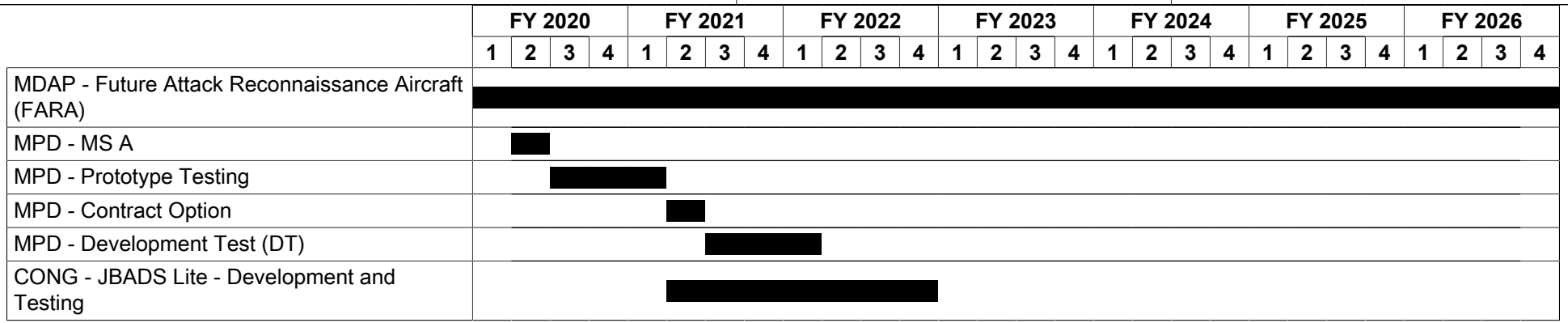

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** DE5 / *Decontamination (SDD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
CHRS - Devlopmental Test (DT)	1	2020	3	2020
CHRS - MS C- CHRT	1	2021	1	2021
CHRS - Full Rate Production (FRP) - CHRT	1	2021	1	2021
CHRS - Initial Operational Capability (IOC) - CHRT	1	2022	1	2022
CHRS - First Article Test/Production Re-certification Testing	2	2021	3	2021
CHRS - Full Operational Capability (FOC) - CHRT	2	2023	2	2023
DFoS - CIDAS Nerve Milestone C	4	2020	4	2020
DFoS - CIDAS Nerve Full Rate Production (FRP)	4	2020	4	2020
DFoS CIDAS BLISTER - DT/OT IP Equipment Testing	3	2021	3	2021
DFoS CIDAS BLISTER - DT/OT Shelf Life Scoping	3	2021	1	2022
DFoS CIDAS BLISTER - Milestone C	3	2025	3	2025
DFoS CIDAS BLISTER - Full Rate Production (FRP)	1	2024	1	2024
DFoS CIDAS BLISTER - Full Operational Capability (FOC)	3	2025	3	2025
FAMS-S - System Development and Prototype Refinement	4	2021	3	2022
FAMS-S - DT/OT	2	2022	2	2023
FAMS-S - MS C	3	2023	3	2023
FAMS-S - Low Rate Initial Production	3	2023	1	2024
FAMS-S - Full Rate Production	2	2024	4	2026
FAMS-S - IOC	4	2024	4	2024
JBADS - Contractor Specification Testing	1	2020	1	2020
JBADS - First System Build	1	2020	3	2020
JBADS - Initial Operational Test and Evaluation (IOT&E)	3	2021	1	2022

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** DE5 / *Decontamination (SDD)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JBADS - Full Rate Production (FRP)	3	2022	3	2022
JBADS - Initial Operational Capability (IOC)	3	2022	3	2022
JBADS - Milestone C	3	2022	3	2022
JBADS - Full Operational Capability	4	2023	4	2023
MDAP - Armored Multi-Purpose Vehicle (AMPV) LRIP	1	2020	4	2021
MDAP - European Reassurance Initiative (ERI) CBRN equipment	1	2020	2	2020
MDAP - Armored Multi-Purpose Vehicle (AMPV) FRP	3	2021	4	2023
MDAP - Optionally Manned Fighting Vehicle (OMFV) RFP 1	1	2020	2	2020
MDAP - Optionally Manned Fighting Vehicle (OMFV) RP Contract	2	2020	2	2022
MDAP - Optionally Manned Fighting Vehicle (OMFV) RFP 2	2	2022	3	2023
MDAP - Optionally Manned Fighting Vehicle (OMFV) LRIP	3	2023	2	2026
MDAP - Robotic Combat Vehicle Experimental Prototype Build	1	2020	3	2023
MDAP - Future Long Range Assault Aircraft (FLRAA)	1	2020	4	2026
MDAP - Future Attack Reconnaissance Aircraft (FARA)	1	2020	4	2026
MPD - MS A	2	2020	2	2020
MPD - Prototype Testing	3	2020	1	2021
MPD - Contract Option	2	2021	2	2021
MPD - Development Test (DT)	3	2021	1	2022
CONG - JBADS Lite - Development and Testing	2	2021	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program											Date: May 2021	
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*				Project (Number/Name) IP5 / *Individual Protection (SDD)*			
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**
IP5: *Individual Protection (SDD)*	-	12.179	12.960	18.941	-	18.941	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project provides Engineering & Manufacturing Development Phase and Low Rate Initial Production (EMD/LRIP) for individual protection equipment, with the goal of providing equipment that allows the individual Soldier, Sailor, Airman, or Marine to operate in a contaminated Nuclear, Biological and Chemical (NBC) environment with little or no degradation of his/her performance.

Efforts included in this project are:
(1) Joint Service Aircrew Mask for Strategic Aircraft (JSAM SA)
(2) Special Purpose Unit Rapid Capability Development and Deployment (SPU RCDD)
(3) Uniform Integrated Protective Ensemble Family of Systems (UIPE FoS)
(4) UIPE FoS General Purpose (GP)
(5) UIPE FoS Air, and
(6) UIPE FoS Gloves

JSAM SA will provide individual respiratory, ocular, and percutaneous protection of chemical and biological warfare agents, and select toxic industrial chemicals for USAF (E-3, E-8, C-135s, C-17, C-145, C-146, C130s, C-5), Aeromedical personnel (C-130s, KC-10, U-18, CV-22, KC-135, C-12s, KC-46), USN (P-8, E-6, C-40, C12, C-20), USMC (C-9, C-12, C-20, UC-35), and USA (RC-7, C-12s, C-20, C-26, UC-35, C-37) strategic aircrew. The mask components will be optimized to minimize their impact on the wearer's performance to continue lethality in a chemical biological (CB) environment and maximize its ability to interface with aircrew protective clothing. JSAM SA will provide pressure breathing for altitude for aircraft that do not require pressure breathing for gravity. JSAM SA will integrate with aircraft subsystems which include aviation life support equipment, aircrew flight equipment, aircraft seating, portable aircrew systems, communications systems, and aircraft oxygen systems. In FY22 the JSAM SA program will continue Operational Testing, Integration Testing and Safe-to-Fly on various Service aircraft.

SPU RCDD facilitates rapid response to near-term and emergent chemical-biological defensive capability requirements from elements of the Joint Special Operations Command (JSOC), select elements from across the Special Operations Force (SOF) Enterprise such as Combatant Commanders Response Forces (CRFs) and other Joint Force enabling units such as the 20th Chemical, Biological, Radiological, Nuclear and Explosives Command. SPU RCDD mitigates risk across the Chemical Biological Defense Program (CBDP) by creating a portfolio of operationally-relevant CB capabilities that can be quickly transitioned to needed elements and formations of the joint force, in whole or part, in response to the articulated, emergent capability needs of the geographic combatant commanders. These objectives are met by the early transitioning of promising science and technologies (S&T) from the Joint Science and Technology Office (JSTO) and the Defense Advanced Research Projects Agency (DARPA) among others; the focused conduct of combat evaluations and mission-oriented operational assessments to assess technological and mission suitability; and the active leveraging of existing Commercial-Off-The-Shelf (COTS) products along with novel redesign approaches to optimize existing solutions to new challenges supported by "buy-try-decide-acquire" acquisition strategies. Projects being initiated or continued in FY22 include 1) Low Temperature Mass Spectroscopy

and Hyper Spectral imaging detection systems that provides users increased detection capability and orthogonal technologies for field confirmation, 2) Optimized CBRN Hydration resupply system that provides the user the ability to refill their own personal hydration system in a contaminated environment, 3) Modular and micro Powered Air Purifying Respirators (PAPR) that provides the user an improved form-fit over the existing C420 PAPR configuration, a smaller size and weight than the C420, and extend the filter and battery life beyond current capability so users may continue operating in a CB-contaminated environment unencumbered, and 4) CBRND protective equipment in response to new and emerging threats and opportunities. In FY22 SPU RCDD initiates efforts such as respiratory breathing systems, biological identification, and modernization of protective Chemical and Biological ensembles that have gone through requirements validation, and continues product enhancement development and technology upgrades on currently fielded SOF equipment to counter emerging threats, conduct limited user evaluations and operational assessment.

The UIPE FoS is a family of systems that provides the broad spectrum of users with individual percutaneous protective equipment allowing the ability to operate in a contaminated environment with no or minimal degradation in performance. UIPE FoS provides protection from operationally relevant traditional and non-traditional CBRN threats likely to be encountered during joint force operations. In FY21, UIPE FoS is separated into UIPE FoS GP, UIPE FoS Air and UIPE FoS Gloves.

UIPE FoS GP provides a family of systems that will give the Warfighter percutaneous protection from operationally relevant traditional, non-traditional, and advanced CBRN/Toxic Industrial Material (TIM) threats likely to be encountered during Joint Force operations. The Tactical All-Hazards Threat Protective Ensemble (TATPE) will be a subset to the UIPE FoS GP and capitalize on the protection factor of commercial Level A with design modifications to align with the necessary operational requirements. This suit serves as an additional tool in the arsenal until technology matures to the point of delivering a similar capability applied against the range of military operations in all environments under all conditions. In FY22, UIPE FoS GP program will complete Developmental/Operational Testing (DT/OT), conduct Operational Assessment (OA), and perform Surveillance Testing.

The UIPE FoS Air program provides the Warfighter percutaneous protection from operationally relevant traditional and non-traditional Chemical, Biological, Radiological, Nuclear (CBRN) threats for tactical/ejection seat, Rotary Wing, and non-ejection Fixed Wing platforms supporting the United States Air Force (USAF), United States Navy (USN), and United States Marine Corps (USMC). The UIPE FoS Air is composed of two variants - the UIPE FoS Air Chemical, Biological, Radiological Layer (CBRL) for USAF tactical/ejection fixed wing platforms and the two piece undergarment (2PUG) for the remaining USAF and USN/USMC tactical/ejection seat, Rotary Wing, and non-ejection Fixed Wing platforms. In FY22 the UIPE FoS Air program will complete system level development testing, begin integration testing as well as begin DT/OT to include flight testing.

UIPE FoS Gloves provides percutaneous protection to the hand and wrist interface of the warfighter against traditional and non-traditional CBRN threats. UIPE FoS Gloves will provide improved comfort, tactility and dexterity and for certain mission profiles enhanced touch screen and flame resistant capability. In FY22 the UIPE FoS Gloves program will finalize prototype development and testing, and initiate DT/OT on mature prototypes.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: 1) Joint Service Aircrew Mask for Strategic Aircraft (JSAM SA)	1.103	1.145	1.153
Description: Operational Testing and Evaluation (OT&E)			
FY 2021 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *Individual Protection (SDD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Continue OT, Integration Testing and Safe-to-Fly on various Service aircraft. Continue updates to the TM to include specialized procedures for the various aircraft based on testing results. Continue engineering studies to assess communication system adaptors and oxygen system adaptors for remaining aircraft. ***FY 2022 Plans:*** Continue OT, Integration Testing and Safe-to-Fly on various Service aircraft. Continue updates to the Technical Manual to include specialized procedures for the various aircraft based on testing results. Continue engineering studies to assess communication system adaptors and oxygen system adaptors for remaining aircraft. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Title: 2) Special Purpose Unit Rapid Capability Development & Deployment (SPU RCDD) ***Description:*** Development of specialized equipment for agent specific threats. ***FY 2021 Plans:*** Continue developing, prototyping, and maturing CBRND technologies to rapidly equip users with capabilities in response to new and emerging threats and opportunities. ***FY 2022 Plans:*** Initiate efforts such as respiratory breathing systems, biological identification, modernization of protective Chemical and Biological ensembles that have gone through requirements validation and continue developing, prototyping, and maturing CBD technologies to rapidly equip users with capabilities in response to new and emerging threats and opportunities, building on the advancements in decontamination, respiratory / ocular, and other defensive technologies demonstrated by prototypes. Conduct limited user evaluations / operational assessments. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	3.152	4.537	4.581
Title: 3) Uniform Integrated Protective Ensemble (UIPE) Family of Systems (FoS) ***Description:*** Engineering and Manufacturing Development (EMD)	5.224	-	-
Title: 4) UIPE FoS - TATPE ***Description:*** System Development and Demonstration/Engineering and Manufacturing Development of Tactical All-Hazards Threat Protective Ensemble (TATPE)	2.700	-	-
Title: 5) UIPE FoS General Purpose (GP)	-	4.328	8.167

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *Individual Protection (SDD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: Development of the next generation protective ensembles. ***FY 2021 Plans:*** Achieve Milestone B; conduct a Manufacturing Readiness Assessment(MRA); and begin Developmental/Operational Testing (DT/OT). ***FY 2022 Plans:*** Complete Developmental/Operational Testing (DT/OT), Conduct Operational Assessment (OA), Perform Surveillance Testing, and Engineering/Technical Integrated Product Team (IPT) Support. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to change in program/project technical parameters.			
Title: 6) UIPE FoS GP - Tactical All-Hazards Threat Protective Ensemble (TATPE) ***Description:*** TATPE system development, developmental testing, and operational assessment. ***FY 2021 Plans:*** Complete EMD phase to include system level testing and user evaluations. Complete MS C documentation to include final assessment, analysis and system documentation. Mission area focus includes: Land, Sea, and Homeland Defense. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase. TATPE is entering the Production and Deployment (P&D) phase in late FY21.	-	2.950	-
Title: 7) UIPE FoS Air ***Description:*** Development of the Two Piece Undergarment (2PUG) ***FY 2022 Plans:*** Complete system level development testing and Safe to Fly requirements and begin integration testing. Begin Developmental Testing /Operational Testing (DT/OT) to include flight testing. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to change in program/project schedule.	-	-	3.858
Title: 8) UIPE FoS Gloves ***Description:*** Development of the Next Generation Protective Glove	-	-	1.182

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *Individual Protection (SDD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2022 Plans: Finalize UIPE FoS Glove prototype development and testing for multiple mission profiles (General Purpose, Air and All Hazard). Conduct DT/OT events on mature prototypes. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project transitioned to Engineering and Manufacturing Development Phase. Transition to EMD phase as BA4 is reducing and BA5 is ramping up.			
Accomplishments/Planned Programs Subtotals	12.179	12.960	18.941

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
• JI0002: *JS AIRCREW MASK (JSAM)*	53.839	67.950	42.059	-	42.059	-	-	-	-	-	-
• MA0401: *CBRN UNIFORM INTEGRATED PROTECTION ENSEMBLE (UIPE)*	9.984	0.000	0.000	-	0.000	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

JOINT SERVICE AIRCREW MASK STRATEGIC AIRCRAFT (JSAM SA)

The contract strategy consists of two sole-source contracts with Avon Protection Systems, the manufacturer of the fielded M53 mask. The first contract, which was awarded on 31 July 2013, covers all activities during the Engineering and Manufacturing Development (EMD) phase to include all LRIP builds. The second contract, which was awarded on 4 January 2019 to Avon Protection Systems, will cover the activities during the Production and Deployment (PD) phase including all Full Rate Production (FRP) builds for the Services.

SPU RAPID CAPABILITY DEVELOPMENT AND DEPLOYMENT (SPU RCDD)

Non-traditional projects will be executed for capabilities identified by Joint Special Operations Command (JSOC), select elements from across the Special Operations Forces (SOF) Enterprise, and other Joint Force enabling units. The SPU RCDD BA5 acquisition strategy for developmental efforts will allow rapid prototyping and testing of mission critical capabilities needed to enhance mission success. The SPU RCDD BA7 modernization effort will use technical and functional evaluations of currently-fielded items to introduce and incorporate operationally-relevant system developments. Both efforts will be accomplished by awarding an agreement through

the Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA) for the procurement of test assets. An OTA contracting approach will be used to procure test prototypes and test articles of possible solutions. The OTA consists of a consortium of all potential industry, research institutions, and non-traditional government that could be potential solvers for the program. Procurement will be through either the OTAs, a Small Business Innovative Research contract, or a more traditional contracting vehicle.

CBRN UNIFORM INTEGRATED PROTECTION ENSEMBLE FAMILY OF SYSTEMS (UIPE FOS)

The UIPE FoS program will conduct market research through both Requests For Information (RFIs) and a call for White Papers through an Other Transaction Authority (OTA) contracting approach. Candidate technologies will follow the same acquisition strategy employed for the suit: Early User Tests/Wear events and material and system level testing to identify available capabilities followed by a Trade Space Analysis to determine the most suitable glove(s). The UIPE FoS GP program will monitor S&T activities for possible technology transitions.

In FY21, UIPE FoS transitions to UIPE FoS GP, UIPE FoS Air and UIPE FoS Gloves. In order to reflect the structure of the program, UIPE FoS will meet Mission Area needs, not individual Service needs. The four Mission Areas are: Land (i.e. GP), Air, Sea, and All Hazards. Each of the Mission Areas has unique mission requirements that the UIPE FoS GP, Air and Gloves solutions will seek to fulfill.

UNIFORM INTEGRATED PROTECTIVE ENSEMBLE GENERAL PURPOSE (UIPE FOS GP)

UIPE FoS GP used an Other Transaction Authority (OTA) and Government designed prototypes produced in conjunction with an Industry Partner to acquire prototypes for early user testing. Warfighter feedback, trade space analysis, and chemical testing resulted in three government designed candidates being down selected in 3QFY20. These three candidates are designed to minimize operational burden and provide improved form, fit, function, and integration with the current Warfighter kits compared to legacy systems.

UNIFORM INTEGRATED PROTECTION ENSEMBLE FOS AIR (UIPE FOS AIR)

The UIPE Air utilizes a streamlined acquisition strategy that identifies mature technology and capitalizes on work accomplished by the USAF IAE and UIPE FOS General Purpose programs. The UIPE FoS Air will utilize an Milestone A-C acquisition strategy that will accelerate fielding to the Warfighter. The contract strategy leverages the USAF IAE SBIR Phase III contract to procure UIPE Air CBRL. The UIPE Air 2PUG will be procured utilizing a Government design.

UNIFORM INTEGRATED PROTECTIVE ENSEMBLE FOS GLOVES (UIPE FOS GLOVES)

The UIPE FoS program will conduct market research through both Requests For Information (RFIs) and a call for White Papers through an Other Transaction Authority (OTA) contracting approach. Candidate technologies will undergo Early User Tests/Wear events and material and system level testing to identify available capabilities followed by a Trade Space Analysis to determine the most suitable solution(s).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *Individual Protection (SDD)*

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
SPU RCDD - HW C - Prototype Procurement	Various	Various : Various	0.000	2.335	Feb 2020	2.107	Mar 2021	2.140	Dec 2021	0.000		2.140	0.000	6.582	0.000
SPU RCDD - HW C - SEDS Prototype	C/FFP	Battelle Memorial Institute : Columbus, OH	0.000	0.000		0.110	Dec 2020	0.000		0.000		0.000	0.000	0.110	0.000
SPU RCDD - HW C - CBRN Hydration Development	C/FFP	D. Wheatley Enterprises Inc. : Belcamp, MD	0.000	0.000		0.399	Nov 2020	0.000		0.000		0.000	0.000	0.399	0.000
SPU RCDD - HW C - Assault Respirator	C/FFP	MRIGlobal : Kansas City, MO	0.000	0.000		0.570	Nov 2020	0.000		0.000		0.000	0.000	0.570	0.000
UIPE FOS - HW S - UIPE FoS Prototype Development	Various	Various : Various	0.000	1.421	Nov 2019	0.000		0.000		0.000		0.000	0.000	1.421	0.000
UIPE FOS - HW S - TATPE system development, fabrication, and swatch and system level technical testing	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.621	0.940	Nov 2019	0.000		0.000		0.000		0.000	0.000	1.561	0.000
UIPE FOS GP - HW C - Prototype Development	MIPR	TBD : N/A	0.000	0.000		0.025	Dec 2020	1.000	Nov 2021	0.000		1.000	0.000	1.025	0.000
UIPE FOS GP - HW S - TATPE System Development	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	0.000		2.050	Feb 2021	0.000		0.000		0.000	0.000	2.050	0.000
UIPE FOS AIR - HW C - Prototype Development (2PUG)	Various	Various : Various	0.000	0.000		0.000		0.406	Nov 2021	0.000		0.406	0.000	0.406	0.000
UIPE FOS GLOVES - HW C - Prototype Manufacturing, Prototype Demonstration and Down-select	MIPR	Various : Various	0.000	0.000		0.000		0.300	Nov 2021	0.000		0.300	0.000	0.300	0.000
		Subtotal	0.621	4.696		5.261		3.846		0.000		3.846	0.000	14.424	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program			Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *Individual Protection (SDD)*	

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
JSAM SA - TD/D S - Logistics, Engineering, and IPT Support	MIPR	Various : Various	0.790	0.036	Feb 2020	0.200	Dec 2020	0.206	Dec 2021	0.000		0.206	0.000	1.232	0.000
SPU RCDD - ES C - Engineering Support	Various	Various : Various	0.000	0.000		0.672	Dec 2020	0.186	Dec 2021	0.000		0.186	0.000	0.858	0.000
SPU RCDD - TD/D C - Technical Support	Various	Various : Various	0.000	0.196	Feb 2020	0.000		0.000		0.000		0.000	0.000	0.196	0.000
UIPE FOS - ES S - Logistics, Engineering and IPT Support	Various	Various : Various	1.889	2.232	Nov 2019	0.000		0.000		0.000		0.000	0.000	4.121	0.000
UIPE FOS - ES S - TATPE Integrated Product Team (IPT) Program, Engineering and Technical Support	MIPR	Various : Various	0.279	0.685	Nov 2019	0.000		0.000		0.000		0.000	0.000	0.964	0.000
UIPE FOS GP - ES S - TATPE Engineering & Technical IPT Support / SME Support	Various	Various : Various	0.000	0.000		0.300	Oct 2020	0.000		0.000		0.000	0.000	0.300	0.000
UIPE FOS GP - ES C - Engineering & Technical IPT Support / SME Support	Various	Various : Various	0.000	0.000		1.713	Dec 2020	1.052	Nov 2021	0.000		1.052	0.000	2.765	0.000
UIPE FOS AIR - ES C - Engineering and IPT Support	Various	Various : Various	0.000	0.000		0.000		0.500	Nov 2021	0.000		0.500	0.000	0.500	0.000
UIPE FOS GLOVES - ES C - Engineering, Logistics, Technical, IPT Support	MIPR	Various : Various	0.000	0.000		0.000		0.357	Nov 2021	0.000		0.357	0.000	0.357	0.000
		Subtotal	2.958	3.149		2.885		2.301		0.000		2.301	0.000	11.293	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program			Date: May 2021
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	Project (Number/Name) IP5 / *Individual Protection (SDD)*	

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
JSAM SA - DTE S - DT/OT	MIPR	Various : Various	2.706	0.717	Nov 2019	0.774	Dec 2020	0.775	Dec 2021	0.000		0.775	0.000	4.972	0.000
SPU RCDD - OTE S - Operational Assessment	MIPR	National Assessment Group : Kirkland, NM	0.000	0.000		0.000		0.500	Dec 2021	0.000		0.500	0.000	0.500	0.000
SPU RCDD - DTE C - Test and Evaluation	Various	Various : Various	0.000	0.000		0.100	Mar 2021	0.000		0.000		0.000	0.000	0.100	0.000
SPU RCDD - DTE C - Testing and Evaluation	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.218	Feb 2020	0.000		0.515	Dec 2021	0.000		0.515	0.000	0.733	0.000
SPU RCDD - DTE C - Test and Evaluation #2	C/FFP	Battelle Memorial Institute : Columbus, OH	0.000	0.153	Apr 2020	0.000		0.000		0.000		0.000	0.000	0.153	0.000
UIPE FOS - DTE S - System Level Testing	Various	Various : Various	3.155	0.446	Nov 2019	0.000		0.000		0.000		0.000	0.000	3.601	0.000
UIPE FOS - OTHT S - TATPE Testing for chemical warfare agent and toxic industrial chemical swatch level testing	MIPR	CCDC CBC : Aberdeen Proving Ground, MD	0.200	1.075	Apr 2020	0.000		0.000		0.000		0.000	0.000	1.275	0.000
UIPE FOS GP - DTE C - DT/OT	Various	Various : Various	0.000	0.000		1.499	Dec 2020	3.365	Nov 2021	0.000		3.365	0.000	4.864	0.000
UIPE FOS GP - DTE S - TATPE Technical Testing	Various	Various : Various	0.000	0.000		0.200	Nov 2020	0.000		0.000		0.000	0.000	0.200	0.000
UIPE FOS GP - OTE S - TATPE User Evaluation	Various	Various : Various	0.000	0.000		0.400	Dec 2020	0.000		0.000		0.000	0.000	0.400	0.000
UIPE FOS GP - DTE C - Surveillance Testing	MIPR	Defense Technical Information Center (DTIC) : Fort Belvoir, VA	0.000	0.000		0.000		1.525	Nov 2021	0.000		1.525	0.000	1.525	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		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
UIPE FOS AIR - DTE C - System Level Testing	Various	Various : Various	0.000	0.000		0.000		2.374	Nov 2021	0.000		2.374	0.000	2.374	0.000
UIPE FOS GLOVES - DTE C - Early User Testing, Developmental Testing	MIPR	Various : Various	0.000	0.000		0.000		0.348	Nov 2021	0.000		0.348	0.000	0.348	0.000
		Subtotal	6.061	2.609		2.973		9.402		0.000		9.402	0.000	21.045	N/A

Management Services ($ 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
JSAM SA - PM/MS S - Program Management Support	MIPR	Various : Various	1.414	0.350	Feb 2020	0.171	Dec 2020	0.172	Dec 2021	0.000		0.172	0.000	2.107	0.000
SPU RCDD - PM/MS C - Program Management Support	Various	Various : Various	0.000	0.250	Feb 2020	0.579	Nov 2020	1.240	Nov 2021	0.000		1.240	0.000	2.069	0.000
UIPE FOS - MS S - PM/SME Program Management Support	MIPR	Various : Various	0.808	1.125	Nov 2019	0.000		0.000		0.000		0.000	0.000	1.933	0.000
UIPE FOS GP - PM/MS C - Program Management Support	Various	Various : Various	0.000	0.000		1.091	Dec 2020	1.225	Nov 2021	0.000		1.225	0.000	2.316	0.000
UIPE FOS AIR - PM/MS C - Program Management Services	MIPR	Various : Various	0.000	0.000		0.000		0.578	Nov 2021	0.000		0.578	0.000	0.578	0.000
UIPE FOS GLOVES - PM/MS C - Program Management Support	Various	Various : Various	0.000	0.000		0.000		0.177	Dec 2021	0.000		0.177	0.000	0.177	0.000
		Subtotal	2.222	1.725		1.841		3.392		0.000		3.392	0.000	9.180	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program			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
Project Cost Totals	11.862	12.179		12.960		18.941		0.000		18.941	0.000	55.942	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *Individual Protection (SDD)*

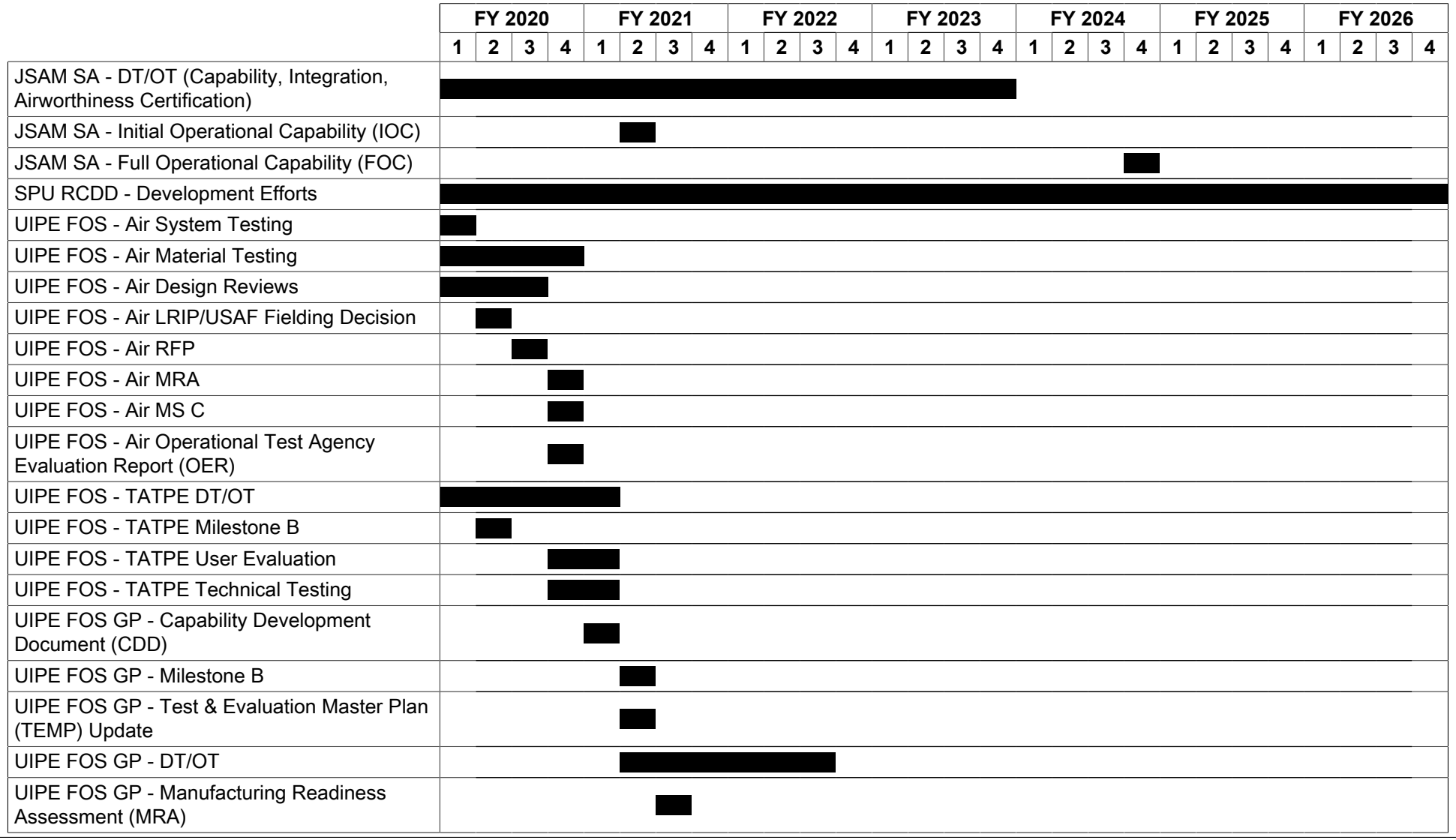

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *Individual Protection (SDD)*

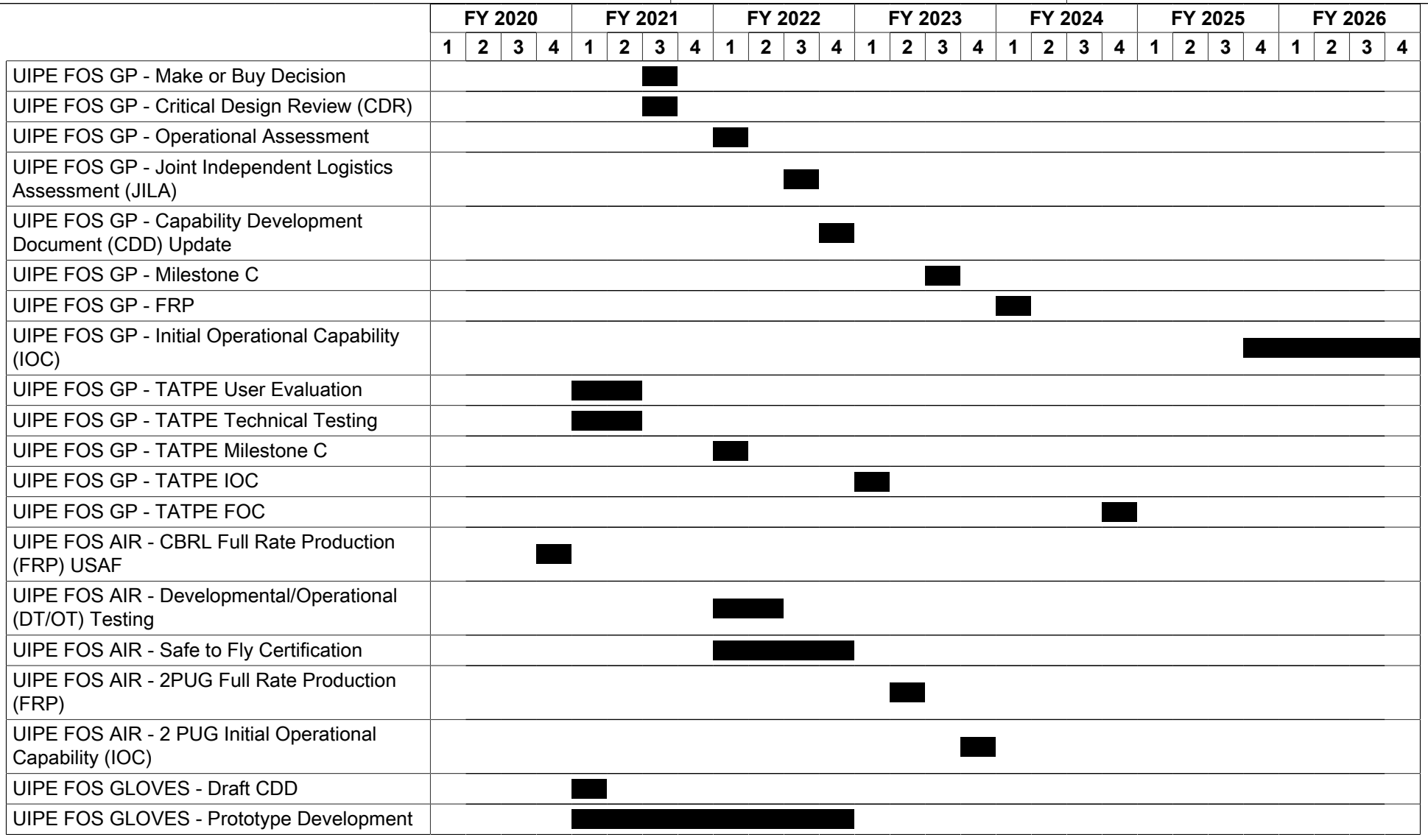

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *Individual Protection (SDD)*

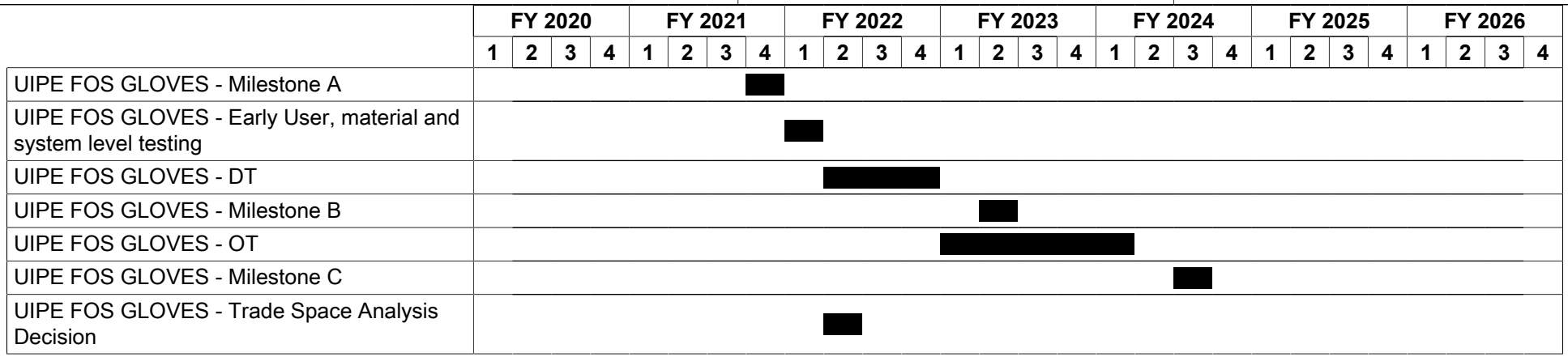

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IP5 / *Individual Protection (SDD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JSAM SA - DT/OT (Capability, Integration, Airworthiness Certification)	1	2020	4	2023
JSAM SA - Initial Operational Capability (IOC)	2	2021	2	2021
JSAM SA - Full Operational Capability (FOC)	4	2024	4	2024
SPU RCDD - Development Efforts	1	2020	4	2026
UIPE FOS - Air System Testing	1	2020	1	2020
UIPE FOS - Air Material Testing	1	2020	4	2020
UIPE FOS - Air Design Reviews	1	2020	3	2020
UIPE FOS - Air LRIP/USAF Fielding Decision	2	2020	2	2020
UIPE FOS - Air RFP	3	2020	3	2020
UIPE FOS - Air MRA	4	2020	4	2020
UIPE FOS - Air MS C	4	2020	4	2020
UIPE FOS - Air Operational Test Agency Evaluation Report (OER)	4	2020	4	2020
UIPE FOS - TATPE DT/OT	1	2020	1	2021
UIPE FOS - TATPE Milestone B	2	2020	2	2020
UIPE FOS - TATPE User Evaluation	4	2020	1	2021
UIPE FOS - TATPE Technical Testing	4	2020	1	2021
UIPE FOS GP - Capability Development Document (CDD)	1	2021	1	2021
UIPE FOS GP - Milestone B	2	2021	2	2021
UIPE FOS GP - Test & Evaluation Master Plan (TEMP) Update	2	2021	2	2021
UIPE FOS GP - DT/OT	2	2021	3	2022
UIPE FOS GP - Manufacturing Readiness Assessment (MRA)	3	2021	3	2021
UIPE FOS GP - Make or Buy Decision	3	2021	3	2021

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
UIPE FOS GP - Critical Design Review (CDR)	3	2021	3	2021
UIPE FOS GP - Operational Assessment	1	2022	1	2022
UIPE FOS GP - Joint Independent Logistics Assessment (JILA)	3	2022	3	2022
UIPE FOS GP - Capability Development Document (CDD) Update	4	2022	4	2022
UIPE FOS GP - Milestone C	3	2023	3	2023
UIPE FOS GP - FRP	1	2024	1	2024
UIPE FOS GP - Initial Operational Capability (IOC)	4	2025	4	2026
UIPE FOS GP - TATPE User Evaluation	1	2021	2	2021
UIPE FOS GP - TATPE Technical Testing	1	2021	2	2021
UIPE FOS GP - TATPE Milestone C	1	2022	1	2022
UIPE FOS GP - TATPE IOC	1	2023	1	2023
UIPE FOS GP - TATPE FOC	4	2024	4	2024
UIPE FOS AIR - CBRL Full Rate Production (FRP) USAF	4	2020	4	2020
UIPE FOS AIR - Developmental/Operational (DT/OT) Testing	1	2022	2	2022
UIPE FOS AIR - Safe to Fly Certification	1	2022	4	2022
UIPE FOS AIR - 2PUG Full Rate Production (FRP)	2	2023	2	2023
UIPE FOS AIR - 2 PUG Initial Operational Capability (IOC)	4	2023	4	2023
UIPE FOS GLOVES - Draft CDD	1	2021	1	2021
UIPE FOS GLOVES - Prototype Development	1	2021	4	2022
UIPE FOS GLOVES - Milestone A	4	2021	4	2021
UIPE FOS GLOVES - Early User, material and system level testing	1	2022	1	2022
UIPE FOS GLOVES - DT	2	2022	4	2022
UIPE FOS GLOVES - Milestone B	2	2023	2	2023
UIPE FOS GLOVES - OT	1	2023	1	2024
UIPE FOS GLOVES - Milestone C	3	2024	3	2024

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
UIPE FOS GLOVES - Trade Space Analysis Decision	2	2022	2	2022

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program											Date: May 2021	
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*				Project (Number/Name) IS5 / *Information Systems (SDD)*			
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**
IS5: *Information Systems (SDD)*	-	20.723	6.019	0.000	-	0.000	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project provides for Advanced Component Development and Prototypes (ACD&P) responsible for providing the information architecture and applications for shaping the battlespace against the Chemical, Biological, Radiological and Nuclear (CBRN) threat. Experimentation and demonstration will be used in this phase to reduce risk and inform supporting materiel solutions, CONOPS and TTPs.

Efforts included in this project are:
(1) Global Biosurveillance Portal (G-BSP),
(2) Joint Effects Model 2 (JEM 2),
(3) Joint Warning and Reporting Network 2 (JWARN 2),
(4) Software Support Activity (SSA), and
(5) CBRN Information System (CBRN IS).

The G-BSP program provides a web-based enterprise environment that facilitates collaboration, communication, and information sharing in support of the detection, management, and mitigation of man-made and naturally occurring biological events. G-BSP Provides a central access point for biosurveillance information and situational awareness for DoD, interagency and allied partners supporting the early identification and response to biological events. G-BSP provides an integrated suite of web-based components designed to support public health officers, environmental officers, clinicians, physicians, and CBRN personnel as they maintain their situational awareness of local, regional, and global biological threats to the force. G-BSP does not duplicate existing DoD capabilities, but rather leverages existing tools and technologies to provide users across multiple organizations and disciplines with a centralized "one-stop shop" for all of their biosurveillance resources. The G-BSP will transition to USSOCOM for sustainment in FY23.

The JEM 2 program provides a software application that provides the Department of Defense (DoD) with the only operationally tested and accredited tool to model and simulate the effects of CBRN weapon strikes and incidents that is approved for use by operational warfighters. JEM 2 applies advanced physics using weather, terrain, and agent characteristics to predict the time-phased impact of CBRN and Toxic Industrial Chemical/Material (TIC/TIM). JEM 2 displays hazard information on the Common Operational Picture (COP) and allows commanders to assess risk and take steps to mitigate the effects of Weapons of Mass Destruction (WMD) on operational forces. The JEM 2 program was directed to complete development and enter sustainment 2 years early by the FY19 Defense Wide Review. The JEM 2 program will complete development and will be moved into the BA7 MOD CBRN IS program (Project IS7) starting in FY22.

The JWARN 2 program provides a software application that provides the DoD with a warning and reporting system that enables an immediate and integrated response to threats of contamination by WMD, CBRN, and TIM incidents. JWARN 2 provides a digital display of CBRN reports on the COP, presented through Service-provided Command and Control systems resident at all echelons of command. Enhanced situational battlespace awareness provides Commanders the ability to support

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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warfighter battle management and continuity of operations in a contaminated environment. The JWARN 2 program will be moved into the BA7 MOD CBRN IS program (Project IS7) starting in FY22.

The SSA program provides for enterprise services in the areas of software development, system/network architectures, cybersecurity, information assurance standards and policies and interoperability. The SSA emphasizes development of reference implementations to guide Government and industry system and software developers to ensure that their products meet risk management framework compliance and common interoperability standards such as the Integrated Sensor Architecture (ISA). SSA efforts will be moved into the BA7 MOD CBRN IS program (Project IS7) starting in FY22.

The CBRN IS program provides a collaborative Cloud hosted environment that allows users to collect and disseminate CBRN warning and reporting data, provide detailed CBRN hazard predictions, aid in decision support, and make relevant CBRN defense information available in near-real time. CBRN IS provides an environment that supports the implementation of Integrated Early Warning (IEW) capabilities that allow users to access netted sensor information, data fusion, disease modeling, biosurveillance data, source term estimation data, incident management tools, and planning and analysis capabilities. The CBRN IS enterprise makes CBRN decision aids readily accessible from any desktop through a web browser simplifying interoperability, reducing integration and deployment costs and increases cybersecurity protection. The CBRN IS program will be moved into the BA7 MOD CBRN IS program (Project IS7) starting in FY22.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: 1) Global Biosurveillance Portal (Global-BSP) ***Description:*** Product Development	2.949	-	-
Title: 2) Global-BSP ***Description:*** Developmental Test and Evaluation	0.295	-	-
Title: 3) Global-BSP ***Description:*** Program Management Support	0.466	-	-
Title: 4) Global-BSP ***Description:*** Operational Testing and Evaluation	0.655	-	-
Title: 5) Global-BSP ***Description:*** Training and Logistics Support	0.199	-	-
Title: 6) Joint Effects Model 2 (JEM 2) ***Description:*** Developmental Test and Evaluation	0.420	-	-
Title: 7) JEM 2	1.359	-	-

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: Product Development			
Title: 8) JEM 2 ***Description:*** Program Management	0.521	-	-
Title: 9) JEM 2 ***Description:*** Operational Test and Evaluation	0.782	-	-
Title: 10) JEM 2 ***Description:*** Training and Logistics Support	0.842	-	-
Title: 11) Joint Warning and Reporting Network 2 (JWARN 2) ***Description:*** Management Support	0.834	-	-
Title: 12) JWARN 2 ***Description:*** Product Development	4.828	-	-
Title: 13) JWARN 2 ***Description:*** Developmental Test and Evaluation	0.567	-	-
Title: 14) JWARN 2 ***Description:*** Operational Test and Evaluation	0.850	-	-
Title: 15) JWARN 2 ***Description:*** Training and Logistics Support	1.084	-	-
Title: 16) Software Support Activity (SSA) ***Description:*** Policies, Standards and Guidelines	0.064	-	-
Title: 17) SSA ***Description:*** Integrated Architecture	0.075	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: 18) SSA ***Description:*** Enterprise Support and Services ***FY 2021 Plans:*** Support the CBRND enterprise through continuous engagement to assist with the development of acquisition products during the Engineering and Manufacturing Development and Low Rate Initial Production (EMD/LRIP) phase to reduce risk; assist with technology transitions, and logistics; plan and execute new equipment training, and program management. Provide subject matter expertise in the areas of software development, network architecture, cybersecurity, technology transition, and information assurance standards and policies. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project funding transferred to another funding line. Program funding transferred to BA7 in the MOD CBRN IS portfolio beginning in FY22.	0.221	2.888	-
Title: 19) SSA ***Description:*** Chemical, Biological, Radiological, Nuclear (CBRN) Data Model	0.411	-	-
Title: 20) SSA ***Description:*** Cybersecurity / Information Assurance	0.442	-	-
Title: 21) SSA ***Description:*** Policy and Standards Repository	0.127	-	-
Title: 22) SSA ***Description:*** Technology Transition Support	0.284	-	-
Title: 23) Chemical Biological Radiological and Nuclear Information Systems (CBRN IS) ***Description:*** Technical Guidance	0.217	-	-
Title: 24) CBRN IS ***Description:*** Standardization	0.523	-	-
Title: 25) CBRN IS	0.203	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: Cybersecurity / Information Assurance			
Title: 26) CBRN IS ***Description:*** Product Development	1.025	-	-
Title: 27) CBRN IS ***Description:*** Operational Assessments	0.480	-	-
Title: 28) CBRN IS ***Description:*** Product Development, Operational Assessments, Management, Engineering, and Cybersecurity Support ***FY 2021 Plans:*** Continue operational test and user feedback events to assess and validate capabilities prior to implementing in the production environment. Continue operational test and evaluations in order to meet Key Performance Parameters (KPP) and Key System Attributes (KSA). Provide management and system engineering oversight and integration of future capabilities and emerging requirements including advanced technology demonstrations (ATDs) and experimental capability demonstrations (ECDs). Ensure development and integration efforts are compliant and compatible with the Joint Information Environment (JIE) and Service common operational and common computing environments. Continue the implementation of ongoing cybersecurity requirements and policies and DoD information assurance vulnerability alerts (IAVAs) to mitigate system vulnerabilities. Continue adversarial and cooperative vulnerability testing. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project funding transferred to another funding line. Program funding transferred to BA7 in the MOD CBRN IS portfolio beginning in FY22.	-	3.131	-
Accomplishments/Planned Programs Subtotals	20.723	6.019	-

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
• IS7: *Information Systems (Op Sys Dev)*	15.773	3.234	15.281	-	15.281	-	-	-	-	-	-
• G47101: *JOINT WARNING & REPORTING NETWORK (JWARN)*	0.942	0.000	0.000	-	0.000	-	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program			Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *Information Systems (SDD)*	

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
• JC0208: *JOINT EFFECTS MODEL (JEM)*	1.189	0.000	0.000	-	0.000	-	-	-	-	-	-
• JS5230: *MODERNIZATION CBRN INFORMATION SYSTEMS (MOD CBRN IS)*	0.081	0.074	0.611	-	0.611	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

BIOSURVEILLANCE PORTAL (BSP)

The Global Biosurveillance Portal (G-BSP) program is using the SOFCIDS (Special Operations Capabilities Integration and Development System) requirements approach and the JROC IT Box acquisition construct which allows fielding of operational capabilities while continued R&D matures technology required for follow-on versions. IT Box enables programs to tailor the incrementally fielded software program model in the DODI 5000.02 to conduct multiple iterative fielding events in lieu of a single fielding event, and field products to the warfighter utilizing an incremental delivery approach. G-BSP will achieve Full Operational Capability in 2020. G-BSP will transition to Total Package Fielding in 2021-2022 prior to USSOCOM Sustainment beginning in FY23. In FY21 and beyond, the Defense-Wide Review (DWR) reduced this program for higher priorities.

JOINT EFFECTS MODEL (JEM)

JEM 2 acquisition utilizes Agile software development practices, employing the incrementally fielded software program model in the DODI 5000.02 to conduct multiple, more frequent fieldings in lieu of a single fielding event. As part of the strategy, an over-arching MS B was approved by the MDA. JEM Requirements Definition packages have been approved along with Capability Drops (CD) that define capability sets to be developed, tested, and fielded operationally. These CDs are additive in nature, increasing the total capability of JEM 2 that was originally scheduled to be completed in FY22. However, funding in FY21 and beyond was reduced through the Defense-Wide Review (DWR) and the program will be moved to sustainment in FY21 and managed through MOD CBRN IS beginning 1QFY22.

JOINT WARNING & REPORTING NETWORK (JWARN)

JWARN 2 acquisition utilizes Agile software development practices, employing the incrementally fielded software program model in the DODI 5000.02 to conduct multiple, more frequent fieldings in lieu of a single fielding event. As part of the strategy, an over-arching MS B and Build Decision for Requirements Definition Package 1 (RDP-1) were approved by the MDA in Q4 FY14. Subsequent RDPs have been approved along with Capability Drops (CD) that define capability sets to be developed, tested, and fielded operationally. These CDs are additive in nature, increasing the total capability of JWARN that was originally scheduled to be completed in FY22.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *Information Systems (SDD)*

However, funding in FY21 and beyond was reduced through the Defense-Wide Review (DWR) and the program will be moved to sustainment in FY21 and managed through SSA and MOD CBRN-IS beginning Q1FY22.

SOFTWARE SUPPORT ACTIVITY (SSA)

Software Support Activity (SSA) is a non-acquisition, service organization that provides professional subject matter expertise support throughout the CBDP Enterprise. These services are provided by government and contract personnel with expertise in software development, network architecture, cybersecurity, technology transitions, information assurance, and standards and policies compliance, and are provided throughout the lifecycle of programs within the CBDP portfolio. These efforts facilitate the efficient development, transition, fielding, modernization, and sustainment of interoperable and integrated CBRN capabilities. In FY22, SSA efforts will transition to Modernization CBRN Information Systems (MOD CBRN IS).

CBRN INFORMATION SYSTEMS

CBRN IS acquisition utilizes a Family-of-Systems (FoS) approach to align multiple capabilities to the CBRN-IS architecture and operational environment. CBRN IS leverages the concepts of CBRN Hazard Awareness and Understanding and DISA Enterprise Services to integrate current CBRN capabilities, and other information and intelligence services, applications, and systems to provide increased situational awareness and decision support to commanders for CBRN defense. The strategy supports the implementation of integrated early warning capabilities by incorporating mature science and technology products and emerging technologies from existing advanced technology demonstrations (ATD) and experimental capability demonstrations (ECD). CBRN IS utilizes the Agile software development process to provide for the spiral development and fielding of modular capability packages. CBRN IS will transition to MOD CBRN IS beginning 1QFY22.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *Information Systems (SDD)*

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
BSP - SW S - software -Global-BSP software development	MIPR	Johns Hopkins University - Applied Physics Lab : Laurel, MD	24.869	2.797	Dec 2019	0.000		0.000		0.000		0.000	0.000	27.666	0.000
JEM - SW SB -2 - Hazard Prediction Model Development and Integration	C/CPAF	General Dynamics Information Technologies : Fairfax, VA	15.326	1.880	Jan 2020	0.000		0.000		0.000		0.000	0.000	17.206	0.000
JWARN - 2- SW S - Soft Dev Follow-On	C/CPAF	DCS Corps : Alexandria, VA	3.100	4.828	Dec 2019	0.000		0.000		0.000		0.000	0.000	7.928	0.000
SSA - SW S - CBRN Data Model	C/CPAF	Various : Various	9.034	0.446	Feb 2020	0.778	Feb 2020	0.000		0.000		0.000	0.000	10.258	0.000
CBRN IS - SW S - software - integration with BSP, JEM, JWARN	MIPR	Various : Various	2.937	0.973	Dec 2019	1.339	Dec 2020	0.000		0.000		0.000	0.000	5.249	0.000
		Subtotal	55.266	10.924		2.117		0.000		0.000		0.000	0.000	68.307	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
JEM - ILS C - Training and Logistics Support	Various	Various : Various	0.242	0.321	Dec 2019	0.000		0.000		0.000		0.000	0.000	0.563	0.000
JWARN - ILS C - Training and Logistics Support	Various	Various : Various	1.604	1.084	Apr 2020	0.000		0.000		0.000		0.000	0.000	2.688	0.000
SSA - ES S - Support Costs	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	11.709	1.114	Feb 2020	2.000	Feb 2021	0.000		0.000		0.000	0.000	14.823	0.000
CBRN IS - ES S - Support Costs - Cybersecurity and IA updates, architecture documentation	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	2.450	0.672	Dec 2019	0.715	Dec 2020	0.000		0.000		0.000	0.000	3.837	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *Information Systems (SDD)*

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
		Subtotal	16.005	3.191		2.715		0.000		0.000		0.000	0.000	21.911	N/A

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
BSP - DTE S - Software	MIPR	Various : Various	3.861	0.488	Dec 2019	0.000		0.000		0.000		0.000	0.000	4.349	0.000
BSP - OTE S - Software - MOT&E	MIPR	Various : Various	4.341	0.911	Dec 2019	0.000		0.000		0.000		0.000	0.000	5.252	0.000
JEM - Test & Evaluation	MIPR	Various : Various	4.233	1.202	Dec 2019	0.000		0.000		0.000		0.000	0.000	5.435	0.000
JWARN - 2- DTE S - Completed Development Test and Evaluation of JWARN 2 in support of JWARN 2 IOT&E	MIPR	Various : Various	1.805	0.567	Dec 2019	0.000		0.000		0.000		0.000	0.000	2.372	0.000
JWARN - 2 - OTE S - Multi-service Operational Test and Evaluation of JWARN 2 software	MIPR	Various : Various	3.699	0.850	Dec 2019	0.000		0.000		0.000		0.000	0.000	4.549	0.000
CBRN IS - OTE S - Operational Test - service-specific testing, joint test	MIPR	Various : Various	1.924	0.675	Dec 2019	0.786	Dec 2020	0.000		0.000		0.000	0.000	3.385	0.000
		Subtotal	19.863	4.693		0.786		0.000		0.000		0.000	0.000	25.342	N/A

Management Services ($ 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
BSP - PM/MS S - Program Management	Various	Various : Various	3.713	0.368	Dec 2019	0.000		0.000		0.000		0.000	0.000	4.081	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *Information Systems (SDD)*

Management Services ($ 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
JEM - PM/MS S - Program Office - Planning and Programming	Various	Various : Various	8.920	0.521	Dec 2019	0.000		0.000		0.000		0.000	0.000	9.441	0.000
JWARN - 2- PM/MS C - Program Management Support	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	2.851	0.834	Dec 2019	0.000		0.000		0.000		0.000	0.000	3.685	0.000
SSA - PM/MS S - Management Services	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	3.473	0.064	Dec 2019	0.110	Dec 2020	0.000		0.000		0.000	0.000	3.647	0.000
CBRN IS - PM/MS S - Program Management - Planning, Programming, and Budgeting	MIPR	Various : Various	0.782	0.128	Dec 2019	0.291	Dec 2020	0.000		0.000		0.000	0.000	1.201	0.000
		Subtotal	19.739	1.915		0.401		0.000		0.000		0.000	0.000	22.055	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	110.873	20.723		6.019		0.000		0.000		0.000	0.000	137.615	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *Information Systems (SDD)*

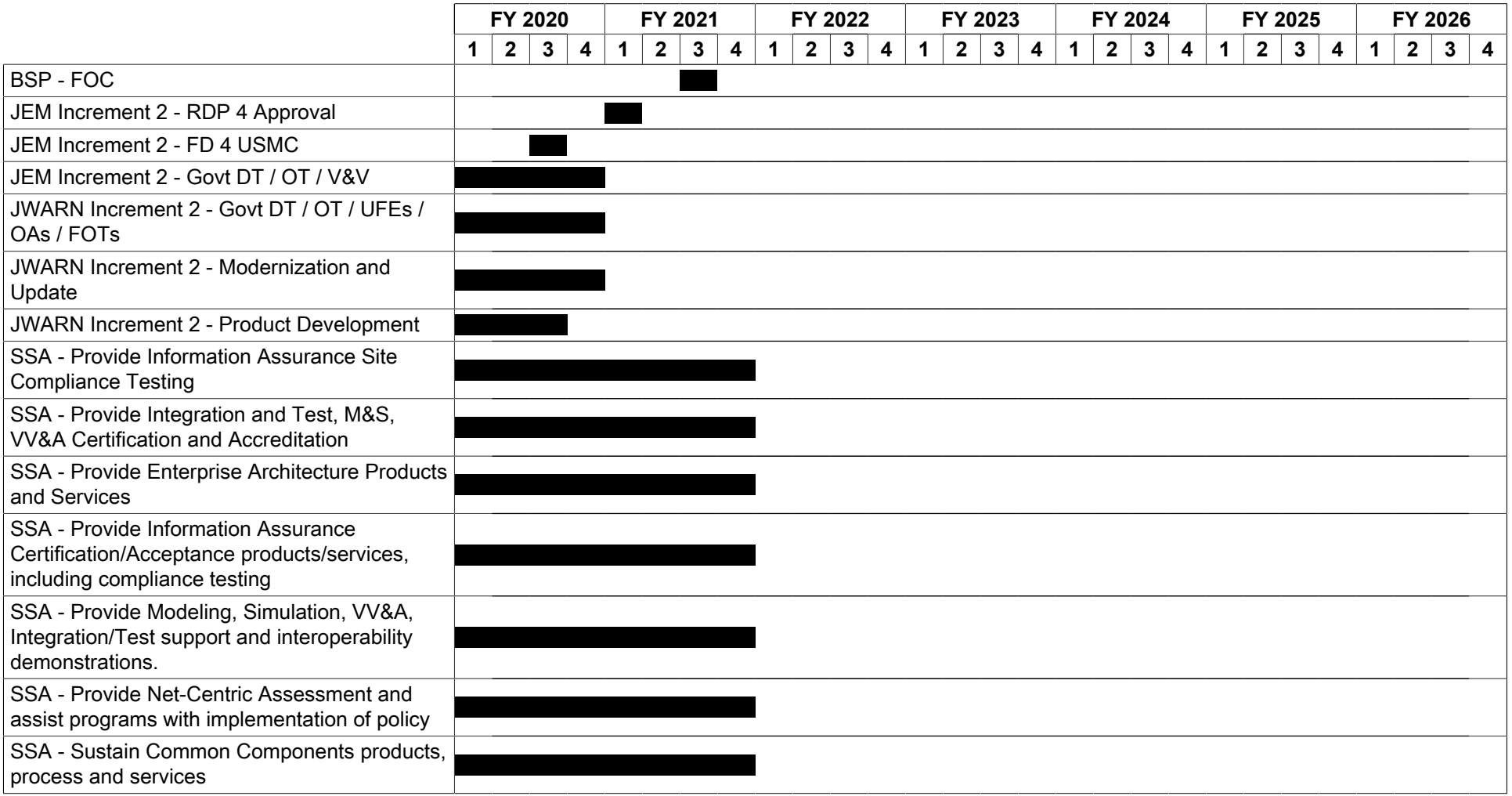

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *Information Systems (SDD)*

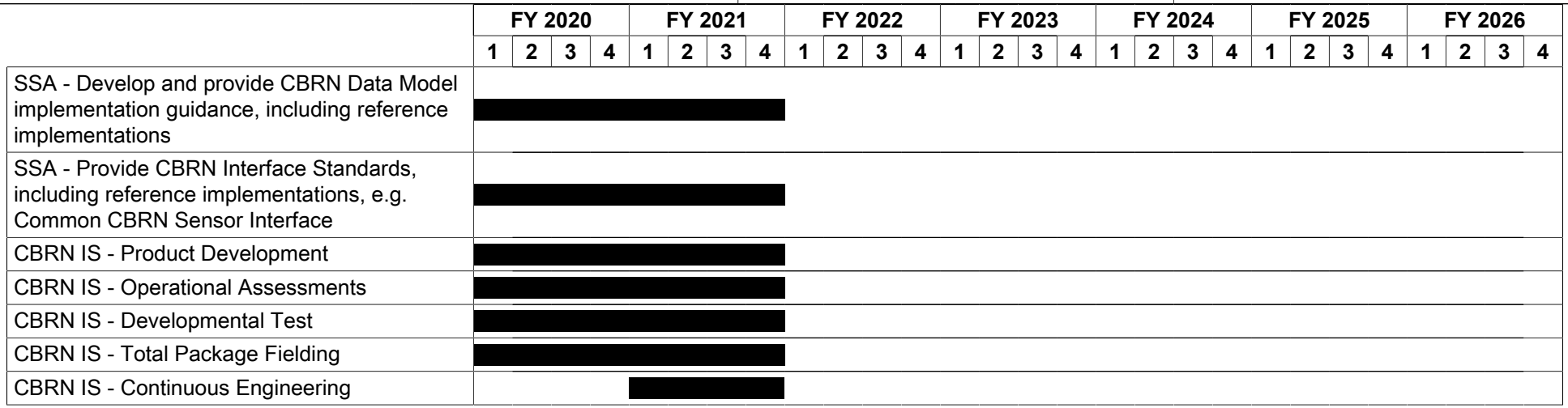

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *Information Systems (SDD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
BSP - FOC	3	2021	3	2021
JEM Increment 2 - RDP 4 Approval	1	2021	1	2021
JEM Increment 2 - FD 4 USMC	3	2020	3	2020
JEM Increment 2 - Govt DT / OT / V&V	1	2020	4	2020
JWARN Increment 2 - Govt DT / OT / UFEs / OAs / FOTs	1	2020	4	2020
JWARN Increment 2 - Modernization and Update	1	2020	4	2020
JWARN Increment 2 - Product Development	1	2020	3	2020
SSA - Provide Information Assurance Site Compliance Testing	1	2020	4	2021
SSA - Provide Integration and Test, M&S, VV&A Certification and Accreditation	1	2020	4	2021
SSA - Provide Enterprise Architecture Products and Services	1	2020	4	2021
SSA - Provide Information Assurance Certification/Acceptance products/services, including compliance testing	1	2020	4	2021
SSA - Provide Modeling, Simulation, VV&A, Integration/Test support and interoperability demonstrations.	1	2020	4	2021
SSA - Provide Net-Centric Assessment and assist programs with implementation of policy	1	2020	4	2021
SSA - Sustain Common Components products, process and services	1	2020	4	2021
SSA - Develop and provide CBRN Data Model implementation guidance, including reference implementations	1	2020	4	2021
SSA - Provide CBRN Interface Standards, including reference implementations, e.g. Common CBRN Sensor Interface	1	2020	4	2021
CBRN IS - Product Development	1	2020	4	2021
CBRN IS - Operational Assessments	1	2020	4	2021

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** IS5 / *Information Systems (SDD)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
CBRN IS - Developmental Test	1	2020	4	2021
CBRN IS - Total Package Fielding	1	2020	4	2021
CBRN IS - Continuous Engineering	1	2021	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program											Date: May 2021	
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*				Project (Number/Name) MB5 / *Medical Biological Defense (SDD)*			
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**
MB5: *Medical Biological Defense (SDD)*	-	170.345	117.956	137.348	-	137.348	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports Engineering and Manufacturing Development and Low Rate Initial Production (EMD/LRIP) of medical countermeasures, development of reagents, assays, diagnostic equipment, biosurveillance and supporting efforts.

Efforts included in this project are:
(1) Coronavirus Disease Point of Care Diagnostics (COVID POC DX)
(2) Coronavirus Disease Repurposed Therapeutics (COVID TX)
(3) Antiviral Therapeutics Program (AV TX)
(4) Botulinum Monoclonal Antibodies (BOT MAB)
(5) Countering Emerging Threats Rapid Acquisition and Investigation of Drugs for Repurposing (CET RAIDR)
(6) Chem Bio Incident Preparedness and Response - Advanced Development and Manufacturing (CBIPR - ADM)
(7) Countermeasures for Multi-Drug Resistance-Bacterial (CMDR-B)
(8) Defense Biological Products Assurance Program (DBPAP)
(9) Joint Mobile Emerging Disease Intervention Clinical Capability (JMEDICC)
(10) Medical Countermeasure Platform Technologies (MCMPT)
(11) Next Generation Diagnostic System 2 (NGDS 2)
(12) NGDS 2 Chemical Diagnostic (NGDS 2 CHEMDX)
(13) NGDS 2 Man Portable Diagnostic System (NGDS 2 MPDS)
(14) Botulinum Vaccine (VAC BOT)
(15) Plague Vaccine (VAC PLG)
(16) Botulinum and Plague Vaccine Storage and Stability Testing (Congressional Interest Item - CONG)
(17) Antiviral Prophylaxis Studies (Congressional Interest Item - CONG)
(18) Special Immunizations Program (VAC SIP)

The COVID POC DX program is utilizing Coronavirus Aid, Relief, and Economic Security (CARES) Act funds to evaluate Commercial-Off-The-Shelf (COTS) POC devices for diagnosing COVID-19 at DoD locations that could benefit from reduced logistical burden of more complex diagnostic devices. The evaluation of these devices will enable moving testing capability closer to the patient in order to more efficiently and quickly identify the infected, implement treatment decisions and break

the chains of disease transmission through non-pharmaceutical interventions. With this effort the CBDP is generating critical enabling data that will inform diagnostic use cases to refine testing strategies for the DoD to more efficiently address COVID response.

The COVID TX program is utilizing CARES Act funds to support the development of Food and Drug Administration (FDA) approved therapeutics for the treatment of COVID-19.

The AV TX program will develop and deliver FDA approved antiviral therapeutics for the warfighter. Based on the current gap in defense to the warfighter, the initial therapeutic candidate is now for a treatment against the Marburg virus in lieu of Ebola Zaire to follow for approval of a PanFilo therapeutic. Other pathogens on the biological warfare threat lists, including viruses of interest from Filoviridae, Arenaviridae, Bunyaviridae, and Flaviviridae, are targets of future interest. Developed broad spectrum antiviral therapeutics will be employed after suspected or confirmed exposure to the relevant threat agents and AVTX Medical Countermeasures (MCMs) will ameliorate the effect of threat agents to the warfighter. In the event of a natural occurring outbreak, antiviral therapeutics can be provided to ensure freedom of operation. In FY22 AV TX in the Engineering Manufacturing Design (EMD) phase will initiate efficacy studies with Non-Human Primates (NHPs) infected with Marburg virus towards animal rule FDA approval.

The BOT MAB program will provide an anti-botulinum neurotoxin monoclonal antibody (mAB) cocktail that protects the warfighter against exposure to BOT A&B serotypes. It will provide prophylaxis and therapy for Warfighter exposure to aerosolized botulinum neurotoxin serotypes A and B and is intended for intramuscular route of administration. This capability is complementary to botulinum vaccine and therapeutics and will provide a continuum of protection against botulinum toxins. BoNT Advanced Development and Manufacturing of Antibody Technology (ADAMANT) leverages the advanced platform technology developed within the DoD's Advanced Development Manufacturing (ADM) facility that was initiated by the Medical Countermeasure Platform Technologies (MCMPT). In FY22 BOT MAB continues Botulinum monoclonal antibody platform development with manufacturing runs to produce product for pivotal animal studies and phase 2/3 clinical studies.

The CET RAIDR program will develop repurposed drugs as medical countermeasures towards known, potential, and unknown and emerging threats, bridging the gap from when a threat is identified until targeted countermeasures such as vaccines are available. CET RAIDR will leverage lessons learned in Coronavirus Aid, Relief, and Economic Security (CARES) Act funded efforts under COVID TX and address advanced development portion of Science and Technology (S&T) efforts from Defense Threat Reduction Agency (DTRA) Joint Science and Technology Office (JSTO) Development of Medical Countermeasures Against Novel Entities (DOMANE) and Layered Integrated Medical Countermeasures Intervention Technologies (LIMIT) programs for new and emerging threats. In FY22, CET RAIDR continues nonclinical studies and Phase 2 and 3 trials, and on-going COVID activities to conduct advanced development of repurposed drugs.

The CBIPR-ADM program is the capability building effort at the DoD ADM to establish and enhance proven biopharmaceutical and vaccine manufacturing technologies and accelerate the delivery of medical countermeasures as part of a medical integrated layered defense. The CBIPR-ADM enables an increased level of preparedness and responsiveness (i.e. operational readiness) to rapidly counter current and emerging biological threats including pandemic response. By establishing and enhancing these new proven MCM manufacturing technologies, the DoD ADM accelerates rapid development of MCMs at all stages of development. The MCMs impacted by these efforts include: Vaccines for Viral and Bacterial Agents and Toxins, monoclonal antibodies for prophylactic and/or therapeutic indications, and antibody conjugates for use across all agent classes. In FY22 CBIPR-ADM continues activities to maintain the DoD ADM's capabilities in a state of readiness to support Medical Countermeasure (MCM) development and manufacturing.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *Medical Biological Defense (SDD)*

The CMDR-B program develops Medical Countermeasures (MCM) for Service members to protect against Multiple Drug Resistance (MDR) bacteria, including Biological Warfare Agents (BWAs) and organisms that are genetically modified to be MDR and resulting bio-toxins. The resulting product(s) will be US Food and Drug Administration (FDA)-approved to prevent or minimize effects of MDR bacterial exposures. The candidates are transitional product from S&T that showed efficacy against plague, anthrax, and other BW agents. The regulatory approach of the program is to pursue development of products to FDA approval under the Animal Rule. The program conducted animal studies to confirm efficacy for plague and melioidosis. In FY20 Pharmacokinetic study on non-human primates Good Laboratory Practice (GLP) study report was completed for the plague indication and results were analyzed against threat indication. In FY21 and beyond, the Defense-Wide Review reduced this program for higher priorities. Execution of program closeout in FY20.

The DBPAP program facilitates new technology transition to advanced development, efficient production, and timely distribution. DBPAP consists of a Critical Assays and Reagents team, which serves as the principal resource for biological assays and reagents, and the Targeted Acquisition of Reference Materials Augmenting Capabilities (TARMAC) team, which generates data on biodefense pathogens to inform product development. DBPAP establishes a core research and development capability by developing biological threat agent reference materials (strains, antigens, antibodies and nucleic acids) and detection/diagnostic assays for biothreat agent detection. These reagents/assays are leveraged across multiple programs to meet the requirements of the Warfighter and Joint biological defense systems and support the biological defense community. Through the TARMAC initiative, the DBPAP will use a systematic approach to the introduction of new materials and information into MCM development. This includes advanced platform technologies within the DoD's ADM facility. In FY22 DBPAP continues development/expansion of biological threat agents reference materials to known and emerging threats.

The JMEDICC program is a collaboration between United States and Ugandan research and outbreak response entities intended to enable clinical trials for filovirus (Ebola and Marburg) therapeutics during an outbreak. The JMEDICC effort provides a platform of advanced supportive care, scientific rigor, laboratory and logistical capacity, mobility, and rapid response to test new therapeutics or MCM in a filovirus outbreak setting. The JMEDICC effort is a project whose resulting capability offers a mechanism to greatly accelerate the development of life-saving products for future outbreaks. The performer received approval of an emergency access protocol for the use of the Remdesivir drug in the country of Uganda.

The MCMPT program establishes enabling technologies and pre positioning platform systems at the DoD's Advanced Development Manufacturing (ADM) facility using standardized discovery, design, manufacturing, and testing processes to reduce the medical countermeasure (MCM) development risks. Efforts will center on leveraging the ADM's facility and developing robust manufacturing processes. MCMPT will leverage platform technologies to streamline and accelerate the MCM delivery to the Force by reducing developmental risk. A subset of these technologies will be adapted to deliver a rapid response capability to novel and emerging threats. Through the Advanced Development and Manufacturing Antibody Technologies (ADAMANT) and Rapid Response platforms, MCMPT will deliver an enduring capability from which future candidates can be manufactured. The Agile Medical Paradigm (AMP) is the CBDP's strategic framework to accelerate the delivery of MCMs. To achieve this goal the DoD is establishing a medical countermeasures platform technology (MCMPT) capability.

The NGDS program is a family of systems providing increments of diagnostic capabilities over time that address varied chemical, biological and radiological (CBR) threats across the different echelons of the Combat Health Support System. The mission of the NGDS is to provide CBR threat and infectious disease identification and FDA-cleared diagnostics to inform individual patient treatment and CBR situational awareness and disease surveillance. NGDS 2 will provide additional capability for

diagnosis of CBR-induced diseases, suitable for use in far forward environments, by developing lightweight, portable, and simple-to-use instruments and test kits. In FY21 NGDS Increment 2 transitions into two programs of record; NGDS 2 MPDS Program and NGDS 2 CHEMDX Program.

The NGDS 2 CHEMDX program will provide a rapid, hand-held, point-of-care device. It utilizes an electrochemical assay for the quantitative detection of acetyl cholinesterase (AChE) activity in finger stick and venous whole blood samples of individuals suspected of being exposed to cholinesterase inhibiting substances, such as nerve agents. NGDS 2 CHEMDX diagnostic capabilities will be employed in Army, Air Force, Navy, Marines and SOCOM (Roles 1-3), with applicability to routine healthcare at higher echelons. NGDS 2 CHEMDX test results are to be used to aid in the diagnosis of cholinesterase inhibition in an individual suspected of having exposure to NTAs and his/her treatment decision with an Antidote Treatment Nerve Agent, Autoinjector (ATNAA): self-aid; buddy aid; combat lifesaver; or medic. In FY22 NGDS 2 CHEMDX continues Engineering & Manufacturing Development.

The NGDS 2 MPDS program will provide a simple-to-use, portable diagnostic device capability that can be used in far-forward and austere battlefield environments to assist in the diagnosis of infectious diseases and biological warfare agents in symptomatic individuals. The MPDS will enable earlier patient diagnosis by its placement on the battlefield. Concepts of Employment support use by small teams and medical providers at Role 1 and Role 2 echelons of care. Earlier diagnosis of infectious diseases improves decision support for treatment and evacuation, improves command situational awareness, and mitigates the effects of exposure to unknown infectious disease and biological agents. In FY22 NGDS 2 MPDS concludes hardware, software, assay development, and two clinical trials; continues development of third assay panel; and management of hardware and software configurations.

The DoD provides for the development of vaccines that are directed against validated biological warfare (BW) weapons to include bacteria, viruses, and toxins of biological origin. Effective medical countermeasures are urgently needed to negate the threat of these BW agents. Vaccines have been identified as the most efficient countermeasure against the validated threat of BW weapons. Products under development in this budget item include Recombinant Botulinum A/B (VAC BOT) and Plague (VAC PLG) vaccines. Efforts to be conducted during the Engineering Manufacturing Development (EMD) Phase include the development of large scale manufacturing process and validation of that process, nonclinical studies, demonstration of manufacturing consistency, and expanded clinical human safety studies. The results of these efforts, and those conducted during the EMD phase, will be used to submit a Biologics License Application (BLA) to the FDA for product licensure. To evaluate vaccine effectiveness, pivotal animal studies will be conducted concurrently with the Phase 3 clinical trial to satisfy the requirements of the FDA's "Animal Rule".

Congressional Interest Item - The Botulinum and Plague Vaccine Storage and Stability Testing (VSST) program utilizes Congressional directed funding for the Botulinum and Plague vaccines. DoD has the mission to maintain the existing vaccine material in Good Manufacturing Practice (GMP) storage and to conduct the periodic potency and stability testing of these materials to support submissions to the FDA and potential future emergency response. In FY21, VSST continues storage, distribution, and stability testing of VAC BOT and VAC PLG materials, and initiates a Phase 2 clinical trial evaluating the use of a biological response modifier (BRM) co-administered with the VAC PLG drug product to identify avenues for faster onset and longer duration of protection.

Congressional Interest Item - The Antiviral Prophylaxis Studies program will manage the development of TPOXX as Post-Exposure Prophylaxis (PEP) for Smallpox. TPOXX is only approved as treatment for clinically evident smallpox, which is usually diagnosed 12 to 14 days post-exposure, but as late as 17 days post-exposure. The warfighter is therefore exposed to a "window of vulnerability" in the progression of smallpox for which no treatment options are approved by the FDA. This effort will

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complete all required nonclinical and clinical studies necessary to submit a supplemental New Drug Application (sNDA) or New Drug Application (NDA) seeking approval of TPOXX as a post-exposure prophylaxis. The funding supports a regulatory pathway to provide a Post-Exposure Prophylactic to close the "window of vulnerability" by providing a treatment option for smallpox after vaccination ceases to be effective and prior to clinically evident disease.

The SIP continually manages, updates, and executes the INDs of selected prophylaxis, treatments and diagnostics development products which provide additional protection to individuals that are at high risk of exposure to CBRN agents. These vaccines will be used to provide additional levels of protection to laboratory workers conducting research. DoD has the mission to maintain IND vaccines in Good Manufacturing Practice (GMP) storage and to conduct the periodic potency and stability testing of these materials to support submissions to the FDA. In FY22 SIP continues storage, distribution, potency testing, and biosurety compliance activities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: 1) CARES Act - Diagnostics & Medical Research: COVID POC DX ***Description:*** Device Evaluation and User Demonstration	4.500	-	-
Title: 2) CARES Act - Diagnostics/ Medical Research: COVID TX ***Description:*** Qualification of a Second Manufacturing Line	4.365	-	-
Title: 3) CARES Act - Diagnostics/ Medical Research: COVID TX ***Description:*** Phase 2 Clinical Trials	31.235	-	-
Title: 4) Antiviral Therapeutics Program (AV TX) ***Description:*** Enabling Technologies ***FY 2021 Plans:*** Complete efficacy studies with Non-Human Primates infected with Ebola virus. Start efficacy studies with Non-Human Primates infected with Marburg virus. ***FY 2022 Plans:*** Continue efficacy studies with Non-Human Primates infected with Marburg virus. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to accelerated development effort.	7.095	11.831	14.476
Title: 5) Botulinum Monoclonal Antibodies (BOT MAB) ***Description:*** Clinical and Nonclinical Studies ***FY 2022 Plans:***	-	-	27.723

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Continue nonhuman primate pivotal animal studies and phase 2/3 clinical studies. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to change in program/project schedule.			
Title: 6) Botulinum Monoclonal Antibodies (BOT MAB) ***Description:*** Manufacturing ***FY 2021 Plans:*** Initiate small scale manufacturing and cell banking activities to support large scale manufacturing runs. ***FY 2022 Plans:*** Continue Botulinum monoclonal antibody platform development with manufacturing runs to produce product for pivotal animal studies and phase 2/3 clinical studies. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to change in program/project schedule. Production of manufacturing runs increase cost in FY22.	-	21.211	33.000
Title: 7) Countering Emerging Threats Rapid Acquisition and Investigation of Drugs for Repurposing (CET RAIDR) ***Description:*** Non-clinical and Clinical Studies ***FY 2022 Plans:*** Continue nonclinical studies and Phase 2 and 3 trials, as needed, in support of requesting pre-Emergency Use Authorizations (pre-EUA). ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to change in program/project technical parameters.	-	-	8.000
Title: 8) Internal COVID - CET RAIDR ***Description:*** Pandemic Preparedness ***FY 2022 Plans:*** Continues on-going COVID activities to conduct advanced development of repurposed drugs. These resources support development of repurposing reports (including animal T&E studies) and pre-Emergency Use Authorization (EUA) submissions for two therapeutics each year. These efforts will address known and potential threats to prepare DoD for response to biological threats. ***FY 2021 to FY 2022 Increase/Decrease Statement:***	-	-	12.000

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Increase due to accelerated development effort. Supports COVID-19/pandemic response efforts.			
Title: 9) Chem Bio Incident Preparedness and Response - Adv Dev Mfg (CBIPR - ADM) ***Description:*** ADM Infrastructure ***FY 2021 Plans:*** Continue activities to maintain the DoD ADM's capabilities in a state of readiness to support Medical Countermeasure (MCM) development and manufacturing. ***FY 2022 Plans:*** Continue activities to maintain the DoD ADM's capabilities in a state of readiness to support Medical Countermeasure (MCM) development and manufacturing. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	10.000	10.157	10.363
Title: 10) Countermeasures for Multi-Drug Resistance-Bacterial (CMDR-B) ***Description:*** Program Closeout	2.802	-	-
Title: 11) Defense Biological Products Assurance Program (DBPAP) ***Description:*** Development ***FY 2021 Plans:*** Continue development/expansion of biological threat agents reference materials to known and emerging threats. Continue development of assays and nucleic acid based genomic assays to support fielded and developmental systems. Continue QA/QC testing to encompass the transition and fielding of biological detection assays. Continue to maintain yearly accreditation audits such as ISO 9001, 17025, and Guide 34 certifications. Continue quality actions throughout to maintain the quality managed systems. Continue development of prototypes/information for strains contained in Unified Culture Collection. Supports establishment of a Common Reference Repository - a single source for well-characterized, traceable test articles and vital information for biological defense, effective verification of proficiency testing, improved acquisition of emerging technologies, all at a decreased cost for the individual organizations. ***FY 2022 Plans:*** Continue development/expansion of biological threat agents reference materials to known and emerging threats. Continue development of assays and nucleic acid based genomic assays to support fielded and developmental systems. Continue QA/QC testing to encompass the transition and fielding of biological detection assays. Continue to maintain yearly accreditation	6.568	8.872	8.043

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
audits such as ISO 9001, 17025, and Guide 34 certifications. Continue quality actions throughout to maintain the quality managed systems. Continue development of prototypes/information for strains contained in Unified Culture Collection. Supports establishment of a Common Reference Repository - a single source for well-characterized, traceable test articles and vital information for biological defense, effective verification of proficiency testing, improved acquisition of emerging technologies, all at a decreased cost for the individual organizations. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Title: 12) Joint Mobile Emerging Disease Intervention Clinical Capability (JMEDICC) ***Description:*** Enabling Technologies	3.322	-	-
Title: 13) Medical Countermeasure Platform Technologies (MCMPT) ***Description:*** Advanced Development and Manufacturing Antibody Technologies (ADAMANT) BOT A/B	1.021	-	-
Title: 14) Next Generation Diagnostic System 2 (NGDS 2) ***Description:*** Man Portable Diagnostic System (MPDS)	19.691	-	-
Title: 15) NGDS 2 Chemical Diagnostic (NGDS 2 CHEMDX) ***Description:*** Chemical Diagnostic System (CHEMDX) ***FY 2021 Plans:*** Begin Engineering & Manufacturing Development for the Chemical Diagnostic System. ***FY 2022 Plans:*** Continue Engineering & Manufacturing Development and initiate clinical trials for NGDS 2 ChemDx System. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	-	1.733	2.006
Title: 16) NGDS 2 Chemical Diagnostic (NGDS 2 CHEMDX) ***Description:*** Chemical Diagnostic System (CHEMDX) ***FY 2021 Plans:***	-	0.356	2.923

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Conduct program management and government test activities for NGDS 2 CHEMDX. ***FY 2022 Plans:*** Conduct program management and government test activities for NGDS 2 CHEMDX. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Minor change due to routine program adjustments. Program transitions from BA4 to BA5 in 3QFY21 at Milestone B			
Title: 17) NGDS 2 MPDS ***Description:*** Man Portable Diagnostic System (MPDS) Product Development ***FY 2021 Plans:*** Conduct Hardware, software and assay development; system integration, and two clinical trials. ***FY 2022 Plans:*** Conclude hardware, software, assay development, and two clinical trials; continue development of third assay panel, and; management of hardware and software configurations. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.	-	20.283	8.308
Title: 18) NGDS 2 MPDS ***Description:*** Man Portable Diagnostic System (MPDS) Program Management and Support ***FY 2021 Plans:*** Conduct program management, developmental testing, and operational assessments. ***FY 2022 Plans:*** Conduct program management. Complete developmental testing and operational assessments. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.	-	9.141	3.875
Title: 19) VAC BOT - Recombinant Botulinum Vaccine ***Description:*** Manufacturing/Closeout Activities	39.649	-	-
Title: 20) VAC PLG - Plague Vaccine ***Description:*** Manufacturing	26.390	-	-

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: 21) VAC SIP	2.707	2.876	6.631
Description: Storage, Distribution, Potency Testing ***FY 2021 Plans:*** Continue storage, distribution, potency testing, and biosurety compliance activities in support of the Special Immunization Program. ***FY 2022 Plans:*** Continue storage, distribution, potency testing, and biosurety compliance activities in support of the Special Immunization Program. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to change in program/project technical parameters.			
Accomplishments/Planned Programs Subtotals	159.345	86.460	137.348

	FY 2020	FY 2021
Congressional Add: 1) Antiviral Prophylaxis Studies ***FY 2020 Accomplishments:*** Completed placebo manufacturing, non-clinical testing,and started protocol development for Phase II and Phase III trials. ***FY 2021 Plans:*** Complete protocol development and execute Phase II and Phase III trials.	11.000	4.500
Congressional Add: 2) Recombinant Botulinum and Plague Vaccines - Storage ***FY 2021 Plans:*** Botulinum and Plague vaccines and associated critical reagents will be stored to ensure there is a stock of material available to the Warfighter in an emergency.	-	1.040
Congressional Add: 3) Recombinant Botulinum and Plague Vaccines - Adaptive Clinical Trial ***FY 2021 Plans:*** Conduct adaptive clinical trial to test for improved efficacy and reduced immunization time for the Warfighter is achieved by utilizing a Biological Response Modulator (BRM) with the current Plague vaccine. The intent of new BRMs is to reduce needle in arm count and time for full immunity, allowing for faster recovery and deployment of the warfighter.	-	21.456
Congressional Add: 4) Recombinant Botulinum and Plague Vaccines - Stability Testing	-	4.500

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	FY 2020	FY 2021
FY 2021 Plans: Conduct stability testing of the VAC BOT and VAC PLG to ensure the drug product is safe and usable for the warfighter in case of an emergency use situation. Initial testing to begin on contract award and maintain appropriate time points.		
Congressional Adds Subtotals	11.000	31.496

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
• MB7: *Medical Biological Defense (Op Sys Dev)*	2.663	2.308	3.833	-	3.833	-	-	-	-	-	-
• JM8788: *NEXT GENERATION DIAGNOSTICS SYSTEM (NGDS)*	1.418	0.970	1.290	-	1.290	-	-	-	-	-	-
• JX0005: *DOD BIOLOGICAL VACCINE PROCUREMENT (VACCINES)*	0.173	5.500	0.000	-	0.000	-	-	-	-	-	-
• JX0210: *DEFENSE BIOLOGICAL PRODUCTS ASSURANCE PROGRAM (DBPAP)*	2.961	2.845	2.760	-	2.760	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

COVID POINT OF CARE DIAGNOSTICS (COVID POC DX)

The COVID POC DX program will procure and test candidate Point-of-Care (POC) diagnostic devices, to evaluate novel COVID-19 testing concepts of operation and use. Testing includes analytical performance testing to verify vendor claims, as well as end-user evaluations conducted by the U.S. Army Medical Department Board and the U.S. Naval Health Research Center. Following this initial test and evaluation, candidates that successfully demonstrate operational utility and receive Emergency-Use Authorization from the Food and Drug Administration, will be procured in quantities sufficient to support more extensive user demonstrations at Department of Defense Point-of-Care facilities.

COVID REPURPOSED THERAPIES (COVID TX)

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The COVID TX program will conduct Phase 2 clinical trials in FY20 and FY21 to test the efficacy of the Leukine (sargramostim, rhu-GM-CSF) in COVID-19 patients with acute hypoxemia to inform a request for Emergency Use Authorization (EUA) from the Food and Drug Administration (FDA). Qualification of a second manufacturing line for Drug Product Agreement awarded to performer for clinical trials, submission of EUA, and manufacturing expansion.

ANTI-VIRAL THERAPEUTICS (AV TX)

The Anti-viral Therapeutics (AVTX) program acquisition strategy supports the development of therapeutics through the Engineering, Manufacturing and Development (EMD) phase against the Ebola (Zaire), Marburg and Sudan bio warfare threats. The initial therapeutic candidate is now for a treatment against the Marburg virus in lieu of Ebola Zaire based on the current gap in defense to the warfighter. The overall regulatory approach of the program remains to pursue development of products to Food and Drug Administration (FDA) approval under the Animal Rule that was approved as the path, by the FDA in 1QFY19. The program completed a dose ranging study for the Ebola Zaire indication and initiated a Natural History Study for Marburg that is part of the holistic FDA regulatory approach for a final indication of a broad spectrum antiviral pan filo drug product. A natural history study for Marburg and Sudan and 3 pivotal animal studies per indication are required as part of the animal rule requirements for the FDA) approved plan. The acquisition strategy for Marburg and Sudan indications will have the performer submitting amended New Drug applications for the therapeutics during the EMD phase.

BOTULINUM MONOCLONAL ANTIBODIES (BOT MAB)

Initiated by the Medical Countermeasure Platform Technologies (MCMPT), the goal of Botulinum Monoclonal Antibodies (BOT MAB) advanced development effort is to counter exposure to BOT A & B toxins. The program is leveraging the advanced platform technology developed within the DoD's Advanced Development Manufacturing (ADM) facility that was initiated by the Medical Countermeasure Platform Technologies (MCMPT). The BOT MAB will be a monoclonal antibody cocktail that protects the warfighter against exposure to BOT A&B serotypes.

COUNTERING EMERGING THREATS RAPID ACQUISITION AND INVESTIGATION OF DRUGS FOR REPURPOSING (CET RAIDR)

The Countering Emerging Threats - Rapid Acquisition and Investigation of Drugs for Repurposing (CET RAIDR) program will leverage lessons learned from the COVID-19 response to conduct nonclinical studies and Phase 2 and 3 trials in support of requesting pre-Emergency Use Authorizations (pre-EUA). Repurposing reports will be issued to Combatant Commands to inform clinical practitioners, and Food and Drug Administration (FDA) approvals for those efforts initiated under the Coronavirus Disease Repurposed Therapeutics (COVID TX) program, as well as products that transition from Science and Technology (S&T) efforts for new and emerging threats.

CHEM BIO INCIDENT PREPAREDNESS AND RESPONSE - ADM

A contract was awarded to Ology Bioservices on 20 March 2013 (then Nanotherapeutics, Inc.) to establish a Department of Defense (DoD) Advanced Development and Manufacturing (ADM) capability that can rapidly develop and manufacture MCMs from early stage development up through FDA licensure. The establishment of this capability consisted of designing, commissioning, and validating a biopharmaceutical facility (both its infrastructure and equipment) that is equipped with two (2)

advanced development and manufacturing suites, which utilize flexible, agile, single-use (disposable), modular, and multi-product technologies that comply with GMPs and can operate at Biological Safety Level-3 (BSL-3). The capability was established on 31 March 2017.

Since its establishment, the DoD ADM has been sustained in a state of operational readiness so that it can continue to be an enduring domestic MCM manufacturing capability that provides the DoD with priority access. The original sustainment strategy consisted of directly funding all costs/activities (i.e. calibration, maintenance, etc.) via sustainment options on the original contract. The CBIPR funds were designated to support this critical DoD infrastructure. The CBIPR-ADM funding line supports the infrastructure by funding new capability-building efforts (such as manufacturing platforms using FDA known technologies) that will enable new additional MCM product development. This strategy will result in the self-sustainability of the DoD ADM by spreading the sustainment costs equally across all projects (including commercial clients), which mimics the standard practice across the contract development and manufacturing organization (CDMO) industry.

COUNTERMEASURES FOR DRUG RESISTANT BACTERIA (CMDR-B)

The CMDR-B program develops medical countermeasures (MCM) for Service members for protection against Multi-Drug Resistant (MDR) bacteria, including Biological Warfare Agents (BWAs) and organisms that are genetically modified to be MDR and resulting bio-toxins. The resulting product(s) will be US Food and Drug Administration (FDA)-approved to prevent or minimize effects of MDR bacterial exposures. The candidate is a transitional product from Science and Technology (S&T) that showed efficacy against plague, anthrax, and other BW agents. The regulatory approach of the program is to pursue development of products to FDA approval under the Animal Rule. The program will conduct non-human primate studies to confirm efficacy. The performer will develop and submit an initial fielding capability (IFC) package to FDA for emergency use to support the warfighter preparedness against MDR. The performer will submit Supplemental New Drug Application for the therapeutic during the Engineering and Manufacturing Development (EMD) Phase. In FY18 Pharmacokinetic study on non-human primates was completed for the plague indication and results were analyzed against threat indication. Continued coordination with FDA for supplemental indication of anthrax based on threat level to the warfighter. In FY21 and beyond, the Defense-Wide Review (DWR) reduced this program for higher priorities. Execution of program closeout in FY20.

DEFENSE BIOLOGICAL PRODUCTS ASSURANCE PROGRAM (DBPAP)

The Defense Biological Products Assurance Program's (DBPAP) strategy establishes a core research and development capability to develop biological threat agent reference materials (antigens, nucleic acids, and antibodies) as well as detection and diagnostic assays for bio-threat agent detection that shall be used across multiple detection and diagnostic platforms. In addition, this strategy includes a formal, validated advanced development process for transitioning new assays into production and subsequent integration with the appropriate detection/diagnostic platform. DBPAP provides a centralized management function for the establishment of a common repository of standardized biological materials to effectively support the Department of Defense (DoD)'s and the Department of Homeland Security's (DHS) mission of providing consistent capabilities and a capacity for customers to mitigate biological events.

JOINT MOBILE EMERGING DISEASE INTERVENTION CLINICAL CAPABILITY (JMEDICC)

The Joint Mobile Emerging Disease Intervention Clinical Capability (JMEDICC) is a collaboration between United States and Ugandan research and outbreak response entities. It currently is a joint effort with The United States Army Medical Research Institute of Infectious Diseases (USAMRIID) and The Naval Medical Research Center

(NMRC) to enable clinical trials for filovirus (i.e., Ebola and Marburg) therapeutics during an outbreak. JMEDICC effort was funded by the Antiviral Therapeutics (AV TX) Program (MB5) in FY19. A new funding line was added in FY20 to support this effort. The JMEDICC effort is currently focused on filovirus, but is an adaptable capability that can incorporate multiple different medical countermeasures (MCM) in parallel and accommodate multiple site activities. This will maximize JMEDICC's current response capability and infrastructure by expanding as the endemic situation warrants. A cost sharing plan is currently being explored with other government and nongovernment agencies to determine interest and relevance levels. In FY21 and beyond, the Defense-Wide Review (DWR) reduced this program for higher priorities.

MCM PLATFORM TECHNOLOGIES (MCMPT)

The goal of the MCMPT is to rapidly counter a broad-spectrum of threat agents using standardized discovery, design, manufacturing, and testing processes to reduce the MCM development risks. Efforts will focus on establishing advanced platform technologies within the DoD's Advanced Development Manufacturing (ADM) facility and evaluating that capability through nonclinical and clinical testing. A subset of these technologies will be adapted to deliver a rapid response capability to novel and emerging threats. Once established, future programs will be able to leverage these platforms for the development of future medical countermeasures. It is anticipated that these efforts will leverage the Other Transactions Authority (OTA) through the medical OTA consortium.

NEXT GENERATION DIAGNOSTICS SYSTEM (NGDS)

The NGDS 1 program was a MS A to MS C - acquisition strategy, with MS C approval granted in Dec 2016. NGDS 1 replaces the legacy Joint Biological Agent Identification and Diagnostic System (JBAIDS). NGDS 1 Full Rate Production was approved in Aug 2018.

NGDS 2 will employ a family of systems approach to bridge identified capability gaps for man-portable diagnostics, immunoassay diagnostics, and chemical diagnostics systems. NGDS 2 continued the technology maturation and risk reduction of a man-portable diagnostic capability in FY18 and transitioned to engineering and manufacturing development phase in FY19. NGDS 2 initiated prototyping of a chemical diagnostic capability in FY18. Separate decisions will be utilized to proceed with further development and production for each capability, based on individual determinations of technology maturity to meet user requirements. Development efforts are cost-plus awards using Other Transactions Authority (OTA) agreements to take advantage of nontraditional Defense contractor offerings. NGDS 2 will transition into NGDS 2 CHEMDx and NGDS 2 MPDS starting in FY21.

NEXT GEN DIAG 2 CHEMICAL DIAGNOSTICS (NGDS 2 CHEMDX)

NGDS Increment 2 will employ a family of systems approach to bridge identified capability gaps for man-portable diagnostics, immunoassay diagnostics, and chemical diagnostics systems. NGDS 2 CHEMDX will provide a lightweight, portable, and simple-to-use diagnostic capability against chemical threat agents to end-users in non-laboratory, far-forward environments. NGDS 2 CHEMDX initiated prototyping in FY18 and will enter Engineering and Manufacturing Development in FY21. NGDS 2 CHEMDX is using an Other Transactions Authority (OTA) agreement to take advantage of nontraditional Defense contractor offerings. Starting in FY21, NGDS Increment 2 program of record transitions to NGDS 2 CHEMDX.

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NEXT GEN DIAG 2 MAN PORTABLE DIAGNOSTIC SYSTEM (NGDS 2 MPDS)

NGDS Increment 2 will employ a family of systems approach to bridge identified capability gaps for man-portable diagnostics, immunoassay diagnostics, and chemical diagnostics systems. NGDS 2 Man Portable Diagnostic System (MPDS) will complement NGDS Increment 1 by providing a lightweight, portable, and simple-to-use diagnostic capability to end-users in non-laboratory, far-forward environments. NGDS 2 MPDS concluded prototyping in FY19 and is continuing with engineering and manufacturing development. MPDS is using Other Transactions Authority (OTA) agreements to take advantage of nontraditional Defense contractor offerings. Starting in FY21, NGDS Increment 2 program of record transitions to NGDS 2 MPDS.

BOTULINUM VACCINE (VAC BOT)

The Prime System Contractor (Dynport Vaccine Company/DVC LLC, Frederick MD) will function as the FDA regulatory sponsor and will perform all ancillary, regulatory, quality assurance, and data management as required by the FDA. The current budget supports development through FDA licensure of a recombinant bivalent (A and B) botulinum vaccine. Other serotypes will be developed through an evolutionary approach, as funding becomes available. The Advanced Component Development and Prototypes (ACD&P) phase included the manufacture of candidate current Good Manufacturing Practices (cGMP) lots, animal safety testing, and initial clinical trials. During this phase, the vaccine was evaluated for safety and immunogenicity in a small human clinical trial (Phase 1). During the Engineering Manufacturing Development (EMD) Phase, the prime contractor stabilized the vaccine formulation, validated the manufacturing process and testing protocols, optimized the delivery systems and manufactured consistency lots. Phase 2 clinical trials were performed and provided additional safety data. The evaluation of efficacy in pivotal animal studies to satisfy Food and Drug Administration's (FDA) requirements for the Animal Rule has been completed. The remaining efforts to be conducted during the EMD phase include the Phase 3 clinical trial to demonstrate safety in an expanded volunteer population. In FY21 and beyond, the Defense-Wide Review (DWR) reduced the funding for the development of the VAC BOT vaccine. Close out efforts will be completed in FY21 and will include manufacturing three cGMP lots with the intent of using these lots in an EUA if pre-EUA submission is approved by the FDA.

PLAGUE VACCINE (VAC PLG)

The Advanced Component Development and Prototypes (ACD&P) phase included the manufacture of candidate current Good Manufacturing Practices (cGMP) lots, animal safety testing, and initial clinical trials. During this phase, the vaccine was evaluated for safety and immunogenicity in a small human clinical trial (Phase 1). In order to reduce technical program risk in the Plague vaccine program, the program office conducted competitive prototyping between a US vaccine candidate and a United Kingdom vaccine candidate. During the 2008 Resource Allocation Decision, the US Plague Vaccine candidate was selected for development through licensure under a Prime System Contract. The Prime System Contractor (Dynport Vaccine Company/DVC LLC, Frederick MD) currently functions as the Food and Drug Administration's (FDA) regulatory sponsor and performs all ancillary, regulatory, quality assurance, and data management as required by the FDA. A Project Arrangement is in place with the United Kingdom and Canada. During the Engineering Manufacturing Development (EMD) Phase, the prime contractor stabilized the vaccine formulation, validated the manufacturing process and testing protocols, optimized the delivery systems and manufactured consistency lots. Phase 2 clinical trials were performed and provided additional safety data. The remaining efforts to be conducted during the EMD phase include the Phase 3 clinical trial to demonstrate safety in an expanded volunteer population and evaluation of efficacy and duration of protection in pivotal animal studies to satisfy FDA requirements for the Animal Rule. In FY21 and beyond, the Defense-Wide Review (DWR) reduced the funding for the development of the VAC PLG vaccine. The VAC BOT and VAC PLG vaccine

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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programs are no longer seeking FDA licensure due to the impacts of the Defense Wide Review in which funding has been removed for higher priority programs. Close out efforts will be completed in FY21 utilizing FY20 funds.

CONGRESSIONAL INTEREST ITEMS

CONGRESSIONAL INTEREST ITEM - Smallpox Antiviral Prophylaxis Studies
Assay development and validation for monkeypox performed in FY19 that informs approval from the FDA for post-exposure prophylaxis (PEP) indication for smallpox. Antiviral prophylaxis studies are being performed. Contract awarded to performer to complete animal rule studies for FDA approval.

CONGRESSIONAL INTEREST ITEM - Botulinum and Plague Vaccine Storage and Stability Testing (VSST)
Full and open competition for storage, stability and adaptive clinical trial contracts. This is to utilize the funding to its maximum potential and obtain best result and value for the warfighter. Contract award winners are required to maintain consistent and regular testing time points of the vaccine drug product to ensure safety and usability for the warfighter.

SPECIAL IMMUNIZATION PROGRAM (VAC SIP)

The SIP effort continually manages, updates, and executes the INDs of selected prophylaxis, treatments and diagnostics development products which provide additional protection to individuals that are at high risk of exposure to CBRN agents. Efforts span Good Manufacturing Practices (GMP), Good Laboratory Practices guidelines necessary to conduct storage and periodic potency testing, as well as clinical administration of products in accordance with the FDA regulated Investigational New Drug (IND) requirements. This Department of Defense program supports the Federal interagency with this effort, as well as academic and industry partners.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		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
COVID POC DX - HW S - Vendor A Systems for T&E and User Demonstration	C/FFP	TBD : N/A	0.000	0.921	Dec 2020	0.000		0.000		0.000		0.000	0.000	0.921	0.000
COVID POC DX - HW S - Vendor B Systems for T&E and User Demonstration	C/FFP	TBD : N/A	0.000	2.980	Feb 2021	0.000		0.000		0.000		0.000	0.000	2.980	0.000
COVID TX - Manufacturing Expansion	C/FFP	Partner Therapeutics : Lexington, MA	0.000	4.365	Jul 2020	0.000		0.000		0.000		0.000	0.000	4.365	0.000
COVID TX - Clinical Trials	C/FFP	Partner Therapeutics : Lexington, MA	0.000	31.235	Jul 2020	0.000		0.000		0.000		0.000	0.000	31.235	0.000
AV TX - Nonclinical Trials - OTA	C/FP	Gilead Sciences : San Francisco, CA	7.433	4.946	Nov 2019	8.000	Apr 2021	8.000	Nov 2021	0.000		8.000	0.000	28.379	0.000
DBPAP - HW C - Development of Select Biological Threat Agent Reference Materials and Assays	MIPR	Various : Various	3.488	1.400	Mar 2020	1.873	Mar 2021	1.698	Mar 2022	0.000		1.698	0.000	8.459	0.000
JMEDICC - OCONUS Clinical Capabilities - OTA	C/FP	Henry M. Jackson Foundation for the Advancement of Military Medicine : Bethesda, MD	0.000	2.695	Mar 2020	0.000		0.000		0.000		0.000	0.000	2.695	0.000
JMEDICC - Clinical Trial Conduct Support	MIPR	US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD	0.000	0.380	Jul 2020	0.000		0.000		0.000		0.000	0.000	0.380	0.000
MCMPT - HW S - ADAMANT BOT A/B establishment	C/CPFF	Ology : Alachua, FL	13.503	0.997	Jan 2020	0.000		0.000		0.000		0.000	0.000	14.500	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		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
NGDS - HW C - Man Portable Diagnostic System	C/CPFF	Cepheid : Sunnyvale, CA	18.116	12.853	Dec 2019	0.000		0.000		0.000		0.000	0.000	30.969	0.000
NGDS 2 CHEMDX - HW C - Chemical Diagnostic System (CHEMDX)	C/CPFF	MRIGlobal : Palm Bay, FL	0.000	0.000		1.733	Jun 2021	2.209	Dec 2021	0.000		2.209	0.000	3.942	0.000
NGDS 2 MPDS - HW C - Man Portable Diagnostic System (MPDS)	C/CPFF	Cepheid : Sunnyvale, CA	0.000	0.000		20.258	Dec 2020	8.308	Dec 2021	0.000		8.308	0.000	28.566	0.000
VAC BOT - Manufacturing, Validation and Consistency Lot Production	C/CPAF	DynPort Vaccine Company (DVC) LLC. : Frederick, MD	99.452	28.771	Dec 2019	0.000		0.000		0.000		0.000	0.000	128.223	0.000
VAC PLG - HW S - Manufacturing, Validation, and Consistency Lot Production	C/CPAF	DynPort Vaccine Company (DVC) LLC. : Frederick, MD	56.852	16.983	Dec 2019	0.000		0.000		0.000		0.000	0.000	73.835	0.000
CONG - Antiviral Prophylaxis Studies-Clinical Trials - OTA	C/CPFF	SIGA Technologies : Inc., New York, NY	12.967	10.825	Jul 2020	4.500	Feb 2021	0.000		0.000		0.000	0.000	28.292	0.000
CONG - HW S - Manufacturing, Validation, and Consistency Lot Production	C/CPAF	TBD : N/A	0.000	0.000		26.996	Jun 2021	0.000		0.000		0.000	0.000	26.996	0.000
		Subtotal	211.811	119.351		63.360		20.215		0.000		20.215	0.000	414.737	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
CBIPR-ADM - Infrastructure	C/CPFF	Ology : Alachua, FL	0.000	8.383	Dec 2019	9.225	Dec 2020	9.416	Dec 2021	0.000		9.416	0.000	27.024	0.000
DBPAP - ES C - Select Biological Threat Agent	MIPR	Various : Various	3.540	1.356	Mar 2020	1.911	Mar 2021	1.732	Mar 2022	0.000		1.732	0.000	8.539	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		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
Reference Material Support															
DBPAP - ES C - Select Biological Threat Agent Reference Material Regulatory/Quality Assurance (QA) Support	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	2.941	1.482	Mar 2020	1.927	Mar 2021	1.747	Mar 2022	0.000		1.747	0.000	8.097	0.000
NGDS - ES C - Studies and WIPT Support	C/CPFF	Johns Hopkins University - Applied Physics Lab : Laurel, MD	0.145	0.389	Feb 2020	0.000		0.000		0.000		0.000	0.000	0.534	0.000
VAC BOT - Regulatory Integration (Environmental and FDA Documentation) and Delivery System	C/CPAF	DynPort Vaccine Company (DVC) LLC. : Frederick, MD	38.334	1.310	Dec 2019	0.000		0.000		0.000		0.000	0.000	39.644	0.000
VAC SIP - Storage and Distribution of Vaccines	SS/FP	Fisher BioServices : Rockville, MD	2.227	0.488	Jan 2020	0.538	Jan 2021	0.593	Jan 2022	0.000		0.593	0.000	3.846	0.000
		Subtotal	47.187	13.408		13.601		13.488		0.000		13.488	0.000	87.684	N/A

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
COVID POC DX - DTE S - Analytical Performance Testing	Various	Various : Various	0.000	0.599	Oct 2020	0.000		0.000		0.000		0.000	0.000	0.599	0.000
BOT MAB - DTE C - BOT MONO	C/CPFF	Ology Bioservices : Inc., Alachua, FL	0.000	0.000		15.132	Dec 2020	45.723	Dec 2021	0.000		45.723	0.000	60.855	0.000
CET RAIDR - DTE C - Non-Clinical and Clinical Studies	Various	Various : Various	0.000	0.000		0.000		15.920	Dec 2021	0.000		15.920	0.000	15.920	0.000
NGDS - OTHT C - Test and evaluate interagency	MIPR	Various : Various	0.380	0.533	Jul 2020	0.000		0.000		0.000		0.000	0.000	0.913	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		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
NGDS 2 CHEMDX - DTE S - Chemical Diagnostic (CHEMDX) Testing	MIPR	Various : Various	0.000	0.000		0.126	Jun 2021	0.250	Dec 2021	0.000		0.250	0.000	0.376	0.000
NGDS 2 MPDS - OTHT S - BSL4 Testing	MIPR	Various : Various	0.000	0.000		0.365	Dec 2020	0.074	Dec 2021	0.000		0.074	0.000	0.439	0.000
NGDS 2 MPDS - DTE S - MPDS SystemTest & Evaluation	MIPR	Various : Various	0.000	0.000		0.889	Dec 2020	0.236	Dec 2021	0.000		0.236	0.000	1.125	0.000
VAC BOT - DTE C - Battelle	C/CPFF	Battelle Memorial Institute : Columbus, OH	1.480	1.046	Dec 2019	0.000		0.000		0.000		0.000	0.000	2.526	0.000
VAC PLG - DTE C - Clinical Trials/Non-Clinical Studies	C/CPAF	DynPort Vaccine Company (DVC) LLC. : Frederick, MD	95.734	4.367	Dec 2019	0.000		0.000		0.000		0.000	0.000	100.101	0.000
VAC SIP - OTHT C - Potency Testing of Vaccines	MIPR	US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD	14.221	1.534	Jan 2020	1.746	Jan 2021	1.828	Jan 2022	0.000		1.828	0.000	19.329	0.000
VAC SIP - OTHT C - Potency Testing of Vaccines #2	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	0.520	May 2020	0.592	Dec 2020	4.210	Jan 2022	0.000		4.210	0.000	5.322	0.000
VAC SIP - OTHT C - Potency Testing of Vaccines #3	C/CPFF	Johns Hopkins University - Applied Physics Lab : Laurel, MD	0.000	0.040	May 2020	0.000		0.000		0.000		0.000	0.000	0.040	0.000
		Subtotal	111.815	8.639		18.850		68.241		0.000		68.241	0.000	207.545	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program			Date: May 2021
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Management Services ($ 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
AV TX - PM/MS S - Program Management (SETA)	C/FFP	Various : Various	0.000	0.000		1.263	Jan 2021	2.476	Dec 2021	0.000		2.476	0.000	3.739	0.000
AV TX - PM/MS - SB - Program Management	Various	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	8.983	0.514	Jan 2020	0.948	Jan 2021	1.500	Dec 2021	0.000		1.500	0.000	11.945	0.000
AV TX - PM/MS - SB - Management Support (Biological Therapeutics)	Various	JPM CBRN Medical : Ft. Detrick, MD	2.818	0.468	Jan 2020	0.000		0.000		0.000		0.000	0.000	3.286	0.000
AV TX - PM/MS - SB - Management Support	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	3.438	1.167	Jan 2020	1.620	Jan 2021	2.500	Dec 2021	0.000		2.500	0.000	8.725	0.000
BOT MAB - PM/MS C - BOT MONO	Various	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	0.000	0.000		2.409	Dec 2020	2.500	Dec 2021	0.000		2.500	0.000	4.909	0.000
BOT MAB - PM/MS C - BOT MONO #2	Various	JPM CBRN Medical : Ft. Detrick, MD	0.000	0.000		1.468	Dec 2020	0.000		0.000		0.000	0.000	1.468	0.000
BOT MAB - PM/MS C - JPdM Support	Various	JPM CBRN Medical : Ft. Detrick, MD	0.000	0.000		2.202	Dec 2020	12.500	Dec 2021	0.000		12.500	0.000	14.702	0.000
CET RAIDR - PM/MS S - Program Management (SETA)	C/FFP	Various : Various	0.000	0.000		0.000		0.500	Dec 2021	0.000		0.500	0.000	0.500	0.000
CET RAIDR - PM/MS SB - Program Management	Various	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	0.000	0.000		0.000		2.180	Dec 2021	0.000		2.180	0.000	2.180	0.000
CET RAIDR - PM/MS SB - Management Support	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	0.000	0.000		0.000		1.400	Dec 2021	0.000		1.400	0.000	1.400	0.000
CBIPR-ADM - PM/MS C - Program Management Support	Various	JPEO Chem/Bio Defense (JPEO-	0.000	0.700	Dec 2019	0.000		0.000		0.000		0.000	0.000	0.700	0.000

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Management Services ($ 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
		CBD) : Aberdeen Proving Ground, MD													
CBIPR-ADM - PM/MS C - Program Management Support #2	Various	JPM Medical Countermeasure Systems (JPM MCS) : Fort Belvoir, VA	0.000	0.917	Dec 2019	0.932	Dec 2020	0.947	Dec 2021	0.000		0.947	0.000	2.796	0.000
CMDR-B - PM/MS SB - Program Management (Biological Therapeutics)	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	0.000	1.911	Jan 2020	0.000		0.000		0.000		0.000	0.000	1.911	0.000
CMDR-B - PM/MS S - Program Management (SETA)	C/FFP	Various : Various	0.000	0.891	Jan 2020	0.000		0.000		0.000		0.000	0.000	0.891	0.000
DBPAP - PM/MS C - Product Management Contractor Support	SS/FFP	Various : Various	1.972	0.860	Feb 2020	1.075	Feb 2021	0.975	Feb 2022	0.000		0.975	0.000	4.882	0.000
DBPAP - PM/MS C - Product Management Support	Various	JPL Enabling Biotechnologies : Fort Detrick, MD	4.528	1.470	Jan 2020	2.086	Jan 2021	1.891	Jan 2022	0.000		1.891	0.000	9.975	0.000
JMEDICC - PM/MS SB - Program Management (JPEO)	Various	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	0.000	0.247	Mar 2020	0.000		0.000		0.000		0.000	0.000	0.247	0.000
MCMPT - PM/MS C - Program Management	Various	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	0.273	0.024	Dec 2019	0.000		0.000		0.000		0.000	0.000	0.297	0.000
NGDS - PM/MS C - Program Management (Dx) Support	MIPR	CCDC CBC : Aberdeen Proving Ground, MD	0.230	0.695	Dec 2019	0.000		0.000		0.000		0.000	0.000	0.925	0.000
NGDS - PM/MS S - Program Management (Dx) Support	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	3.851	1.000	Dec 2019	0.000		0.000		0.000		0.000	0.000	4.851	0.000

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Management Services ($ 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
NGDS - PM/MS S - Program Management (JPEO) Support	Various	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	8.885	0.950	Dec 2019	0.000		0.000		0.000		0.000	0.000	9.835	0.000
NGDS - PM/MS SB - Product Management Systems Support	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	3.436	3.271	Dec 2019	0.000		0.000		0.000		0.000	0.000	6.707	0.000
NGDS 2 CHEMDX - PM/MS S - Program Management (SETA)	C/FFP	Various : Various	0.000	0.000		0.000		0.999	Dec 2021	0.000		0.999	0.000	0.999	0.000
NGDS 2 CHEMDX - PM/MS S - Product Management Support	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.213	Dec 2021	0.000		0.213	0.000	0.213	0.000
NGDS 2 CHEMDX - PM/MS S - Program Management Support	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	0.000	0.000		0.000		0.050	Dec 2021	0.000		0.050	0.000	0.050	0.000
NGDS 2 CHEMDX - PM/MS S - Program Management	Various	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	0.000	0.000		0.230	Dec 2020	0.400	Dec 2021	0.000		0.400	0.000	0.630	0.000
NGDS 2 CHEMDX - PM/MS S - Program Management (CHEMDX)	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	0.000	0.000		0.000		0.808	Dec 2021	0.000		0.808	0.000	0.808	0.000
NGDS 2 MPDS - PM/MS S - Program Management Support	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	0.000	0.000		2.061	Dec 2020	0.853	Dec 2021	0.000		0.853	0.000	2.914	0.000
NGDS 2 MPDS - PM/MS S - Program Management	Various	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	0.000	0.000		2.700	Dec 2020	1.279	Dec 2021	0.000		1.279	0.000	3.979	0.000

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Management Services ($ 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
NGDS 2 MPDS - PM/MS S - Program Management (MPDS)	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	0.000	0.000		1.121	Dec 2020	0.736	Dec 2021	0.000		0.736	0.000	1.857	0.000
NGDS 2 MPDS - PM/MS S - Product Management Support	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.486	Dec 2020	0.213	Dec 2021	0.000		0.213	0.000	0.699	0.000
NGDS 2 MPDS - PM/MS S - Program Management (SETA)	C/FFP	Various : Various	0.000	0.000		1.544	Dec 2020	0.484	Dec 2021	0.000		0.484	0.000	2.028	0.000
VAC BOT - PM/MS C - JPEO CBRN	Various	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.000	2.944	Dec 2019	0.000		0.000		0.000		0.000	0.000	2.944	0.000
VAC BOT - Program Management (JPM) Support	Various	JPM CBRN Medical : Ft. Detrick, MD	0.349	5.578	Dec 2019	0.000		0.000		0.000		0.000	0.000	5.927	0.000
VAC PLG - Program Management (JPM) Support	Various	JPM CBRN Medical : Ft. Detrick, MD	27.333	3.080	Dec 2019	0.000		0.000		0.000		0.000	0.000	30.413	0.000
VAC PLG - Program Management (JPEO) Support	Various	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	47.350	1.960	Dec 2019	0.000		0.000		0.000		0.000	0.000	49.310	0.000
CONG - PM/MS SB - Antiviral Prophylaxis Studies-Program Management	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	0.220	0.175	Jan 2020	0.000		0.000		0.000		0.000	0.000	0.395	0.000
VAC SIP - PM/MS C - Program Management Support	MIPR	Edgewood Chemical Biological Center	3.036	0.125	Mar 2020	0.000	Mar 2021	0.000		0.000		0.000	0.000	3.161	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *Medical Biological Defense (SDD)*

Management Services ($ 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
		(ECBC) : Aberdeen Proving Ground, MD													
		Subtotal	116.702	28.947		22.145		35.404		0.000		35.404	0.000	203.198	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	487.515	170.345		117.956		137.348		0.000		137.348	0.000	913.164	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *Medical Biological Defense (SDD)*

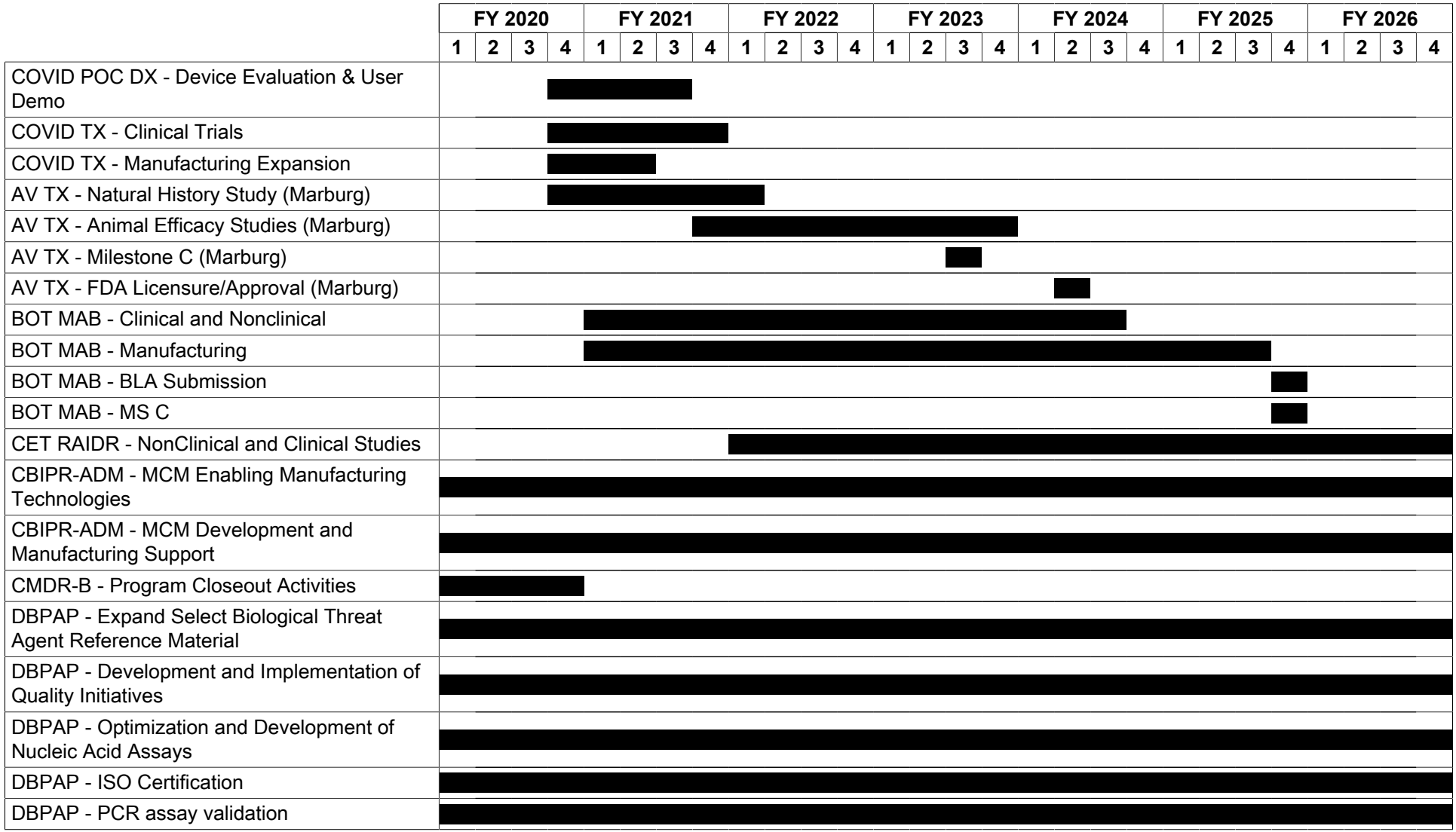

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *Medical Biological Defense (SDD)*

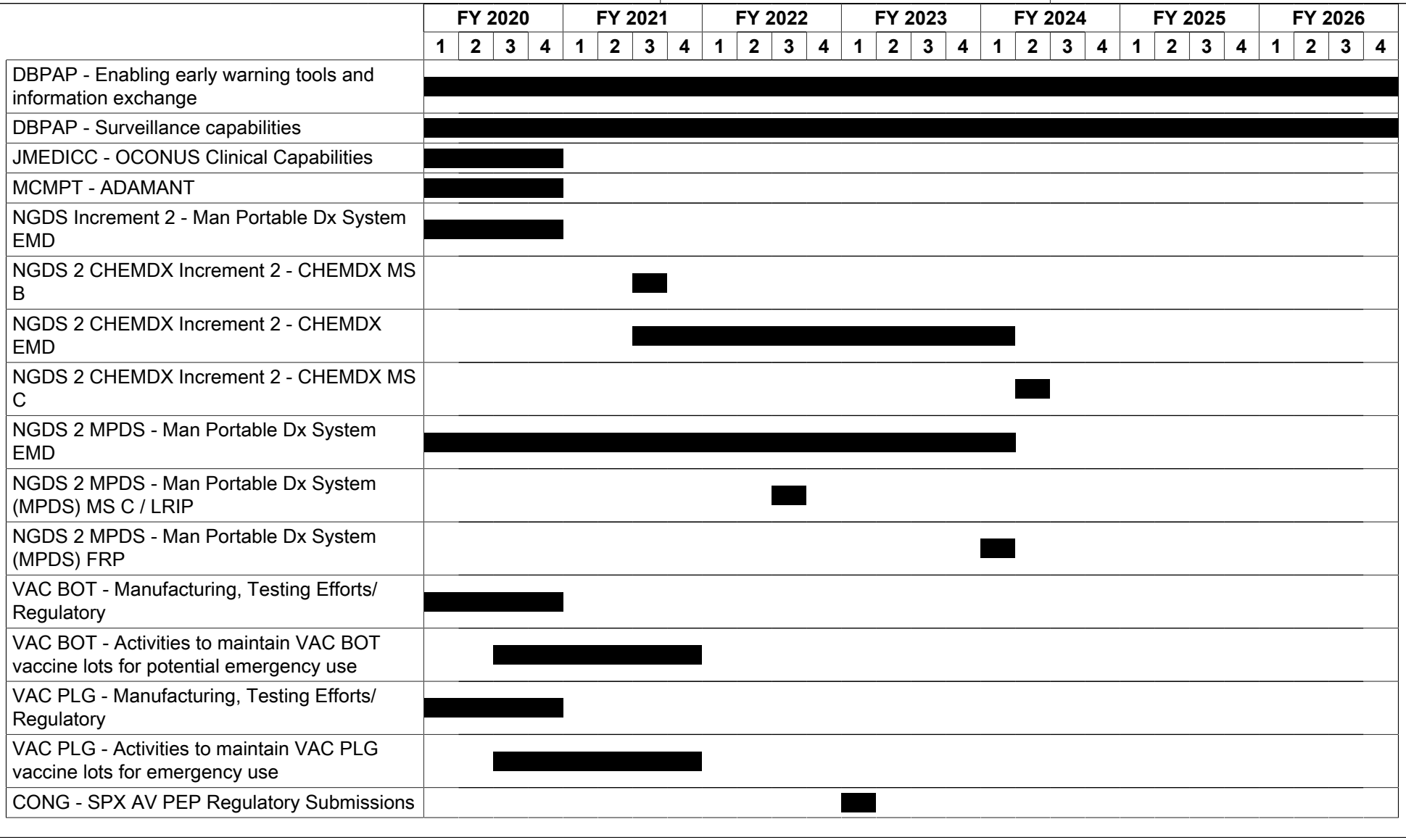

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *Medical Biological Defense (SDD)*

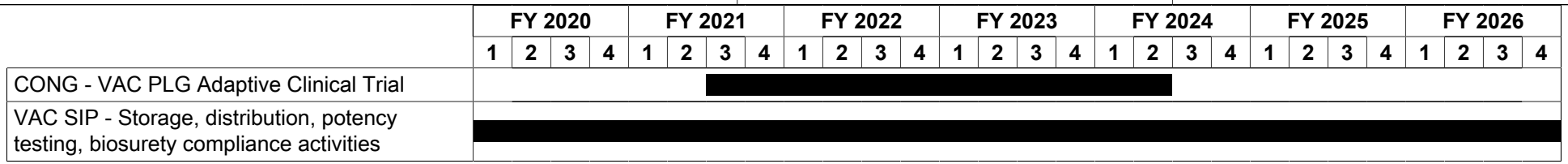

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *Medical Biological Defense (SDD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
COVID POC DX - Device Evaluation & User Demo	4	2020	3	2021
COVID TX - Clinical Trials	4	2020	4	2021
COVID TX - Manufacturing Expansion	4	2020	2	2021
AV TX - Natural History Study (Marburg)	4	2020	1	2022
AV TX - Animal Efficacy Studies (Marburg)	4	2021	4	2023
AV TX - Milestone C (Marburg)	3	2023	3	2023
AV TX - FDA Licensure/Approval (Marburg)	2	2024	2	2024
BOT MAB - Clinical and Nonclinical	1	2021	3	2024
BOT MAB - Manufacturing	1	2021	3	2025
BOT MAB - BLA Submission	4	2025	4	2025
BOT MAB - MS C	4	2025	4	2025
CET RAIDR - NonClinical and Clinical Studies	1	2022	4	2026
CBIPR-ADM - MCM Enabling Manufacturing Technologies	1	2020	4	2026
CBIPR-ADM - MCM Development and Manufacturing Support	1	2020	4	2026
CMDR-B - Program Closeout Activities	1	2020	4	2020
DBPAP - Expand Select Biological Threat Agent Reference Material	1	2020	4	2026
DBPAP - Development and Implementation of Quality Initiatives	1	2020	4	2026
DBPAP - Optimization and Development of Nucleic Acid Assays	1	2020	4	2026
DBPAP - ISO Certification	1	2020	4	2026
DBPAP - PCR assay validation	1	2020	4	2026
DBPAP - Enabling early warning tools and information exchange	1	2020	4	2026
DBPAP - Surveillance capabilities	1	2020	4	2026

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MB5 / *Medical Biological Defense (SDD)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JMEDICC - OCONUS Clinical Capabilities	1	2020	4	2020
MCMPT - ADAMANT	1	2020	4	2020
NGDS Increment 2 - Man Portable Dx System EMD	1	2020	4	2020
NGDS 2 CHEMDX Increment 2 - CHEMDX MS B	3	2021	3	2021
NGDS 2 CHEMDX Increment 2 - CHEMDX EMD	3	2021	1	2024
NGDS 2 CHEMDX Increment 2 - CHEMDX MS C	2	2024	2	2024
NGDS 2 MPDS - Man Portable Dx System EMD	1	2020	1	2024
NGDS 2 MPDS - Man Portable Dx System (MPDS) MS C / LRIP	3	2022	3	2022
NGDS 2 MPDS - Man Portable Dx System (MPDS) FRP	1	2024	1	2024
VAC BOT - Manufacturing, Testing Efforts/Regulatory	1	2020	4	2020
VAC BOT - Activities to maintain VAC BOT vaccine lots for potential emergency use	3	2020	4	2021
VAC PLG - Manufacturing, Testing Efforts/Regulatory	1	2020	4	2020
VAC PLG - Activities to maintain VAC PLG vaccine lots for emergency use	3	2020	4	2021
CONG - SPX AV PEP Regulatory Submissions	1	2023	1	2023
CONG - VAC PLG Adaptive Clinical Trial	3	2021	2	2024
VAC SIP - Storage, distribution, potency testing, biosurety compliance activities	1	2020	4	2026

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program									Date: May 2021			
Appropriation/Budget Activity 0400 / 5					R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*				Project (Number/Name) MC5 / *Medical Chemical Defense (SDD)*			
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**
MC5: *Medical Chemical Defense (SDD)*	-	55.269	54.392	50.362	-	50.362	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports efforts in the Engineering and Manufacturing Development (EMD) phase of the acquisition strategy for prophylactic, pre-treatment, and therapeutic drugs and diagnostic medical devices for the protection, treatment, detection, and medical management of chemical warfare agent exposures. This project provides for the research and development of safety studies, manufacturing scale-up, process validation, drug interaction, performance test, and submission of the Food and Drug Administration (FDA) drug licensure application(s).

Efforts included in this project are:
(1) Advanced Anticonvulsant System (AAS),
(2) Alternative Autoinjector Manufacturer Capability (AUTOINJ),
(3) Bioscavenger (BSCAV-P),
(4) Improved Nerve Agent Treatment System (INATS),
(5) Improved Nerve Agent Treatment System Centrally Acting (INATS CA), and
(6) Rapid Opioid Countermeasure System (ROCS)

The AAS program provides for midazolam in an autoinjector for treatment of nerve agent induced seizures. Midazolam, injected intramuscularly, will treat traditional nerve agent and non-traditional agent-induced seizures and prevent subsequent neurological damage. Midazolam is more water-soluble than diazepam (the currently fielded medication to control nerve agent-induced seizures) and terminates nerve agent-induced seizures more quickly than diazepam. AAS will not eliminate the need for other protective and therapeutic systems. In FY22 AAS completes a Phase 1 clinical study from a new manufacturer and submits a New Drug Application (NDA).

The AUTOINJ program provides for FDA approved alternative source(s) for autoinjectors that deliver DoD nerve agent antidote and treatment capabilities to the warfighter; thereby mitigating capability fielding and operational readiness risks. This program augments legacy autoinjectors, ATNAA, 2-PAM, and Convulsant Antidote for Nerve Agents (CANA) by providing alternative commercial sources which includes Dual Drug Delivery Device (D4), the Atropine Auto-Injector, and an anti-convulsant autoinjector. AUTOINJ (MC7) will transition to Modern Medical (MOD MED) MB7 in FY22.

The BSCAV-P program was intended to be a new capability for use as a prophylaxis against nerve agents. This program is pursuing closeout activities during FY20.

The INATS program provides an enhanced capability treatment regimen offering greater protection over a broader spectrum of toxic nerve agent threats. The development includes insertion of a Centrally Acting (CA) anticholinergic agent to the treatment regimen to increase survivability and decrease morbidity. Funding ends in FY20. Effort will continue in FY21 as INATS CA.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *Medical Chemical Defense (SDD)*

INATS CA advanced development starts in FY21 as a continuation of INATS and provides a centrally-acting anticholinergic agent to increase survivability and decrease morbidity after exposure to toxic nerve agent threats. Scopolamine was selected for development after an extensive analysis of alternatives and review of data by the Science and Technology community. Added to the currently fielded system, the INATS CA program will improve overall medical outcomes and will be utilized as both a vial for use at definitive care and a stand-alone auto-injector for use in the field. In FY22, INATS CA continues autoinjector development and manufacturing activities of the drug product and autoinjector device, as well as continues non-clinical animal studies.

The ROCS program supports the discovery, characterization, development, and fielding of FDA-approved therapeutic Medical Countermeasures (MCMs) to protect the Joint Service warfighter against operational exposures to the opioid class of pharmaceutical-based agents (PBAs), a high priority. The first increment of the ROCS program will develop a naloxone autoinjector as a rescue treatment that will counteract the adverse effects from exposure to opioids. In FY22 ROCS completes manufacturing activities, including manufacturing of the drug product and autoinjector device, and completes regulatory activities such as preparation and submission of the New Drug Application (NDA) for approval.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: 1) Advanced Anticonvulsant System (AAS)	-	4.048	3.229
Description: New Drug Application (NDA) Resubmission Activities ***FY 2021 Plans:*** Continue NDA resubmission activities. ***FY 2022 Plans:*** Complete NDA submission activities. Complete Phase 1 clinical study and Submit NDA. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.			
Title: 2) Alternative Autoinjector (AUTOINJ)	2.400	2.500	2.000
Description: Development ***FY 2021 Plans:*** Continue prototype tooling. ***FY 2022 Plans:*** Complete prototype tooling for D4 and Alt-Diazepam, i.e., develop necessary equipment and tools to use in the process for manufacturing devices. ***FY 2021 to FY 2022 Increase/Decrease Statement:***			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *Medical Chemical Defense (SDD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Program/project transitioned to Production and Deployment Phase.			
Title: 3) Alternative Autoinjector (AUTOINJ) ***Description:*** Manufacturing ***FY 2021 Plans:*** Continue manufacturing for Dual Drug Delivery Device (D4) and alternative diazepam autoinjectors. Initiate engineering lots for D4 and alternative diazepam autoinjectors. ***FY 2022 Plans:*** Complete manufacturing & validation for dual drug chamber autoinjector. Continue engineering lots for D4. Continue manufacturing lots for Diazepam. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to change in program/project schedule.	2.400	1.000	3.000
Title: 4) AUTOINJ ***Description:*** Prototyping and Testing ***FY 2021 Plans:*** Continue stability studies for atropine. Continue functional testing and prototype development for D4 and alternative diazepam autoinjector. ***FY 2022 Plans:*** Complete stability studies for atropine. Complete functional testing for dual chamber auto injector. Complete prototype development of single autoinjector. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease due to change in program/project schedule. Finalizing design of autoinjector.	19.259	9.300	4.000
Title: 5) AUTOINJ ***Description:*** FDA Coordination ***FY 2021 Plans:*** Continue FDA preparation, filing, and meetings for single and dual drug autoinjectors. ***FY 2022 Plans:***	2.068	1.200	1.000

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *Medical Chemical Defense (SDD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Complete FDA preparation, filing and meetings for single and dual drug autoinjectors. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase.			
Title: 6) AUTOINJ ***Description:*** Government Testing ***FY 2021 Plans:*** Continue human factors and environmental testing for D4 and alternative diazepam autoinjectors. ***FY 2022 Plans:*** Complete human factors and environmental testing for single and dual drug autoinjectors. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease due to change in program/project schedule.	1.000	0.931	0.188
Title: 7) Bioscavenger (BSCAV-P) ***Description:*** Closeout	0.500	-	-
Title: 8) Improved Nerve Agent Treatment System (INATS) ***Description:*** Manufacturing & Non-Clinical & Clinical- Scopolamine; Closeout Oxime Activities	14.345	-	-
Title: 9) INATS CA ***Description:*** Clinical ***FY 2021 Plans:*** Continue clinical human safety studies from INATS FY20. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	-	4.000	-
Title: 10) Improved Nerve Agent Treatment System Centrally Acting (INATS CA) ***Description:*** Manufacturing/Auto-Injector ***FY 2021 Plans:***	-	7.100	6.723

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *Medical Chemical Defense (SDD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Continue Auto-Injector Development and Manufacturing Activities from INATS FY20. ***FY 2022 Plans:*** Continue Auto-Injector Development and manufacturing activities of the drug product and autoinjector device. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Minor change due to routine program adjustments.			
Title: 11) INATS CA ***Description:*** Non-Clinical ***FY 2021 Plans:*** Continue Non-Clinical Animal Studies from INATS FY20. ***FY 2022 Plans:*** Continue Non-Clinical Animal Studies. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	-	15.896	18.842
Title: 12) Rapid Opioid Countermeasure System (ROCS) ***Description:*** Development	1.862	-	-
Title: 13) Rapid Opioid Countermeasure System (ROCS) ***Description:*** Manufacturing ***FY 2021 Plans:*** Continue manufacturing activities. ***FY 2022 Plans:*** Complete manufacturing activities, including manufacturing of the drug product and autoinjector device.	6.166	4.800	4.800
Title: 14) Rapid Opioid Countermeasure System (ROCS) ***Description:*** Clinical Studies ***FY 2021 Plans:***	5.269	3.617	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *Medical Chemical Defense (SDD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Complete Phase 1 human clinical studies. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project is entering completion and all activities will be closed.			
Title: 15) Rapid Opioid Countermeasure System (ROCS) ***Description:*** FDA & Regulatory activities ***FY 2022 Plans:*** Initiate and complete regulatory activities such as writing and submitting the New Drug Application (NDA)for submission and approval. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to accelerated development effort.	-	-	6.580
Accomplishments/Planned Programs Subtotals	55.269	54.392	50.362

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
• JM6677: *ADVANCED ANTICONVULSANT SYSTEM (AAS)*	0.000	0.000	4.243	-	4.243	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

ADVANCED ANTICONVULSANT SYSTEM (AAS)

The Advanced Anticonvulsant System (AAS), consists of Midazolam in an autoinjector for treatment of seizures, to include those caused by nerve agent. A contractor shall be responsible for conducting activities associated with drug development in a manner consistent with eventual approval by the Food and Drug Administration (FDA). The contractor shall sponsor the drug to the FDA and hold all approvals and/or licenses. The Contractor will need to initiate and complete studies that comply with new FDA requirements for manufacturing and quality for autoinjector products, ultimately leading to FDA approval. Upon FDA approval, sufficient quantities of product to meet Initial Operational Capability (IOC) and Full Operational Capability (FOC) will be purchased. Subsequent purchases for product sustainment will be made by the Defense Logistics Agency. Post marketing commitments and requirements are anticipated as a result of the FDA approval and will be the responsibility of the contractor and the government

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *Medical Chemical Defense (SDD)*

ALTERNATE AUTOINJECTOR MANUFACTURER CAPABILITY (AUTOINJ)

The Alternative Autoinjector Manufacturer Capability (AUTOINJ) will identify an alternative source(s) to develop and provide required FDA-approved autoinjector-delivered nerve agent antidote and treatment capabilities to the DoD.

The AUTOINJ effort leverages novel technologies and industrial base expansion in order to develop the autoinjector products. AUTOINJ uses contracts and Other Transactional Agreements (OTAs) in which the performer shall be responsible for conducting development and testing activities consistent with current Food and Drug Administration (FDA) regulations. The contractor shall sponsor the drug to the FDA and hold all approvals and/or licenses. Upon FDA approval, purchases for product sustainment will be made by the Defense Logistics Agency.

BIOSCAVENGER (BSCAV)

The Bioscavenger program employed a serial evaluation of candidates to achieve competitive prototyping in the Technology Maturation and Risk Reduction (TM&RR) phase, culminating in a down-select decision. The Bioscavenger program then issued a Request for Proposal (RFP) to select the best value for the government for a prophylaxis to support an initial limited user group. During the Engineering and Manufacturing Development (EMD) phase, the program continued to meet its performance objectives and produced a current Good Manufacturing Practice (cGMP) drug product for use in further development.

The program will end activities in FY20. In FY19, the program initiated termination of acquisition activities and program close out will be completed in FY20. The program will continue to work with the Joint Science & Technology Office in their efforts to advance potential candidates and will monitor Health and Human Service programs, international programs, and the commercial sector for potential materiel solutions for this capability gap.

IMPROVED NERVE AGENT TREATMENT SYSTEM (INATS)

The INATS program provides an enhanced capability treatment regimen offering greater protection over a broader spectrum of toxic nerve agent threats. The development includes insertion of a CA anticholinergic agent to the treatment regimen to increase survivability and decrease morbidity. Funding ends in FY20. Effort will continue in FY21 as INATS CA.

INATS and INATS CA (MC7) will support the modernization of Soman Nerve Agent Pretreatment Pyridostigmine (SNAPP) using contract actions to extend operational shelf-life and generate data to expand storage temperature conditions.

IMPROVED NERVE AGENT TREATMENT CENTRALLY ACTING (INATS CA)

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *Medical Chemical Defense (SDD)*

The INATS CA program provides a centrally-acting anticholinergic agent to increase survivability and decrease morbidity after exposure to toxic nerve agent threats. Scopolamine was selected for development after an extensive analysis of alternatives and review of data by the Science and Technology community. Added to the currently fielded system, the INATS CA program will improve overall medical outcomes and will be utilized as both a vial for use at definitive care and a stand-alone auto-injector for use in the field.

RAPID OPIOID COUNTERMEASURE SYSTEM (ROCS)

Rapid Opioid Countermeasure System (ROCS) is a Joint ACAT III Medical Countermeasure (MCM) Middle Tier Acquisition Program of Record (POR) in the Prototype Phase of development. The ROCS program is using existing naloxone autoinjector capabilities identified from focused Market Research. ROCS is a Middle Tier Acquisition program. The development of the autoinjector is being conducted under Other Transaction Authority (OTA) agreement. Once FDA approval has been granted the program will transition from Rapid Prototyping to Rapid Fielding or a traditional production and fielding pathway.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *Medical Chemical Defense (SDD)*

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
AAS - SW S - NDA Submission Activities	C/CPFF	RAFA Laboratories : TBD	0.000	0.000		2.935	Oct 2020	2.782	Dec 2021	0.000		2.782	0.000	5.717	0.000
AUTOINJ - HW S - Dual Drug Delivery Device (D4) Prototype Development	C/CPFF	Emergent Biosolutions : Gaithersburg/ Rockville, MD	14.108	9.797	Nov 2019	6.438	Nov 2020	0.000		0.000		0.000	0.000	30.343	0.000
AUTOINJ - HW S - Diazepam Autoinjector	C/CPFF	Emergent Biosolutions : Gaithersburg/ Rockville, MD	0.301	10.510	Nov 2019	3.800	Nov 2020	3.451	Nov 2021	0.000		3.451	0.000	18.062	0.000
AUTOINJ - HW S - Dual Drug Delivery Device (D4) Prototype	C/CPFF	Emergent Biosolutions : Gaithersburg/ Rockville, MD	1.785	0.000		0.000		3.450	Dec 2021	0.000		3.450	0.000	5.235	0.000
AUTOINJ - HW C - Regulatory Support	C/CPFF	Ology : Alachua, FL	0.697	0.000		0.200	Nov 2020	0.150	Nov 2021	0.000		0.150	0.000	1.047	0.000
AUTOINJ - HW S - Device Inovation, (RAFA)	C/FFP	Various : Various	0.142	0.125	Feb 2020	0.000		0.000		0.000		0.000	0.000	0.267	0.000
INATS - HW C - Animal Efficacy Studies	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.795	0.614	Jan 2020	0.000		0.000		0.000		0.000	0.000	1.409	0.000
INATS - HW C - Centrally-Acting AutoInjector Efforts	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	5.407	Jan 2020	0.000		0.000		0.000		0.000	0.000	5.407	0.000
INATS - HW C - Large-Scale Manufacturing	C/CPFF	TBD : N/A	0.000	3.196	Jan 2020	0.000		0.000		0.000		0.000	0.000	3.196	0.000
INATS CA - HW C - Clinical	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	0.000		4.000	Nov 2020	0.000		0.000		0.000	0.000	4.000	0.000
INATS CA - HW C - Manufacturing	C/FFP	Aktivax : Boulder, CO	0.000	0.000		6.500	Dec 2020	6.420	Dec 2021	0.000		6.420	0.000	12.920	0.000
INATS CA - HW C - Non-Clinical	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	0.000		8.475	Nov 2020	13.230	Nov 2021	0.000		13.230	0.000	21.705	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *Medical Chemical Defense (SDD)*

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
ROCS - Initiate naloxone formulation studies	C/CPFF	kaleo : Richmond, VA	0.000	1.705	Nov 2019	0.000		0.000		0.000		0.000	0.000	1.705	0.000
ROCS - Manufacturing	C/CPFF	kaleo : Richmond, VA	0.000	4.979	Feb 2020	3.500	Dec 2020	3.500	Nov 2021	0.000		3.500	0.000	11.979	0.000
ROCS - Clinical Studies	C/CPFF	kaleo : Richmond, VA	0.000	4.150	Aug 2020	2.931	Dec 2020	0.000		0.000		0.000	0.000	7.081	0.000
ROCS - Regulatory	C/CPFF	kaleo : Richmond, VA	0.000	0.000		0.000		4.988	Oct 2021	0.000		4.988	0.000	4.988	0.000
		Subtotal	17.828	40.483		38.779		37.971		0.000		37.971	0.000	135.061	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
AUTOINJ - Office of Regulated Activities (ORA)	MIPR	US Army Medical Research Material Command (USAMRMC) : Fort Detrick, MD	0.000	0.068	Feb 2020	0.000		0.000		0.000		0.000	0.000	0.068	0.000
BSCAV-P - ES C - CCDC	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.094	Nov 2019	0.000		0.000		0.000		0.000	0.000	0.094	0.000
INATS - ES C - Office of Regulated Activities Support - (ORA)	MIPR	US Army Medical Research Material Command (USAMRMC) : Fort Detrick, MD	0.645	0.552	Jan 2020	0.000		0.000		0.000		0.000	0.000	1.197	0.000
INATS - ES C - Device Testing	C/CPFF	Aktivax : Boulder, CO	0.000	0.185	Nov 2019	0.000		0.000		0.000		0.000	0.000	0.185	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *Medical Chemical Defense (SDD)*

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
INATS CA - ES C - Regulatory Support	MIPR	USAMRMC - Office of Regulated Activities (ORA) : Ft. Detrick, MD	0.000	0.000		0.500	Feb 2021	0.000		0.000		0.000	0.000	0.500	0.000
		Subtotal	0.645	0.899		0.500		0.000		0.000		0.000	0.000	2.044	N/A

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
AUTOINJ - MIL STD Testing	MIPR	US Army Medical Research Material Command (USAMRMC) : Fort Detrick, MD	0.000	0.196	Jan 2020	0.200	Nov 2020	0.200	Nov 2021	0.000		0.200	0.000	0.596	0.000
		Subtotal	0.000	0.196		0.200		0.200		0.000		0.200	0.000	0.596	N/A

Management Services ($ 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
AAS - Program Management	Various	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	0.370	0.000		0.293	Nov 2020	0.234	Nov 2021	0.000		0.234	0.000	0.897	0.000
AAS - Program Management Support	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	2.580	0.000		0.631	Nov 2020	0.000		0.000		0.000	0.000	3.211	0.000
AAS - Program Management (SETA)	C/FFP	Various : Various	0.548	0.000		0.189	Nov 2020	0.213	Nov 2021	0.000		0.213	0.000	0.950	0.000
AUTOINJ - Program Management (JPEO)	Various	JPEO Chem : Bio, Rad, and Nuc	2.488	1.807	Dec 2019	1.082	Dec 2020	0.600	Dec 2021	0.000		0.600	0.000	5.977	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *Medical Chemical Defense (SDD)*

Management Services ($ 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
		Defense (JPEO-CBRND)													
AUTOINJ - Program Management (MCS) Support	Various	JPM CBRN Medical : Ft. Detrick, MD	0.594	1.574	Nov 2019	1.642	Nov 2020	0.975	Nov 2021	0.000		0.975	0.000	4.785	0.000
AUTOINJ - Program Management (CDP)	Various	JPM CBRN Medical : Ft. Detrick, MD	0.000	0.629	Nov 2019	0.000		0.272	Nov 2021	0.000		0.272	0.000	0.901	0.000
AUTOINJ - Program Management (OPETS)	C/FFP	Various : Various	0.639	2.421	Nov 2019	1.569	Nov 2020	1.090	Nov 2021	0.000		1.090	0.000	5.719	0.000
BSCAV-P - Program Management (CDP)	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	0.655	0.406	Feb 2020	0.000		0.000		0.000		0.000	0.000	1.061	0.000
INATS - Program Management (SETA)	C/FFP	Various : Various	0.000	1.257	Nov 2019	0.000		0.000		0.000		0.000	0.000	1.257	0.000
INATS - Product Management (MCS) Support	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	9.040	1.285	Dec 2019	0.000		0.000		0.000		0.000	0.000	10.325	0.000
INATS - Program Management	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	0.000	0.375	Dec 2019	0.000		0.000		0.000		0.000	0.000	0.375	0.000
INATS - Program Management #2	Various	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	5.007	1.474	Mar 2020	0.000		0.000		0.000		0.000	0.000	6.481	0.000
INATS CA - Program Management	Various	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	0.000	0.000		1.957	Dec 2020	2.466	Dec 2021	0.000		2.466	0.000	4.423	0.000
INATS CA - Program Management (MCS) Support	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	0.000	0.000		2.970	Dec 2020	1.520	Dec 2021	0.000		1.520	0.000	4.490	0.000
INATS CA - Program Management (CDP)	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	0.000	0.000		0.951	Dec 2020	0.520	Dec 2021	0.000		0.520	0.000	1.471	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *Medical Chemical Defense (SDD)*

Management Services ($ 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
INATS CA - Program Management (SETA)	C/FFP	Various : Various	0.000	0.000		1.643	Dec 2020	1.409	Dec 2021	0.000		1.409	0.000	3.052	0.000
ROCS - Program Management	Various	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	0.000	0.999	Nov 2019	0.610	Dec 2020	0.825	Dec 2021	0.000		0.825	0.000	2.434	0.000
ROCS - Program Management (MCS) Support	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	0.000	0.847	Nov 2019	0.926	Dec 2020	1.253	Dec 2021	0.000		1.253	0.000	3.026	0.000
ROCS - Program Management (CDP)	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	0.000	0.200	Dec 2019	0.188	Dec 2020	0.418	Dec 2021	0.000		0.418	0.000	0.806	0.000
ROCS - Program Management (SETA)	C/FFP	Various : Various	0.000	0.417	Dec 2019	0.262	Dec 2020	0.396	Dec 2021	0.000		0.396	0.000	1.075	0.000
		Subtotal	21.921	13.691		14.913		12.191		0.000		12.191	0.000	62.716	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	40.394	55.269		54.392		50.362		0.000		50.362	0.000	200.417	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *Medical Chemical Defense (SDD)*

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *Medical Chemical Defense (SDD)*

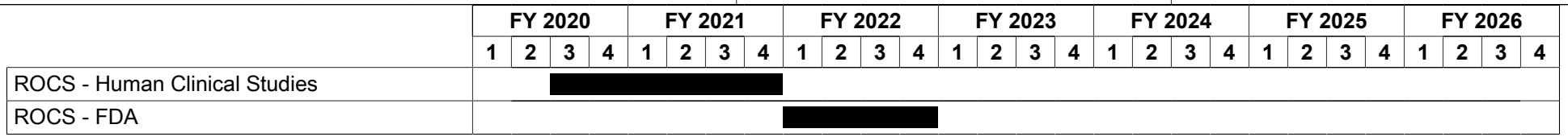

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *Medical Chemical Defense (SDD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
BSCAV - Program Close Out Activities	1	2020	4	2020
AAS - NDA Resubmission Activities	1	2020	1	2021
AAS - Submission Activities	4	2020	3	2022
AAS - FDA Approval	4	2022	4	2022
AAS - FRP	3	2023	3	2023
AAS - IOC	4	2023	4	2023
AAS - FOC	4	2025	4	2025
AUTOINJ - Development	1	2020	1	2022
AUTOINJ - Manufacturing	1	2020	4	2022
AUTOINJ - Prototyping and Testing	1	2020	2	2023
AUTOINJ - FDA Coordination	1	2020	2	2023
AUTOINJ - Government Testing	1	2020	2	2022
AUTOINJ - Alt Midazolam Development	1	2023	4	2023
AUTOINJ - Alt Midazolam Manufacturing	4	2023	4	2025
AUTOINJ - Alt Midazolam Testing	2	2024	1	2026
AUTOINJ - Alt Midazolam FDA and Regulatory	1	2026	4	2026
INATS - Manufacturing (CA)	1	2020	4	2020
INATS - Milestone B (CA)	3	2020	3	2020
INATS - Non-Clinical Studies (CA)	1	2020	4	2020
INATS - Clinical Trials (CA)	1	2020	4	2020
INATS CA - Clinical Trials	1	2021	1	2022
INATS CA - Manufacturing/Auto-Injector	1	2021	2	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** MC5 / *Medical Chemical Defense (SDD)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
INATS CA - Non-Clinical Studies	1	2021	4	2023
ROCS - Manufacturing Activities	1	2020	4	2022
ROCS - Human Clinical Studies	3	2020	4	2021
ROCS - FDA	1	2022	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program			Date: May 2021
Appropriation/Budget Activity 0400 / 5	R-1 Program Element (Number/Name) PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	Project (Number/Name) TE5 / *Test & Evaluation (SDD)*	

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
TE5: *Test & Evaluation (SDD)*	-	7.523	6.352	0.000	-	0.000	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Project supports the Chemical Biological Material Assessment Infrastructure (CBMAI). CBMAI addresses test infrastructure needs with improvements, modifications, and/or new critical test capabilities for chemical, biological, and emerging threat products across the CBDP. The CBMAI provides test fixtures and methodology to support system development test and evaluation intended to meet a changing threat regardless of the test site/location.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: 1) CBMAI	5.612	4.941	-
Description: CBMAI provides test infrastructure modification build and integration to address detection, protection, and decontamination requirements and milestone schedules. Provide analysis and testing of innovative technologies and rapid prototyping of equipment to expedite the infrastructure development process. Execution of infrastructure modifications and modernization efforts allow test facilities to expand productivity and reduce costs while providing critical test data.			
FY 2021 Plans: Complete the integration and validation of a data management system to allow the test community and users to easily change and configure equipment and securely share test data on outdoor test ranges. Continue the integration and validation of referee equipment to provide accurate protective ensemble performance data. Initiate additional upgrades to JABT, ASC, Staging Facility. Complete validation and accreditation of aerosol biological agent chamber.			
FY 2021 to FY 2022 Increase/Decrease Statement: Program/project is entering completion and all activities will be closed.			
Title: 2) CBMAI	1.911	1.411	-
Description: Government Integrated Product Team program management and IPT Support to all CBDP programs and external partners.			
FY 2021 Plans: Continue Program Management including Government system engineering, program/financial management, costing, personnel support, travel and overhead.			
FY 2021 to FY 2022 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** TE5 / *Test & Evaluation (SDD)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Program/project is entering completion and all activities will be closed.			
Accomplishments/Planned Programs Subtotals	7.523	6.352	-

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
• TE7: *Test & Evaluation (Op Sys Dev)*	5.280	0.000	0.000	-	0.000	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

CHEMICAL BIOLOGICAL MATERIEL ASSESSMENT INFRASTRUCTURE (CBMAI)

CBMAI efforts are supported through competitive contract actions, academia, and other Government agencies. Infrastructure solutions will leverage commercially available systems to provide state-of-the-art capabilities that address current and future CBDP test and evaluation needs. The CBMAI program will be ending in FY21 as development efforts come to completion. Future test infrastructure needs, improvements, or modifications will be managed and funded by the supported programs of record beginning in FY22.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** TE5 / *Test & Evaluation (SDD)*

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
CBMAI - HW C - OADMS-SCA-V	MIPR	CCDC AVIATION AND MISSILE CENTER : Huntsville, AL	0.000	0.000		0.045	Nov 2020	0.000		0.000		0.000	0.000	0.045	0.000
CBMAI - HW S - Upgrades, V&V, Transition	Various	Various : Various	0.433	1.000	Dec 2019	0.000		0.000		0.000		0.000	0.000	1.433	0.000
CBMAI - HW C - OADMS	MIPR	Army Materiel Systems Analysis Activity : Aberdeen Proving Ground, MD	0.000	0.000		0.066	Nov 2020	0.000		0.000		0.000	0.000	0.066	0.000
CBMAI - HW S - Open Architecture Data Management System (OADMS) Software Modifications	C/CPFF	Various : Various	2.871	1.100	Dec 2019	3.936	Mar 2021	0.000		0.000		0.000	0.000	7.907	0.000
CBMAI - HW S - Ballistic Gas Chromatograph (GC)	C/CPFF	MRIGlobal : Kansas City, MO	0.286	1.474	Dec 2019	0.000		0.000		0.000		0.000	0.000	1.760	0.000
CBMAI - HW S - Government SE & Technical Management Team	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	1.261	1.538	Nov 2019	0.894	Dec 2020	0.000		0.000		0.000	0.000	3.693	0.000
		Subtotal	4.851	5.112		4.941		0.000		0.000		0.000	0.000	14.904	N/A

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
CBMAI - OTE S - Test Grid Sustainment	C/CPFF	MRIGlobal : Kansas City, MO	0.667	0.500	Dec 2019	0.000		0.000		0.000		0.000	0.000	1.167	0.000
		Subtotal	0.667	0.500		0.000		0.000		0.000		0.000	0.000	1.167	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** TE5 / *Test & Evaluation (SDD)*

Management Services ($ 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
CBMAI - PM/MS C - Core Support	MIPR	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.000	0.150	Dec 2019	0.159	Dec 2020	0.000		0.000		0.000	0.000	0.309	0.000
CBMAI - PM/MS S - IPT Support/Program Management	MIPR	JPM CBRN Sensors : JPEO-CBRND, Aberdeen Proving Ground, MD	1.014	1.761	Dec 2019	1.252	Dec 2020	0.000		0.000		0.000	0.000	4.027	0.000
		Subtotal	1.014	1.911		1.411		0.000		0.000		0.000	0.000	4.336	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	6.532	7.523		6.352		0.000		0.000		0.000	0.000	20.407	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** TE5 / *Test & Evaluation (SDD)*

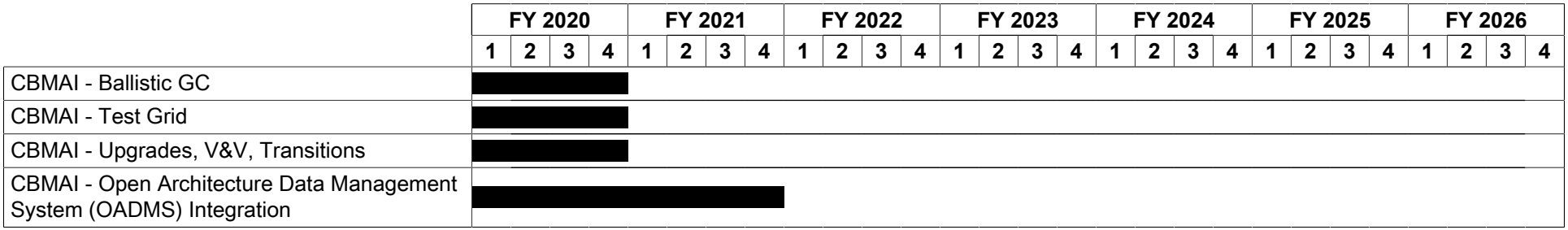

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 5	**R-1 Program Element (Number/Name)** PE 0604384BP / *CHEMICAL/BIOLOGICAL DEFENSE (EMD)*	**Project (Number/Name)** TE5 / *Test & Evaluation (SDD)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
CBMAI - Ballistic GC	1	2020	4	2020
CBMAI - Test Grid	1	2020	4	2020
CBMAI - Upgrades, V&V, Transitions	1	2020	4	2020
CBMAI - Open Architecture Data Management System (OADMS) Integration	1	2020	4	2021