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 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*

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	-	104.580	76.167	129.445	-	129.445	-	-	-	-	-	-
CA4: *Contamination Avoidance (ACD&P)*	-	18.806	10.326	32.923	-	32.923	-	-	-	-	-	-
DE4: *Decontamination (ACD&P)*	-	7.009	6.286	18.385	-	18.385	-	-	-	-	-	-
IP4: *Individual Protection (ACD&P)*	-	1.997	2.483	3.968	-	3.968	-	-	-	-	-	-
IS4: *Information Systems (ACD&P)*	-	0.517	4.661	0.000	-	0.000	-	-	-	-	-	-
MB4: *Medical Biological Defense (ACD&P)*	-	41.997	47.727	47.351	-	47.351	-	-	-	-	-	-
TE4: *Test & Evaluation (ACD&P)*	-	5.054	4.107	0.000	-	0.000	-	-	-	-	-	-
TM4: *Techbase Medical Defense (ACD&P)*	-	29.200	0.000	25.952	-	25.952	-	-	-	-	-	-
TT4: *Technology Transition (ACD&P)*	-	0.000	0.577	0.866	-	0.866	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

The projects in this program element (PE) support technology, engineering, integration, and life-cycle cost risk reduction activities (e.g. component development, prototyping, and experimentation) prior to Milestone B.

Individual projects include:
- Contamination Avoidance (CA4): development of reconnaissance, detection, identification, and hazard prediction equipment, hardware, and software that minimize Chemical, Biological (CB) contamination and prevent further cross-contamination during operations.

- Decontamination (DE4): development of Contamination Mitigation (ConMit) systems utilizing solutions that will remove and/or detoxify contaminated material without damaging combat equipment, personnel, or the environment.

- Individual Protection (IP4): development of the next generation protective ensembles (e.g., suits, boots, and gloves) which enable the Joint Force to survive and continue the mission in CBR contaminated environments.

- Information Systems (IS4): component development and prototyping of information architectures and applications for shaping the battlespace and providing integrated early warning against Chemical Biological (CB) threats.

- Medical Biological Defense (MB4): development of medical countermeasure platform technologies, medical 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.

- Test and Evaluation (TE4): critical test capabilities, planning, and infrastructure improvements/modifications necessary to evaluate CBRN Defense systems in realistic operating environments.

- Techbase Medical Defense (TM4): reduces risk and establishes safety and tolerability for vaccines prior to transition to System Development & Demonstration.

- Technology Transition (TT4): validates high-risk/high-payoff technologies and their respective concepts-of-operations for significant improvement to Warfighter capabilities in preparation for transition of mature technologies to advanced development programs requiring chemical and biological (CB) defense technologies. This effort facilitates transitions of Integrated Early Warning and Integrated Layered Defense products.

The projects in this PE support the advanced component technology development phase of the DoD acquisition system and are therefore correctly placed in Budget Activity 4.

B. Program Change Summary ($ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	80.162	76.167	70.953	-	70.953
Current President's Budget	104.580	76.167	129.445	-	129.445
Total Adjustments	24.418	0.000	58.492	-	58.492
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	0.000	-			
• Congressional Directed Transfers	0.000	-			
• Reprogrammings	26.700	-			
• SBIR/STTR Transfer	-2.282	-			
• Other Adjustments	0.000	-	58.492	-	58.492

Change Summary Explanation

Funding: FY20 (+$26.700 Million): Internal Reprogramming (FY20-31 IR) for the Coronavirus Aid, Relief, and Economic Security (CARES) Act (+$29.200 Million), as well as a below threshold reprogramming to RDT&E Management Support for support to laboratory infrastructure for laboratory operations, facilities sustainment, and regulatory compliance for critical chemical biological defense activities at USAMRIID and USAMRICD (-$2.500 Million).

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 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603884BP *I CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*

FY20 (-$2.282 Million): Transfer of funding to support Small Business Innovative Research/Small Business Technology Transfer efforts.

FY22 (+$58.492 Million): Increase for 1) Advanced and Emerging Threat Defense Enhancements, 2) COVID-19 vaccine and antibody development efforts, and 3) Emerging Threat Rapid Response Capabilities (+$61.511 Million).
Departmental inflation/travel adjustments (-$3.019 Million).

Schedule: N/A

Technical: Provides for critical new start programs, Tactical Contamination Mitigation System (TCMS) and Wide Area Decontamination System (WADS).

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program											Date: May 2021	
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*				Project (Number/Name) CA4 / *Contamination Avoidance (ACD&P)*			
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**
CA4: *Contamination Avoidance (ACD&P)*	-	18.806	10.326	32.923	-	32.923	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Contamination Avoidance Advanced Component Development and Prototypes (ACD&P) Project supports reconnaissance, detection, identification, and hazard prediction equipment, hardware, and software.

Efforts included in this project are:
(1) Compact Vapor Chemical Agent Detector (CVCAD),
(2) Biosurveillance (BSV),
(3) Enhanced Capability Demonstration - Integrated Early Warning (ECD IEW),
(4) CBRN Support to Command and Control (CSC2),
(5) Enhanced Capability Demonstration Joint Chemical Biological Radiological Nuclear Advanced Capability Sets (ECD JCACS),
(6) Chemical Biological Radiological and Nuclear (CBRN) Sensor Integration on Robotics Platforms (CSIRP),
(7) Non-Traditional Agent Defense (NTA DEFENSE), and
(8) Advanced Emerging Threat Defense (AET DEFENSE)

CVCAD is designed to be an unobtrusive, low-profile chemical detection capability that will continuously, and autonomously, monitor and alert general and specialized units to an unsafe environment without further burdening the warfighters payload or interfering with the primary mission. The small form factor is amenable to both man-worn and unmanned aerial or ground system operations to enable timely personnel protective action and other force protection decisions. In FY22 CVCAD will conduct and complete Technology Maturation and Risk Reduction (TMRR) Evaluation and Down Select to support transition into EMD.

The BSV program provided analytical capabilities and integration of environmental monitoring solutions and incident management reporting for Commanders' situational awareness. Capabilities delivered and lessons learned from BSV will be applied to the CSC2 enduring effort. BSV effort completed in FY20.

The ECD IEW program integrates advanced technologies and currently fielded capabilities into a common architecture with situational understanding decision tools to facilitate effective (timely) decision making, so the force can continue military operations or assist partners or civilians in a CBRN environment. The Joint Force requires tactical, enhanced, and CBRN detection, protection, contamination mitigation, contamination characterization, situational awareness, and hazard understanding early warning capability and decision tools to provide operational commanders time, space, and confidence for decisions that enable mission success. ECD IEW will demonstrate these capabilities by focusing on the complex integration of currently disconnected and disparate battlefield systems to enable a Joint Integrated Early Warning Capability for all phases of operations. ECD IEW efforts will transition to CBRN IEW (Project Information Systems (IS4)) in FY21.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *Contamination Avoidance (ACD&P)*

CSC2 is the continuation of the ECD IEW (Project CA4) and CBRN IEW (Project IS4) efforts that are renamed CSC2 in FY22. CSC2 is predicated on rapidly deploying CBRN situational awareness and understanding capabilities to the Joint Force through Capability Development Packages (CDPs). CSC2 will pull technology from S&T partners as well as integrate mature technologies into a baseline framework that enables risk based decision making. IEW Campaign Plan Lines of Effort are the driving bodies for service requirements and rapid capability development and deployment. Applicable technologies within the CBDP will be experimented, integrated, networked, and deployed through rapid acquisition methods. In FY22 CSC2 will initiate and conduct integration of the CBRN sensor portfolio through a common sensor management system and conduct automated warning and reporting/analysis to support operations, planning & execution.

The ECD JCACS demonstrated new technologies to enhance the ability of Joint operators to locate, identify, characterize, sample, digitally report, protect against, and mitigate CBRN threats. The ECD JCACS will integrate advanced technologies to provide capability sets of equipment and situational awareness tools to protect against and mitigate the effects of contamination during WMD interdiction and site characterization missions. The robotics efforts will enhance these missions and will transition over to CSIRP in FY21.

CSIRP is a prototyping and fielding effort that will focus on repackaging and integrating modular sensor solutions to enhance Unmanned Air Systems (UAS) and Unmanned Ground Systems (UGS) Programs of Record (PORs) 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 for increased risk reduction opportunities 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. CSIRP transitions to EMD starting in FY21 to continue efforts on robotic integration.

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 activities continue to focus on demonstrating and evaluating technologies to assess performance against emerging threats.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: 1) Compact Vapor Chemical Agent Detector (CVCAD)	-	0.996	6.137
Description: Product Development - To fill critical gaps for the general forces (man worn, unmanned, and vehicle mounted) by providing a low burden, continuously monitoring, detect to warn device, to immediately alert the forces to chemicals and confined space vapor hazards to inform protective posture.			
FY 2021 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *Contamination Avoidance (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Leverage existing Other Transactional Authority (OTA) contracts to support Milestone (MS) A award, and conduct early user feedback event to inform form, fit, and function of early prototypes, and conduct a test bed assessment against draft requirements. ***FY 2022 Plans:*** Conduct and complete Technology Maturation and Risk Reduction (TMRR) Evaluation and Down Select Phase - This phase of the program will inform MS B activities by conducting a Technology Readiness Assessment (TRA) with breadboard prototypes and conduct development testing (DT) with prototypes to access technology readiness level to support movement into EMD. Testing during this phase will include, limited MIL-STD 810 such as false alarm testing, human system integration testing, RAM analysis, and chemical agent detection performance against chemical warfare agents (CWA), toxic industrial chemicals (TIC) and confined space gases of concern to support system improvements and inform brassboard prototypes for test in MS B. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project transitioned to Advanced Development. Transition from MS A in FY21 to MS B in FY23. FY22 activities to support MS B decision in FY23.			
Title: 2) Biosurveillance (BSV) ***Description:*** FY20 efforts concluded analysis under biosurveillance for situational awareness and capabilities will be used to further the IEW mission.	0.384	-	-
Title: 3) Enhanced Capability Demonstration Integrated Early Warning (ECD IEW) ***Description:*** Early Warning common CBRN architecture development and capability integration.	2.902	-	-
Title: 4) ECD IEW ***Description:*** Early Warning capability RDT&E test article procurement and assessment.	1.163	-	-
Title: 5) CSC2 ***Description:*** Warning, Reporting & Analysis ***FY 2022 Plans:*** Initiate and conduct automated warning and reporting/analysis to support operations, planning & execution. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project funding transferred from another funding line. FY20 funds under ECD IEW, FY21 funds under CBRN IEW. FY22 name changed to CSC2.	-	-	4.400
Title: 6) CSC2	-	-	2.321

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *Contamination Avoidance (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: Program Management ***FY 2022 Plans:*** Initiate 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. FY20 funds under ECD IEW, FY21 funds under CBRN IEW. FY22 name changed to CSC2.			
Title: 7) CSC2 ***Description:*** Integration Sensor Management ***FY 2022 Plans:*** Initiate and conduct integration of CBRN sensor portfolio through a common sensor management system to include data visualization, analysis and movement of data from CBRN sensors to and through a network. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project funding transferred from another funding line. CBRN IEW was renamed to CSC2 staring in FY22. Funded under ECD IEW in FY20 & CBRN IEW in FY21.	-	-	14.381
Title: 8) ECD Joint CBRN Advanced Capability Sets (ECD JCACS) ***Description:*** Product Development	0.200	-	-
Title: 9) ECD JCACS ***Description:*** Program Management, Support, Test and Evaluation	1.683	-	-
Title: 10) CBRN Sensor Integration on Robotic Platforms (CSIRP) ***Description:*** Development, Program Management, Support, Testing and Evaluation. ***FY 2021 Plans:*** Continue multiple sensor integration efforts for unmanned ground and air platforms. Initiate market studies on sensor and platform technology for next cycle of prototypes. Continue prototype testing. Continue supporting technology demonstrations on	7.820	4.061	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *Contamination Avoidance (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
robotic platforms. Transition to Engineering and Manufacturing Development (EMD). 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 transitioned to Advanced Development. Program transitioned to EMD starting in FY21 to continue efforts on robotic integration.			
Title: 11) Non-Traditional Agent (NTA) Defense ***Description:*** Program Management, Product Development, Support and Testing to demonstrate and evaluate technologies to assess performance against NTAs. ***FY 2021 Plans:*** Continue to leverage expanded requirements to broaden data set for PBAs. Produce additional data to better assess detection and decontamination capabilities against new requirements and inform rapid fielding decisions. Conduct a table top exercise and field exercise to support Joint Service and interagency tactics, techniques, and procedures (TTP) development. Expand classified NTA Data Library with newly available data to ensure widest dissemination possible. Implement new data management plan. Initiate new market surveys and assessments of technologies for rapid fielding of Chemical Biological Defense Program (CBDP) capabilities, focused on emerging priority threats. Invest in technology prototyping and assessment to provide capability improvements. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project funding transferred to 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 to better align with strategic guidance.	4.654	5.269	-
Title: 12) Advanced Emerging Threat (AET) Defense ***Description:*** Program Management, Product Development, Support and Testing to demonstrate and evaluate technologies to assess performance against advanced and emerging threats. ***FY 2022 Plans:*** Continue efforts from NTA Defense to leverage expanded requirements to broaden data set for emerging biological threats and PBAs. Continue updates to spectral libraries and hazard data management tools to incorporate emerging threat information. 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,	-	-	5.684

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *Contamination Avoidance (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
and procedures (TTP) development and gaps analysis for materiel solutions. Initiate market surveys and assessments of new technologies for rapid fielding by Chemical Biological Defense Program to mitigate emerging threat gaps as threats are identified. ***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.			
Accomplishments/Planned Programs Subtotals	18.806	10.326	32.923

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
• CA5: *Contamination Avoidance (SDD)*	126.019	128.954	82.295	-	82.295	-	-	-	-	-	-
• 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	-	-	-	-	-	-
• SA0005: *CBRN SENSOR INTEGRATION ON ROBOTIC PLATFORMS (CSIRP)*	1.747	0.503	3.561	-	3.561	-	-	-	-	-	-
• SA0050: *CBRN SUPPORT TO C2 (CSC2)*	0.000	0.000	1.750	-	1.750	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

COMPACT VAPOR CHEMICAL AGENT DETECTOR (CVCAD)

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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FY20 Other Transactional Authority (OTA) activities were initiated by the Defense Threat Reduction Agency (DTRA) to evaluate systems against Warfighter requirements and conduct science and technology development to mature systems to the program of record in FY21. The CVCAD program will use the CWMD OTA contract vehicle in FY21 to transition technology from S&T to support a TMRR award. This streamlined acquisition approach uses one contracting mechanism to award follow-on acquisition phases up to LRIP. CVCAD will transition a lightweight chemical detection capability to CBRN Sensors Integrated onto Robotic Platforms (CSIRP), and to the Chemical Biological Radiological Nuclear Dismounted Reconnaissance Systems (CBRN DRS) for integration onto unmanned and manned aerial or ground platforms.

BIOSURVEILLANCE (BSV)

BSV utilizes lessons learned for situational awareness and force health protection in support of decision support for Commanders both operationally and at the tactical edge. Applicable technologies will be developed, integrated, deployed, operated and sustained, through Other Transaction Agreements (OTA) and procurement contracts. Completion of the effort will serve as a baseline configuration for IEW efforts within the Chemical Biological Defense Program (CBDP) to include technologies, lessons learned and test data that will be transitioned to the programs of record such as Enhanced Capability Demonstration (ECD) IEW, Enhanced Maritime Biological Detection (EMBD), Next Generation Diagnostics System (NGDS), Joint Biological Tactical Detection System (JBTDS) & Common Analytical Laboratory System (CALS)).

ENHANCED CAPABILITY DEMO INTEGRATED EARLY WARNING (ECD IEW)

The Enhanced Capability Demonstration Integrated Early Warning (ECD IEW Project IS4) will conduct an analysis of alternatives and leverage the IEW Advanced Capability Demonstration (ATD), and various operational responses to procure developmental equipment and decision support tools for experimentation and demonstration to reduce risk and inform supporting materiel solutions, CONOPS TTPs, Non-CBRN sensors, and requirements to provide operational commanders time and space for freedom to maneuver and action. The ECD IEW will utilize Table Top Exercises (TTX), Operational Demonstrations, and other test events to provide cross commodity equipment sets evaluation leading to the operational deployment through rapid prototyping to a unit to be determined, further requirements development, CBDP program of record insertion, and concepts of employment. ECD IEW transitions to CBRN IEW in FY21.

CBRN SUPPORT TO C2 (CSC2)

CSC2 focuses on technology maturation, demonstration, integration and transitioning early warning capability sets to fielded CBDP programs of record to combat emerging and potentially urgent threats within Joint All Domain Operations. Contracting strategy includes the use of Other Transaction Authority R&D and prototyping. Annual development cycles and capability drops are requested and validated by all DoD services in the OASD (NCB/CB) IEW Campaign Plan as well as approved capability development packages designated through the Joint Requirements Office and prioritized based on National Defense Strategy and National Military Strategy goals. Current strategy also collaborates with multi-agency partners to obtain synergy and interoperability across the areas of sensor data analytics, integrated early warning, and protect to warn/protect to treat capabilities. Efforts within CSC2 are driven by service CBRN capability gaps that are identified on an annual basis and evaluated by CBDP stakeholders; possible solutions and applicable technologies within the CBDP will be experimented, integrated, networked, and deployed through rapid acquisition methods.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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ENHANCED CAPABILITY DEMONSTRATION JOINT CBRNE ADV CAPABILITY SETS (ECD JCACS)

The ECD JCACS evaluates various equipment during User Feedback Events (UFE) and other test events. The acquisition strategy is to use Other Transactional Agreements (OTAs) and collaborate with CBRN Sensor Integration onto Robotic Platforms (CSIRP) to acquire the equipment and technical support required. Additionally, JCACS and CSIRP will utilize Government Agencies and Federally Funded Research and Development Centers to provide development, testing and technical support. ECD JCACS will focus on the use and integration of robotics to enhance these missions.

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.

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

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *Contamination Avoidance (ACD&P)*

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
CVCAD - HW C - Transition from DTRA	MIPR	TBD : N/A	0.000	0.000		0.168	May 2021	0.000		0.000		0.000	0.000	0.168	0.000
CVCAD - HW S - Advanced Prototype Development	C/FFP	Advanced Technologies International : Summerville, SC	0.000	0.000		0.000		4.538	Oct 2021	0.000		4.538	0.000	4.538	0.000
ECD IEW - Government Product Development Team Labor	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.200	Jul 2020	0.000		0.000		0.000		0.000	0.000	0.200	0.000
CSC2 - Contractor Product Development Team Labor	MIPR	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	0.000	0.000		0.000		0.500	Feb 2022	0.000		0.500	0.000	0.500	0.000
CSC2 - CSC2 Operational Capability	C/CPAF	TBD : N/A	0.000	0.000		0.000		12.281	Feb 2022	0.000		12.281	0.000	12.281	0.000
CSC2 - Government Product Development Team Labor	MIPR	Various : Various	0.000	0.000		0.000		2.500	Oct 2021	0.000		2.500	0.000	2.500	0.000
ECD JCACS - HW C - Matrix Labor	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.200	Jan 2020	0.000		0.000		0.000		0.000	0.000	0.200	0.000
CSIRP - HW C Contractor Product Development Team Labor	C/FFP	Patricio Enterprises : Inc., Woodbridge, VA	0.267	0.283	Jan 2020	0.410	Feb 2021	0.000		0.000		0.000	0.000	0.960	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *Contamination Avoidance (ACD&P)*

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 - HW C - Government Product Development Team Labor	MIPR	Various : Various	1.284	1.442	Oct 2019	0.168	Dec 2020	0.000		0.000		0.000	0.000	2.894	0.000
CSIRP - SW C UAS and Sensor Manufacturing and Design	C/CPFF	T2S Solutions (T2S : LLC), Belcamp, MD	0.616	0.470	Apr 2020	0.425	Dec 2020	0.000		0.000		0.000	0.000	1.511	0.000
CSIRP - SW C Sensor Integration	C/CPFF	Charles Stark Draper Laboratories : Inc., Cambridge, MA	0.497	1.418	Nov 2019	1.270	Dec 2020	0.000		0.000		0.000	0.000	3.185	0.000
CSIRP - HW C - Sensor/ Platform Integration	Various	Various : Various	0.000	2.148	Jul 2020	0.300	Oct 2020	0.000		0.000		0.000	0.000	2.448	0.000
CSIRP - HW C - HW C RN Sensor Design	C/FFP	Radiation Monitoring Devices : Inc, Boston, MA	0.000	0.000		0.549	Oct 2020	0.000		0.000		0.000	0.000	0.549	0.000
CSIRP - HW C OTA - Chemical sensor Protoype and Integration	C/FFP	Intelligent Optical Systems (IOS) : Torrance, CA	0.687	0.000		0.320	Dec 2020	0.000		0.000		0.000	0.000	1.007	0.000
NTA DEFENSE - HW S - Threat Understanding and Characterization	MIPR	Various : Various	1.860	0.748	Dec 2019	0.449	Jan 2021	0.000		0.000		0.000	0.000	3.057	0.000
NTA DEFENSE - HW S - Government SE & Technical Management Team	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	1.284	0.731	Dec 2019	1.461	Dec 2020	0.000		0.000		0.000	0.000	3.476	0.000
AET DEFENSE - HW C - Emerging threat detection/ decontamination/protection capability prototyping	Various	Various : Various	0.000	0.000		0.000		0.936	Dec 2021	0.000		0.936	0.000	0.936	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *Contamination Avoidance (ACD&P)*

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
AET DEFENSE - SW C - Spectral library enhancements	MIPR	Various : Various	0.000	0.000		0.000		2.021	Nov 2021	0.000		2.021	0.000	2.021	0.000
AET DEFENSE - SW C - Hazard awareness tool updates	MIPR	Various : Various	0.000	0.000		0.000		1.076	Dec 2021	0.000		1.076	0.000	1.076	0.000
		Subtotal	6.495	7.640		5.520		23.852		0.000		23.852	0.000	43.507	N/A

Remarks

CVCAD: The CVCAD program will fully transition from DTRA S&T development to Acquisition in FY21. The CWMD OTA is the contract vehicle leveraged by the program to competitively award several contractors for MS A - TMRR. The OTA award efforts are broken out into four phases - Phase I DTRA S&T Development, Phase II - Transition to TMRR and assessing technology readiness level, Phase III - Addressing shortfalls and gaps identified in Phase II, and final phase IV will initiate brass board system testing to get systems ready for MS B.

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
CVCAD - ES S - Human System Integration (HSI) Support	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.114	Oct 2021	0.000		0.114	0.000	0.114	0.000
CVCAD - TD/D S - ARL S&T Analyst Support	MIPR	Army Research Lab (ARL) : Adelphi, MD	0.000	0.000		0.142	Apr 2021	0.000		0.000		0.000	0.000	0.142	0.000
CVCAD - ES S - Readiness, Availability, and Maintainability (RAM) Analysis	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center	0.000	0.000		0.000		0.155	Nov 2021	0.000		0.155	0.000	0.155	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *Contamination Avoidance (ACD&P)*

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
		(CBC) : Aberdeen Proving Ground, MD													
BSV - ES S - Systems Analysis Study	MIPR	MA Institute of Tech - Lincoln Labs (MIT-LL) : Lexington, MA	0.000	0.029	Apr 2020	0.000		0.000		0.000		0.000	0.000	0.029	0.000
BSV - TD/D C - Biological Identification Capability Sets sustainment assays	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	7.388	0.355	May 2020	0.000		0.000		0.000		0.000	0.000	7.743	0.000
ECD IEW - Acquisition, Integration and decision tool demonstration	C/CPFF	Various : Various	3.463	2.475	Jan 2020	0.000		0.000		0.000		0.000	0.000	5.938	0.000
ECD IEW - System Integration	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.700	0.227	Jan 2020	0.000		0.000		0.000		0.000	0.000	0.927	0.000
CSC2 - Contractor Support	C/CPAF	TBD : N/A	0.000	0.000		0.000		0.800	Feb 2022	0.000		0.800	0.000	0.800	0.000
CSC2 - Support	MIPR	TBD : N/A	0.000	0.000		0.000		0.700	Feb 2022	0.000		0.700	0.000	0.700	0.000
ECD JCACS - ES C - SIL Support	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.250	0.113	Jan 2020	0.000		0.000		0.000		0.000	0.000	0.363	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *Contamination Avoidance (ACD&P)*

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
CSIRP - HW/SW Sensor Interface Design and Concept Development	Various	Various : Various	0.000	0.545	Feb 2020	0.050	Nov 2020	0.000		0.000		0.000	0.000	0.595	0.000
		Subtotal	11.801	3.744		0.192		1.769		0.000		1.769	0.000	17.506	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
CVCAD - DTE S - MIL-STD Testing	MIPR	Aberdeen Test Center (ATC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.500	Jun 2022	0.000		0.500	0.000	0.500	0.000
CVCAD - DTE S - Chemical Surety Testing	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.200	Aug 2022	0.000		0.200	0.000	0.200	0.000
ECD IEW - CWMD OTA	C/CPFF	TBD : N/A	0.000	0.663	Sep 2020	0.000		0.000		0.000		0.000	0.000	0.663	0.000
ECD IEW - TTX & OP DEMOs	MIPR	Various : Various	1.750	0.500	Jan 2020	0.000		0.000		0.000		0.000	0.000	2.250	0.000
CSC2 - Technical/ Operational Demo	MIPR	TBD : N/A	0.000	0.000		0.000		2.000	Feb 2022	0.000		2.000	0.000	2.000	0.000
ECD JCACS - DTE - Test and Evaluation	MIPR	Various : Various	1.689	0.550	Jan 2020	0.000		0.000		0.000		0.000	0.000	2.239	0.000
CSIRP - DTE C - Testing and Evaluation	MIPR	Various : Various	0.000	1.237	Mar 2020	0.000		0.000		0.000		0.000	0.000	1.237	0.000
NTA DEFENSE - DTE S - Technology Assessments	MIPR	U.S. Army Combat Capabilities Development	0.520	0.425	Jan 2020	0.610	Dec 2020	0.000		0.000		0.000	0.000	1.555	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *Contamination Avoidance (ACD&P)*

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
		Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD													
NTA DEFENSE - DTE S - Systems Prototyping and Development	MIPR	Various : Various	0.000	1.956	Jan 2020	1.901	Nov 2020	0.000		0.000		0.000	0.000	3.857	0.000
AET DEFENSE - DTE S - Technology Assessments	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		1.156	Dec 2021	0.000		1.156	0.000	1.156	0.000
		Subtotal	3.959	5.331		2.511		3.856		0.000		3.856	0.000	15.657	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
CVCAD - PM/MS S - Program Management Support	MIPR	Various : Various	0.000	0.000		0.686	Feb 2021	0.630	Nov 2021	0.000		0.630	0.000	1.316	0.000
CSC2 - JPEO Program Management Support	MIPR	Various : Various	0.000	0.000		0.000		2.321	Oct 2021	0.000		2.321	0.000	2.321	0.000
ECD JCACS - PM-Program Management Support	MIPR	JPM CBRN Sensors : JPEO-CBRND, Aberdeen Proving Ground, MD	2.190	1.020	Apr 2020	0.000		0.000		0.000		0.000	0.000	3.210	0.000
CSIRP - PM/MS C Program Management Support	MIPR	Various : Various	0.453	0.277	Dec 2019	0.569	Dec 2020	0.000		0.000		0.000	0.000	1.299	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *Contamination Avoidance (ACD&P)*

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
NTA DEFENSE - PM/MSS - IPT Support/Program Management	MIPR	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	1.629	0.794	Dec 2019	0.848	Jan 2021	0.000		0.000		0.000	0.000	3.271	0.000
AET DEFENSE - PM/MSS - IPT Support/Program Management	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.495	Dec 2021	0.000		0.495	0.000	0.495	0.000
		Subtotal	4.272	2.091		2.103		3.446		0.000		3.446	0.000	11.912	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	26.527	18.806		10.326		32.923		0.000		32.923	0.000	88.582	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *Contamination Avoidance (ACD&P)*

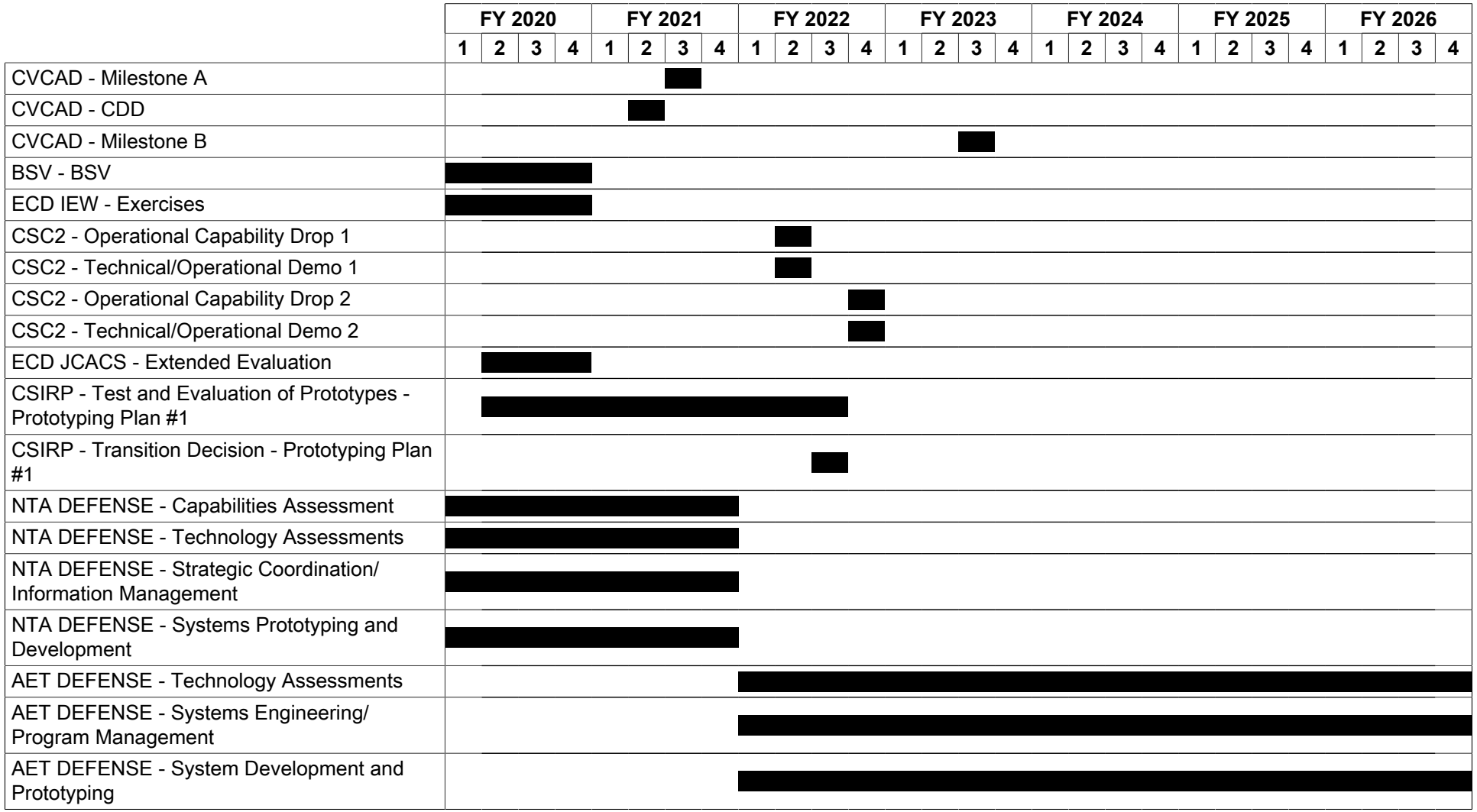

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** CA4 / *Contamination Avoidance (ACD&P)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
CVCAD - Milestone A	3	2021	3	2021
CVCAD - CDD	2	2021	2	2021
CVCAD - Milestone B	3	2023	3	2023
BSV - BSV	1	2020	4	2020
ECD IEW - Exercises	1	2020	4	2020
CSC2 - Operational Capability Drop 1	2	2022	2	2022
CSC2 - Technical/Operational Demo 1	2	2022	2	2022
CSC2 - Operational Capability Drop 2	4	2022	4	2022
CSC2 - Technical/Operational Demo 2	4	2022	4	2022
ECD JCACS - Extended Evaluation	2	2020	4	2020
CSIRP - Test and Evaluation of Prototypes - Prototyping Plan #1	2	2020	3	2022
CSIRP - Transition Decision - Prototyping Plan #1	3	2022	3	2022
NTA DEFENSE - Capabilities Assessment	1	2020	4	2021
NTA DEFENSE - Technology Assessments	1	2020	4	2021
NTA DEFENSE - Strategic Coordination/Information Management	1	2020	4	2021
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

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program			Date: May 2021
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	Project (Number/Name) DE4 / *Decontamination (ACD&P)*	

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
DE4: *Decontamination (ACD&P)*	-	7.009	6.286	18.385	-	18.385	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports the development of Contamination Mitigation (ConMit) systems that reduce operational impact and logistics burden, reduce sustainment costs, increase safety, and minimize environmental effects associated with decontamination and contamination mitigation operations. These efforts align with the National Defense Strategy by prioritizing preparedness for war and sustaining Joint Force military advantage and resilient force posture.

Efforts included in this project are:
(1) Tactical Contamination Mitigation System (TCMS),
(2) Wide Area Decontamination System (WADS),
(3) Chemical, Biological, Radiological, and Nuclear (CBRN) Covers, Coatings and Protective Overlays (C3PO),
(4) Mass Personnel Decontamination (MPD),
(5) Service Equipment Decontamination System (SEDS), and
(6) Tactical Disablement System (TacDS)

TCMS is a FY22 new start program and is one of two respond components (along with the Wide Area Decontamination System) of the Interdependent Contamination Mitigation concept and intends to address gaps related to the decontamination of sensitive equipment, personal equipment, individual & crew served weapons, and it will reduce the time and logistics associated with decontamination. TCMS will limit the spread and mitigate the effects of Chemical, Biological, and Radiological (CBR) contamination to allow warfighters to continue their mission for an extended period of time in a high threat, CBR contaminated environment. The Program's intent is to mitigate the risk to personnel and limit the potential spread of CBR contamination by minimizing contact and transfer hazards. TCMS will greatly enhance or eliminate the need for subsequent decontamination to mitigate contamination on military equipment by allowing the Warfighter to see areas of contamination, target contamination for treatment early, with minimal expenditure of time and material. Following application of TCMS, combined with weathering, Mission Oriented Protective Posture (MOPP) levels may be reduced without further decontamination, depending on the surface or material being decontaminated and the agent. In FY22 the TCMS program will initiate market research, award a prototyping Other Transaction Authority (OTA) contract and draft program documentation for a Milestone A decision.

The WADS is a FY22 new start program that will provide contamination mitigation capabilities against chemical and biological warfare agents on various types of terrain and exterior of fixed site facilities. The WADS will be employed to conduct Airport of Debarkation, Seaport of Debarkation, Terrain, Fix Site and Anti-access/Anti-denial decontamination operations. The WADS will be a replacement for the M12. The M12A1, Power Driven Decontamination Apparatus (PDDA) system is an Army lead program that consists of a pump unit, a 500 gallon tank unit, and a 600 gallon per hour liquid fuel water heater with a spray bar mounted to the system for terrain decontamination. The WADS will use the principles of the PDDA to further enhance terrain decontamination capabilities. In FY22 the WADS program will initiate market research, release the Request for Prototype Proposal, and draft program documentation for a Milestone A decision in FY23.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *Decontamination (ACD&P)*

The C3PO program uses a Family of Systems approach to provide contamination mitigation capability to critical equipment and assets prior to a CBRN attack to mitigate the effects and amount of CBRN contamination exposure allowing the Joint Force to be better prepared for war, maintain a resilient force posture, and remain lethal. These capabilities include but are not limited to CBRN protective covers, coatings, paints, and other preventative measures. In FY22, the C3PO program will continue user testing through iterative (test-fix-test) prototyping to improve system performance.

The MPD program will provide Warfighters with the capability to reduce the hazards associated with mass casualty decontamination efforts for protected and unprotected personnel, causalities and contaminated human remains potentially exposed to CBRN hazards. The 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. This reduces and limits the spread of contamination among potentially contaminated population groups through a standardized, modular system scalable to increase capability, aligning with the National Defense Strategy by prioritizing preparedness for war in order to remain lethal. 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 SEDS program will develop reliable and modular hardware intended to decontaminate military equipment including personal effects, and weapons to pre-contamination conditions, which sustains Joint Force military advantages and a resilient force posture, and align with the National Defense Strategy. SEDS will provide contamination mitigation capabilities for critical equipment that have been exposed to chemical and biological contamination and achieve efficacy levels that allow unprotected post-decontamination exposures for long periods with less than negligible severity effects. In FY22, the SEDS program will initiate Special Operations Forces (SOF) combined Developmental Test/Operational Test (DT/OT) and conduct Early Developmental Testing (EDT) for remaining Services, and prepare for Preliminary Design Review (PDR).

The TacDS program is a family of systems (FoS) that will provide tactical commanders a suite of products to disable (delay, disrupt, and/or degrade) or defeat (destroy) small quantities of chemical or biological materials of concern (C/BMOC) contained in munitions and bulk containers. The TacDS will operate in locations both remote and accessible, during hostile and non-hostile conditions, and within established time periods, to reduce or eliminate the employability of C/BMOC against the Joint Force and/or prevent state adversaries and non-state actors from acquiring, proliferating, or using weapons of mass destruction, a defense objective in the National Defense Strategy. The TacDS suite of capabilities will provide a new warfighter capability at the tactical level and play a critical role in DoD's ability to respond effectively to WMD crises and C/BMOC. Development of two products was initiated in FY19; Product #1, Thermite Bag, a man-portable destruction capability, and Product #2, Epoxy Kit, a delay capability. Development and evaluation of Products #1 and #2 through delivery of advanced prototypes and associated technical data/ training packages was conducted in FY20 as part of approved closeout activities. For Product #2, development was accelerated in FY20 to include operational testing with USSOCOM forces to allow USSOCOM to procure/field the product under their Title 10 Authority. Data/Intellectual Property (IP) and documentation for both products as well as the overarching TacDS program are archived to facilitate further development in the future if funding becomes available and the program is revived; archived information will be shared with USSOCOM as needed. In FY21 and beyond, the Defense-Wide Review (DWR) reduced the program for higher priorities. Advanced prototypes and associated technical data packages for these two products will be delivered in FY20 and archived along with programmatic documentation for future efforts, consistent with the approved close-out strategy.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *Decontamination (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: 1) TCMS ***Description:*** Milestone (MS) A support and Prototype Development ***FY 2022 Plans:*** Initiate market research and conduct a requirements table top exercise in order to release the Request for Prototype Proposal (RPP) and award a prototyping Other Transaction Authority (OTA) contract. Draft program documentation for a Milestone A decision. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project is new start effort in FY 2022.	-	-	3.433
Title: 2) WADS ***Description:*** Prototype Development and Evaluation ***FY 2022 Plans:*** Initiate market research, conduct a requirements table top exercise, and release the Request for Prototype Proposal in order to award a prototyping Other Transaction Authority (OTA) contract. Draft program documentation for a Milestone A decision in FY23. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project is new start effort in FY 2022.	-	-	2.392
Title: 3) C3PO ***Description:*** Milestone (MS) A and Prototype Development ***FY 2021 Plans:*** Initiate Proof of Concept Demonstration and Testing. Conduct MS A, System Readiness Review (SRR), Technology Readiness Assessment (TRA), and Affordability Assessment. ***FY 2022 Plans:*** Continue using agile program management to obtain laboratory and user testing through iterative (test-fix-test) prototyping to improve system performance. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project transitioned to Advanced Development.	-	1.643	3.572
Title: 4) MPD	3.270	2.867	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *Decontamination (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Description: Milestone (MS) A Support and Preliminary Systems Component Testing ***FY 2021 Plans:*** Conduct Technology Readiness Assessment (TRA) and Manufacturing Readiness Assessment (MRA). Further down select and procure approximately (3) additional prototypes to support Developmental Testing (DT). Complete prototype testing in order to inform Operational Testing (OT) in FY22. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project is entering completion and all activities will be closed.			
Title: 5) SEDS ***Description:*** Milestone (MS) A support and Prototype Development ***FY 2021 Plans:*** Conduct MS A; Initiate contract award to purchase prototype systems for testing. System Readiness Review (SRR), Technology Readiness Assessment (TRA), and Affordability Assessment. ***FY 2022 Plans:*** Initiate Special Operations Forces (SOF) combined Developmental Test/Operational Test (DT/OT) and conduct Early Developmental Testing (EDT) for remaining Services, prepare for Preliminary Design Review (PDR). ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to change in program/project schedule. FY22 increase is due to cost of developing and maturing SEDS system technologies based on market research and will fund additional test activities for USSOCOM variant Developmental, Operational, and Early Developmental Testing.	-	1.776	8.988
Title: 6) TACDS ***Description:*** Prototype Development and Evaluation	3.739	-	-
Accomplishments/Planned Programs Subtotals	7.009	6.286	18.385

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
• DE5: *Decontamination (SDD)*	9.113	21.954	7.874	-	7.874	-	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *Decontamination (ACD&P)*

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	-	-	-	-	-	-
• JD0070: *JOINT BIOLOGICAL AGENT DECONTAMINATION SYSTEM (JBADS)*	20.361	3.404	26.367	-	26.367	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

TACTICAL CONTAMINATION MITIGATION SYSTEM (TCMS)

TACTICAL CONTAMINATION MITIGATION SYSTEM (TCMS)
The TCMS program will develop the equipment, processes and procedures for contamination mitigation related to post-incident operations in a CBRN contaminated environment. The acquisition strategy includes market research through both Requests for Information and a call for White Papers through an Other Transaction Authority (OTA) contracting approach. Data collected will inform a Milestone A decision in FY23. The OTA vehicle will also be used to request prototypes, which will undergo technology demonstrations and Early Field testing, followed by an analysis to determine the most suitable candidate. Results of Prototyping will inform Milestone B and Request for Proposals in FY24 followed by developmental and operational testing and Milestone C/Full Rate Production Approval.

WIDE AREA DECONTAMINATION SYSTEM (WADS)

The WADS program will develop the equipment, processes and procedures for contamination mitigation of various types of terrain and the exterior of DoD fixed site facilities contaminated by chemical, biological, and radiological agents. The acquisition strategy includes market research through both Requests for Information and a call for White Papers through an Other Transaction Authority (OTA) contracting approach. The program plans for a Milestone A decision in FY23. The OTA vehicle will also be used to request prototypes, which will undergo technology demonstrations and Early Field testing, followed by an analysis to determine the most suitable candidate. Results of Prototyping will inform Milestone B in FY25 and Request for Proposals in FY26 followed by developmental and operational testing and Milestone C/Full Rate Production Approval.

CBRN COVERS COATINGS AND PROTECTIVE OVERLAYS (C3PO)

The C3PO acquisition approach involves the use of the Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA), Competitive/Firm Fixed Price (C/FFP) contract, to design and develop state of the art equipment using competitive and iterative (test-fix-test) prototyping. The C3PO program will evaluate Commercial Off the Shelf options to reduce development costs. The program will test prototypes against live chemical warfare agents and biological warfare agents,

conduct reliability, availability, and maintainability testing, conduct regular user evaluations to identify human system integration issues, and will conduct testing to ensure the system meets military standards.

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 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.

SERVICE EQUIPMENT DECONTAMINATION SYSTEM (SEDS)

The SEDS program will utilize the Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA) to design and develop state of the art equipment using competitive and iterative prototyping. The program will test prototypes against live chemical warfare agents and biological warfare agents, conduct reliability, availability, and maintainability testing, conduct regular user evaluations to identify human system integration issues, and will conduct testing to ensure the system meets military standards. The program plans for a Milestone A decision in FY21. The OTA vehicle will be used to request prototype development. Request for Proposals planned for 4QFY21 followed by developmental and operational testing starting in FY22 and Milestone C/LRIP Approval in FY23 for the SOCOM variant.

TACTICAL DISABLEMENT SYSTEM (TACDS)

TacDS was planned as a FoS using GOTS, modified COTS, and developmental technologies of varying maturity; up to 7 products may be needed to fully satisfy the entire requirements set. The program successfully obtained a MS A decision authorizing entry of all capabilities to be developed under the program into the Technology Maturation and Risk Reduction (TMRR) phase of the Acquisition Lifecycle in March 2018. Development of two products was initiated in FY19 using an approved streamlined A to C acquisition approach; Product #1, Thermite Bag, a man-portable destruction capability, and Product #2, Epoxy Kit, a delay capability. The initial acquisition strategy included an IPR to replace the traditional MS B checkpoint and be conducted for each product to authorize transition from TMRR to EMD phase activities. Separate contracts/transactions were used to develop, test, and procure each product, with the Countering Weapons of Mass Destruction Other Transaction Agreement (CWMD OTA) being used to maximum extent possible as a flexible mechanism to engage industry, drive competition, and reduce transaction timelines. Development and evaluation of Products #1 and #2 through delivery of advanced prototypes and associated technical data/training packages was conducted in FY20 as part of approved closeout activities. For Product #2, development was accelerated in FY20 to include operational testing with USSOCOM forces to allow USSOCOM to

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *Decontamination (ACD&P)*

procure/field the product under their Title 10 Authority. Data/Intellectual Property (IP) and documentation for both products as well as the overarching TacDS program are archived to facilitate further development in the future if funding becomes available and the program is revived; archived information will be shared with USSOCOM as needed. In FY21 and beyond, the Defense-Wide Review (DWR) reduced the program for higher priorities. Advanced prototypes and associated technical data packages for these two products will be delivered in FY20 and archived along with programmatic documentation for future efforts, consistent with the approved close-out strategy.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *Decontamination (ACD&P)*

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
TCMS - HW S - Product Development	C/FFP	TBD : N/A	0.000	0.000		0.000		0.730	Mar 2022	0.000		0.730	0.000	0.730	0.000
WADS - HW S - Small and Large Scale Spray Mechanisms	C/FFP	TBD : N/A	0.000	0.000		0.000		0.206	Feb 2022	0.000		0.206	0.000	0.206	0.000
MPD - HW S - Hardware System	C/FFP	Advanced Technologies International : Summerville, SC	0.188	0.253	May 2020	0.312	Jan 2021	0.000		0.000		0.000	0.000	0.753	0.000
SEDS - HW S - SEDS Product Development	C/FFP	TBD : N/A	0.000	0.000		0.681	Jul 2021	2.607	Jan 2022	0.000		2.607	0.000	3.288	0.000
		Subtotal	0.188	0.253		0.993		3.543		0.000		3.543	0.000	4.977	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
TCMS - ES SB - Logistics, Engineering and IPT Support	MIPR	Various : Various	0.000	0.000		0.000		1.935	Jan 2022	0.000		1.935	0.000	1.935	0.000
WADS - TD/D S - IPT and Technical Support	MIPR	Various : Various	0.000	0.000		0.000		1.628	Jan 2022	0.000		1.628	0.000	1.628	0.000
C3PO - ES SB - Logistics, Engineering and IPT Support	MIPR	Various : Various	0.000	0.000		0.676	Mar 2021	1.310	Nov 2021	0.000		1.310	0.000	1.986	0.000
MPD - ES SB S - Logistics, Engineering, and IPT Support	Various	Various : Various	0.053	0.003	May 2020	1.152	Dec 2020	0.000		0.000		0.000	0.000	1.208	0.000
SEDS - ES SB - SEDS Logistics, Engineering and IPT Support	MIPR	Various : Various	0.000	0.000		0.208	Mar 2021	2.265	Jan 2022	0.000		2.265	0.000	2.473	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *Decontamination (ACD&P)*

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
TACDS - TD/D S - Logistics, Engineering, and IPT Support	Various	Various : Various	2.633	2.042	Feb 2020	0.000		0.000		0.000		0.000	0.000	4.675	0.000
		Subtotal	2.686	2.045		2.036		7.138		0.000		7.138	0.000	13.905	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
TCMS - OTHT S - Prototype T&E IPR Test Planning	MIPR	Various : Various	0.000	0.000		0.000		0.254	Jun 2022	0.000		0.254	0.000	0.254	0.000
WADS - OTHT C - Component Testing	MIPR	Various : Various	0.000	0.000		0.000		0.200	Jan 2022	0.000		0.200	0.000	0.200	0.000
C3PO - Other S - Developmental Testing and Test Planning Support	MIPR	Various : Various	0.000	0.000		0.721	Mar 2021	1.727	Dec 2021	0.000		1.727	0.000	2.448	0.000
MPD - OTHT S - System Component Testing, Prototype Testing, DT, Test Planning	C/FFP	Advanced Technologies International : Summerville, SC	0.207	2.285	May 2020	0.800	Mar 2021	0.000		0.000		0.000	0.000	3.292	0.000
SEDS - OTHT S - SEDS T&E IPR Test Planning	MIPR	Various : Various	0.000	0.000		0.621	Aug 2021	2.768	Jan 2022	0.000		2.768	0.000	3.389	0.000
TACDS - DTE S - Test Support	Various	Various : Various	0.000	0.707	Feb 2020	0.000		0.000		0.000		0.000	0.000	0.707	0.000
		Subtotal	0.207	2.992		2.142		4.949		0.000		4.949	0.000	10.290	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *Decontamination (ACD&P)*

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
TCMS - PM/MS S - Program Management Support	C/FFP	TBD : N/A	0.000	0.000		0.000		0.514	Jan 2022	0.000		0.514	0.000	0.514	0.000
WADS - PM/MS S - Program Management Support	MIPR	Various : Various	0.000	0.000		0.000		0.358	Jan 2022	0.000		0.358	0.000	0.358	0.000
C3PO - PM/MS S- Program Management Support	MIPR	Various : Various	0.000	0.000		0.246	Mar 2021	0.535	Nov 2021	0.000		0.535	0.000	0.781	0.000
MPD - PM/MS S - Program Management Support	MIPR	Various : Various	0.078	0.729	Feb 2020	0.603	Dec 2020	0.000		0.000		0.000	0.000	1.410	0.000
SEDS - PM/MS S - Program Management Support	MIPR	Various : Various	0.000	0.000		0.266	Mar 2021	1.348	Jan 2022	0.000		1.348	0.000	1.614	0.000
TACDS - PM/MS S - Program Management Support	MIPR	Various : Various	1.149	0.990	Nov 2019	0.000		0.000		0.000		0.000	0.000	2.139	0.000
		Subtotal	1.227	1.719		1.115		2.755		0.000		2.755	0.000	6.816	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	4.308	7.009		6.286		18.385		0.000		18.385	0.000	35.988	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *Decontamination (ACD&P)*

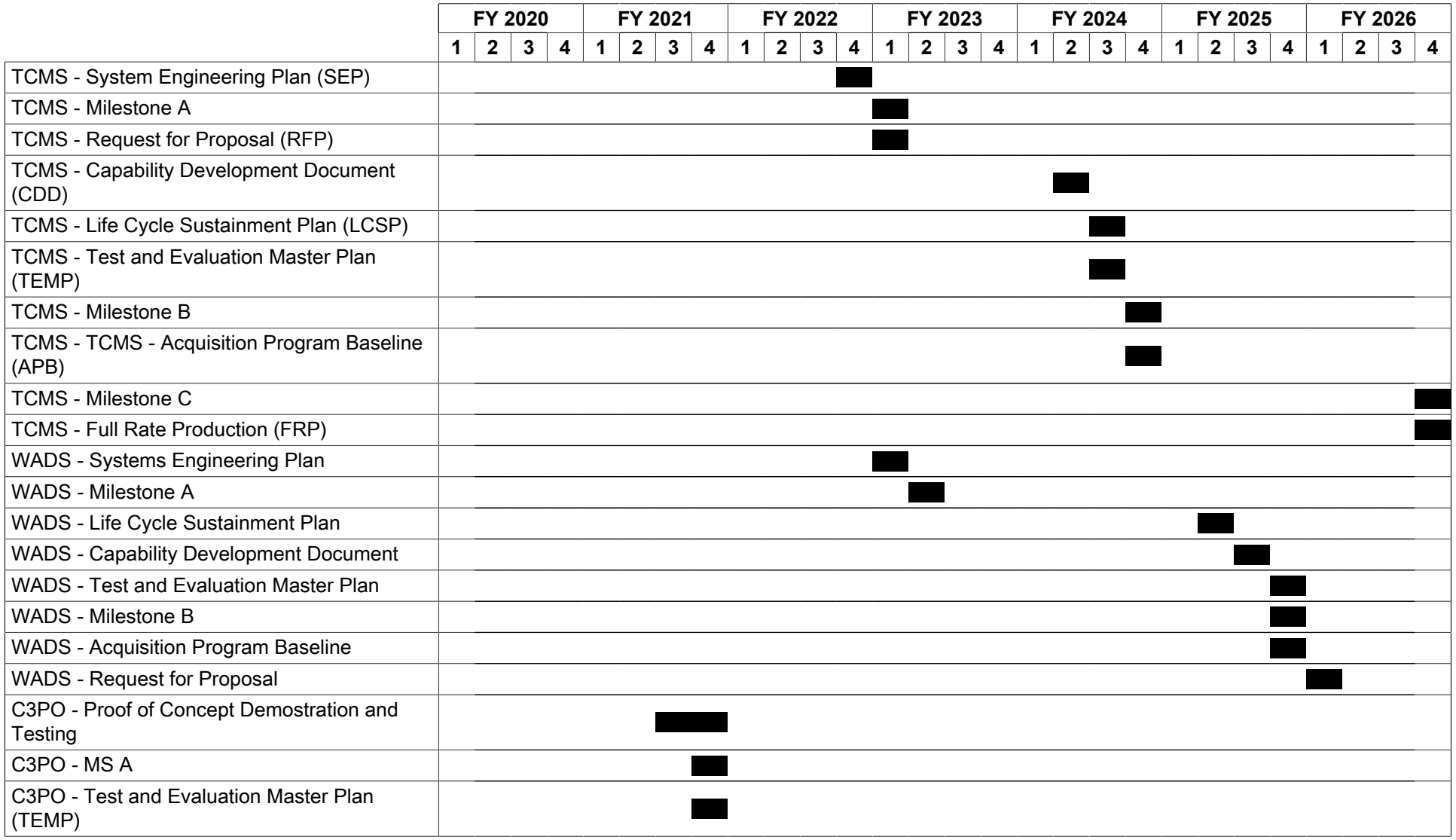

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *Decontamination (ACD&P)*

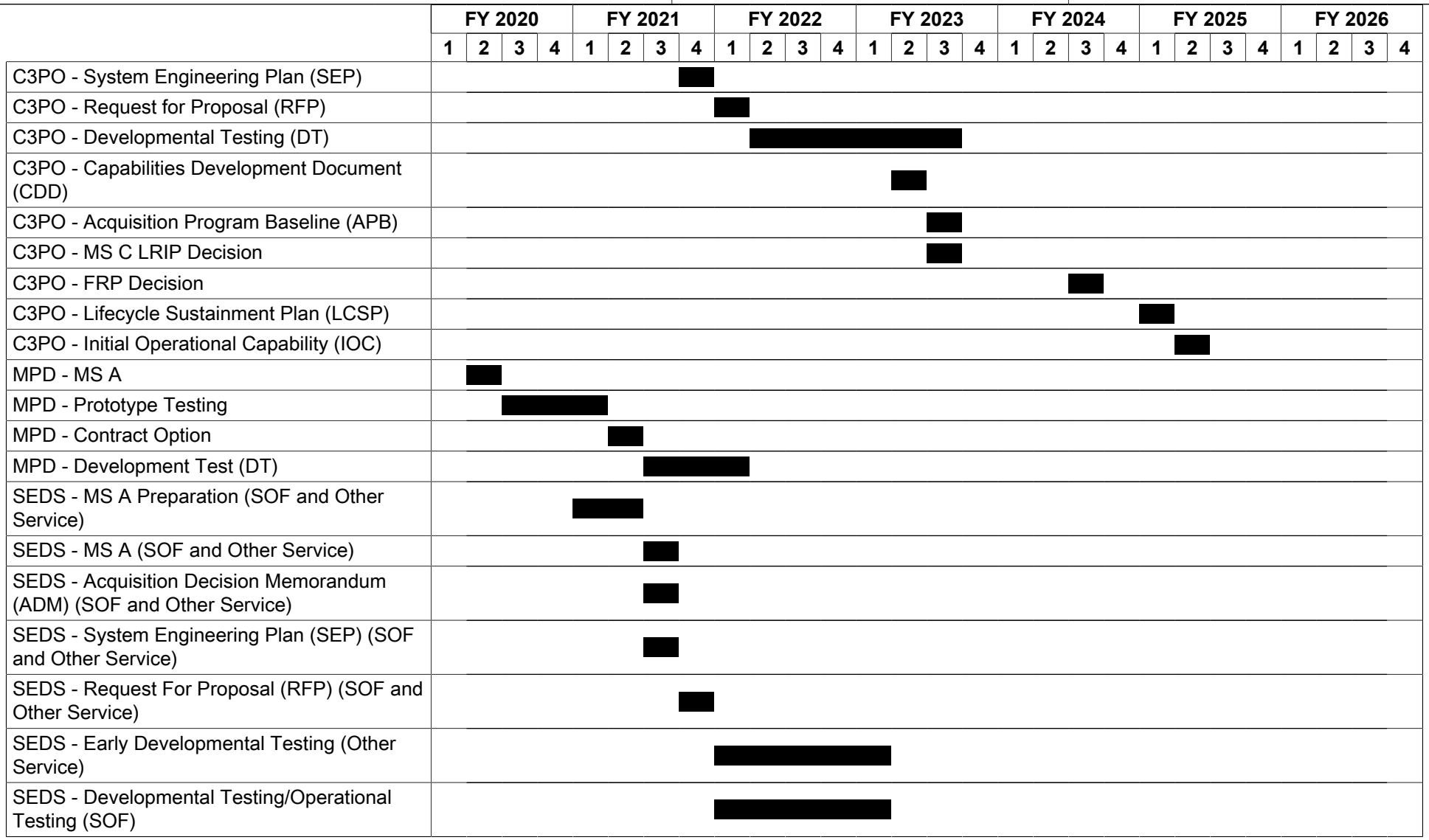

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *Decontamination (ACD&P)*

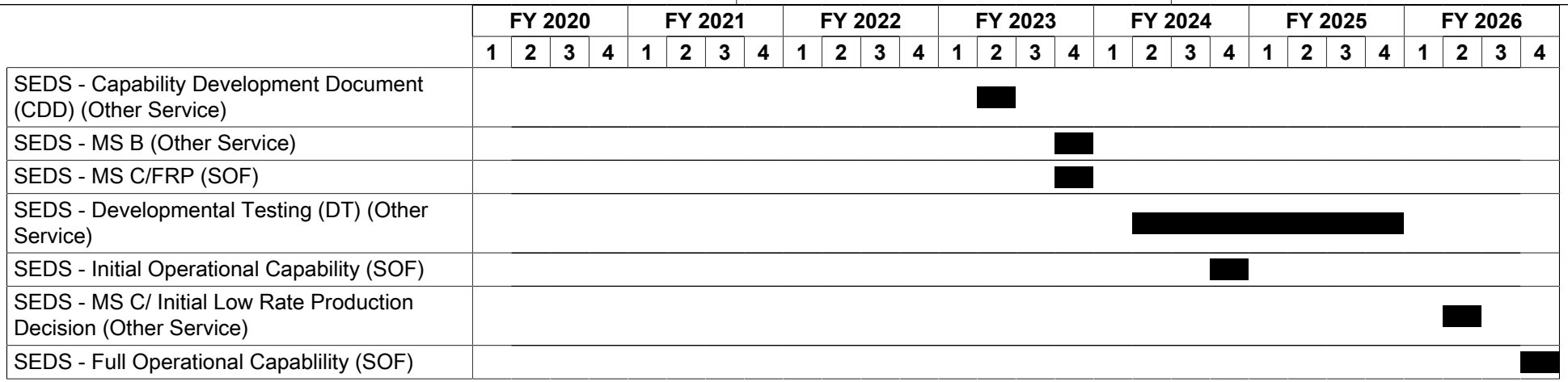

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *Decontamination (ACD&P)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
TCMS - System Engineering Plan (SEP)	4	2022	4	2022
TCMS - Milestone A	1	2023	1	2023
TCMS - Request for Proposal (RFP)	1	2023	1	2023
TCMS - Capability Development Document (CDD)	2	2024	2	2024
TCMS - Life Cycle Sustainment Plan (LCSP)	3	2024	3	2024
TCMS - Test and Evaluation Master Plan (TEMP)	3	2024	3	2024
TCMS - Milestone B	4	2024	4	2024
TCMS - TCMS - Acquisition Program Baseline (APB)	4	2024	4	2024
TCMS - Milestone C	4	2026	4	2026
TCMS - Full Rate Production (FRP)	4	2026	4	2026
WADS - Systems Engineering Plan	1	2023	1	2023
WADS - Milestone A	2	2023	2	2023
WADS - Life Cycle Sustainment Plan	2	2025	2	2025
WADS - Capability Development Document	3	2025	3	2025
WADS - Test and Evaluation Master Plan	4	2025	4	2025
WADS - Milestone B	4	2025	4	2025
WADS - Acquisition Program Baseline	4	2025	4	2025
WADS - Request for Proposal	1	2026	1	2026
C3PO - Proof of Concept Demostration and Testing	3	2021	4	2021
C3PO - MS A	4	2021	4	2021
C3PO - Test and Evaluation Master Plan (TEMP)	4	2021	4	2021
C3PO - System Engineering Plan (SEP)	4	2021	4	2021

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *Decontamination (ACD&P)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
C3PO - Request for Proposal (RFP)	1	2022	1	2022
C3PO - Developmental Testing (DT)	2	2022	3	2023
C3PO - Capabilities Development Document (CDD)	2	2023	2	2023
C3PO - Acquisition Program Baseline (APB)	3	2023	3	2023
C3PO - MS C LRIP Decision	3	2023	3	2023
C3PO - FRP Decision	3	2024	3	2024
C3PO - Lifecycle Sustainment Plan (LCSP)	1	2025	1	2025
C3PO - Initial Operational Capability (IOC)	2	2025	2	2025
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
SEDS - MS A Preparation (SOF and Other Service)	1	2021	2	2021
SEDS - MS A (SOF and Other Service)	3	2021	3	2021
SEDS - Acquisition Decision Memorandum (ADM) (SOF and Other Service)	3	2021	3	2021
SEDS - System Engineering Plan (SEP) (SOF and Other Service)	3	2021	3	2021
SEDS - Request For Proposal (RFP) (SOF and Other Service)	4	2021	4	2021
SEDS - Early Developmental Testing (Other Service)	1	2022	1	2023
SEDS - Developmental Testing/Operational Testing (SOF)	1	2022	1	2023
SEDS - Capability Development Document (CDD) (Other Service)	2	2023	2	2023
SEDS - MS B (Other Service)	4	2023	4	2023
SEDS - MS C/FRP (SOF)	4	2023	4	2023
SEDS - Developmental Testing (DT) (Other Service)	2	2024	4	2025
SEDS - Initial Operational Capability (SOF)	4	2024	4	2024
SEDS - MS C/ Initial Low Rate Production Decision (Other Service)	2	2026	2	2026

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** DE4 / *Decontamination (ACD&P)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
SEDS - Full Operational Capablility (SOF)	4	2026	4	2026

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program			Date: May 2021
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	Project (Number/Name) IP4 / *Individual Protection (ACD&P)*	

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
IP4: *Individual Protection (ACD&P)*	-	1.997	2.483	3.968	-	3.968	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project includes the development of next generation individual protective ensembles (e.g., suits, boots, and gloves) that enable the Joint Forces to survive and continue the mission in Chemical and Biological (CB) contaminated environments.

Efforts included in this project are:
(1) Uniform Integrated Protection Ensemble Family of Systems (UIPE FoS),
(2) UIPE FoS Gloves, and
(3) UIPE FoS General Purpose (GP) (i.e. Land)

The UIPE FoS program 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 Gloves provides percutaneous protection to the Warfighter against traditional and non-traditional CBRN threats. UIPE FoS Gloves provides improved comfort, tactility and dexterity, and for some mission profiles advanced features such as touch screen and flame resistance. In FY22 UIPE FoS Gloves will continue prototype development, conduct Early User Tests/Wear events, material and system level testing and initiate and complete operational testing (OT).

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. In FY22 UIPE FoS GP will continue prototype development, conduct Critical Design Review (CDR), Joint Independent Logistics Assessment (JILA), and update the Capability Development Document (CDD).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: 1) UIPE FoS ***Description:*** Concept Design Evaluation/Technology Maturation and Risk Reduction (TMRR)	1.997	-	-
Title: 2) UIPE FoS GP ***Description:*** Development of the Next Generation Protective Ensembles	-	1.989	3.028

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IP4 / *Individual Protection (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
FY 2021 Plans: Conduct evaluation to determine which candidates are ready to enter the Engineering and Manufacturing Development (EMD) phase; conduct the Independent Logistics Assessment; conduct a Preliminary Design Review and receive Milestone B approval, and begin Developmental/Operational Testing (DT/OT). ***FY 2022 Plans:*** Conduct Critical Design Review (CDR), Conduct the Joint Independent Logistics Assessment (JILA), Prototype Development, update the Capability Development Document (CDD), Engineering/Technical IPT Support, and Technical Manual validation and verification. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to change in program/project technical parameters.			
Title: 3) UIPE FoS Gloves ***Description:*** Development of the Next Generation Protective Glove ***FY 2021 Plans:*** Conduct program planning that includes developing the Statement of Objectives for a call for White Papers and the overall Acquisition and Test Strategy. Begin glove prototype development (qty 2). Mission area focus includes: Land, Sea, Air, and Homeland Defense. ***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:*** Minor change due to routine program adjustments.	-	0.494	0.940
Accomplishments/Planned Programs Subtotals	1.997	2.483	3.968

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
• IP5: *Individual Protection (SDD)*	12.179	12.960	18.941	-	18.941	-	-	-	-	-	-
• JI0002: *JS AIRCREW MASK (JSAM)*	53.839	67.950	42.059	-	42.059	-	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program			Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IP4 / *Individual Protection (ACD&P)*	

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
• JI0003: *JOINT SERVICE GENERAL PURPOSE MASK (JSGPM)*	13.209	19.802	15.128	-	15.128	-	-	-	-	-	-
• MA0401: *CBRN UNIFORM INTEGRATED PROTECTION ENSEMBLE (UIPE)*	9.984	0.000	0.000	-	0.000	-	-	-	-	-	-
• PHM033: *UNIFORM INTEGRATED PROTECTIVE ENSEMBLE GENERAL PURPOSE (UIPE FOS GP)*	0.000	1.543	23.067	-	23.067	-	-	-	-	-	-
• PHM034: *UNIFORM INTEGRATED PROTECTION ENSEMBLE FOS AIR (UIPE FOS AIR)*	0.000	4.786	36.818	-	36.818	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

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

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IP4 / *Individual Protection (ACD&P)*

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 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 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IP4 / *Individual Protection (ACD&P)*

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
UIPE FOS - HW S - Prototype Development	Various	Various : Various	1.768	0.200	Nov 2019	0.000		0.000		0.000		0.000	0.000	1.968	0.000
UIPE FOS GP - HW C - Prototype Development	Various	Various : Various	0.000	0.000		0.584	Dec 2020	1.367	Nov 2021	0.000		1.367	0.000	1.951	0.000
UIPE FOS GLOVES - HW C - Prototype Development	MIPR	Various : Various	0.000	0.000		0.290	Dec 2020	0.302	Nov 2021	0.000		0.302	0.000	0.592	0.000
		Subtotal	1.768	0.200		0.874		1.669		0.000		1.669	0.000	4.511	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
UIPE FOS - UIPE - ES S - Engineering and Technical IPT Support / SME Support	MIPR	Various : Various	0.286	0.069	Nov 2019	0.000		0.000		0.000		0.000	0.000	0.355	0.000
UIPE FOS GP - ES C - Engineering and Technical IPT Support/PM and SME Support	Various	Various : Various	0.000	0.000		1.107	Dec 2020	0.808	Nov 2021	0.000		0.808	0.000	1.915	0.000
UIPE FOS GLOVES - ES C - Engineering and Technical IPT Support / SME Support	MIPR	Various : Various	0.000	0.000		0.130	Dec 2020	0.271	Nov 2021	0.000		0.271	0.000	0.401	0.000
		Subtotal	0.286	0.069		1.237		1.079		0.000		1.079	0.000	2.671	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
UIPE FOS - UIPE - DTE S - DT Design	MIPR	Various : Various	1.118	1.429	Nov 2019	0.000		0.000		0.000		0.000	0.000	2.547	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IP4 / *Individual Protection (ACD&P)*

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 GP - DTE C - Surveillance Testing	MIPR	Defense Technical Information Center (DTIC) : Fort Belvoir, VA	0.000	0.000		0.000		0.399	Nov 2021	0.000		0.399	0.000	0.399	0.000
UIPE FOS GLOVES - DTE C - Prototype Testing & Test Support	MIPR	Various : Various	0.000	0.000		0.000		0.226	Nov 2021	0.000		0.226	0.000	0.226	0.000
		Subtotal	1.118	1.429		0.000		0.625		0.000		0.625	0.000	3.172	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
UIPE FOS - PM/MS C - Program Management Support	MIPR	Various : Various	0.001	0.299	Nov 2019	0.000		0.000		0.000		0.000	0.000	0.300	0.000
UIPE FOS GP - PM/MS C - Program Management Support	Various	Various : Various	0.000	0.000		0.298	Dec 2020	0.454	Nov 2021	0.000		0.454	0.000	0.752	0.000
UIPE FOS GLOVES - PM/MS C - Program Management Support	Various	Various : Various	0.000	0.000		0.074	Dec 2020	0.141	Nov 2021	0.000		0.141	0.000	0.215	0.000
		Subtotal	0.001	0.299		0.372		0.595		0.000		0.595	0.000	1.267	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	3.173	1.997		2.483		3.968		0.000		3.968	0.000	11.621	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IP4 / *Individual Protection (ACD&P)*

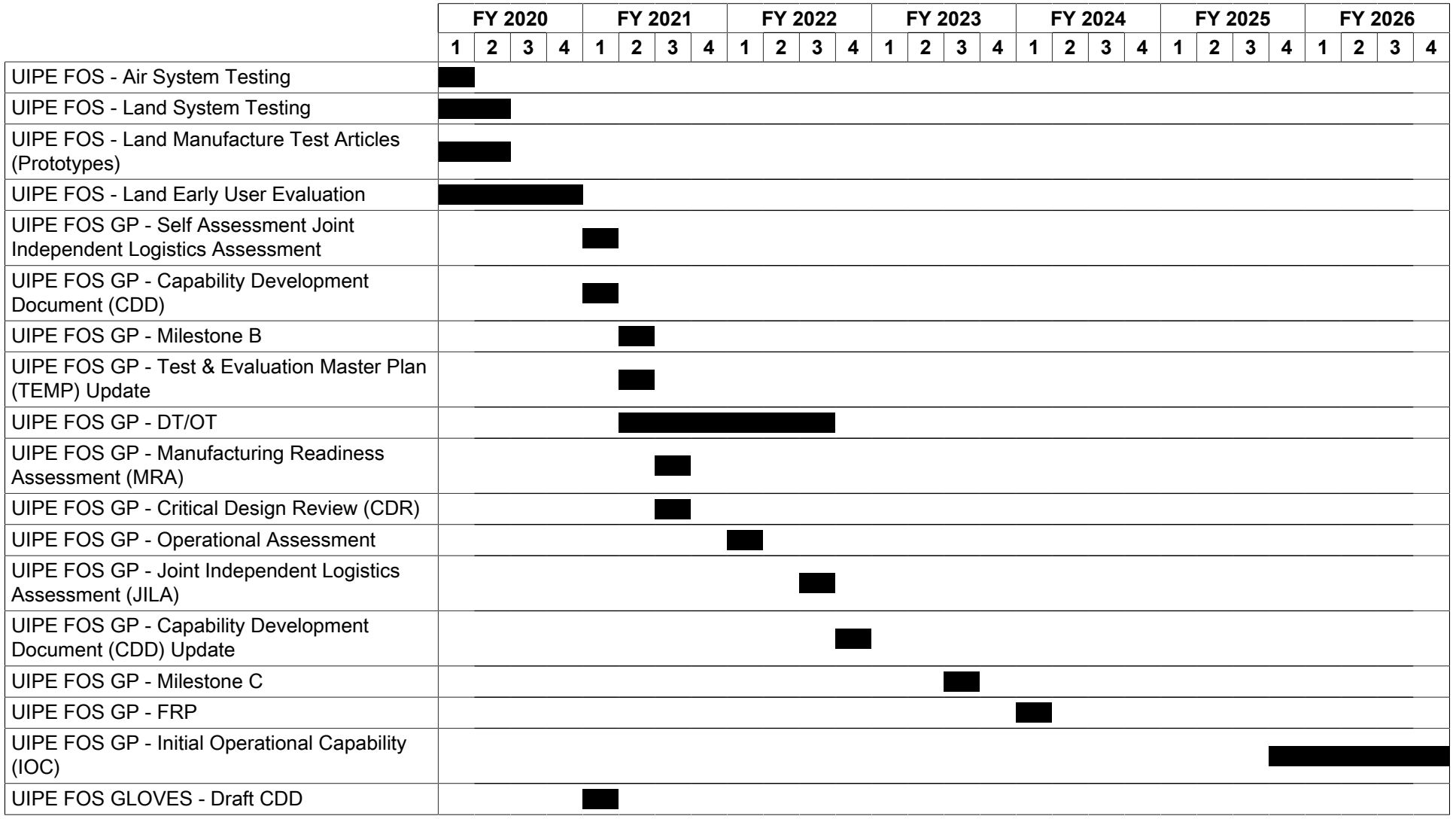

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IP4 / *Individual Protection (ACD&P)*

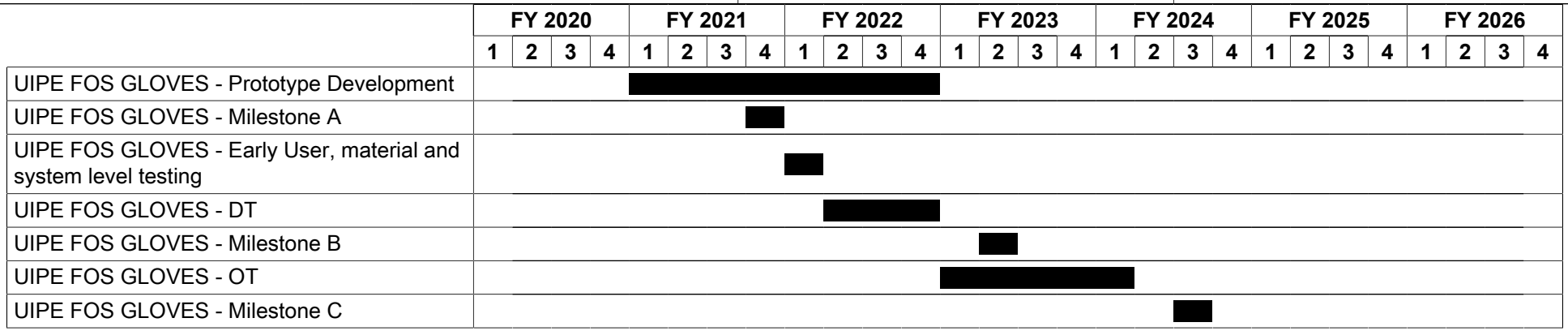

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IP4 / *Individual Protection (ACD&P)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
UIPE FOS - Air System Testing	1	2020	1	2020
UIPE FOS - Land System Testing	1	2020	2	2020
UIPE FOS - Land Manufacture Test Articles (Prototypes)	1	2020	2	2020
UIPE FOS - Land Early User Evaluation	1	2020	4	2020
UIPE FOS GP - Self Assessment Joint Independent Logistics Assessment	1	2021	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 - 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 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

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IP4 / *Individual Protection (ACD&P)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
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-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program			Date: May 2021
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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
IS4: *Information Systems (ACD&P)*	-	0.517	4.661	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 and Biological (CB) 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) Software Support Activity (SSA), and
(4) CBRN Integrated Early Warning (CBRN IEW).

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 due to the FY21 Defense Wide Review. JEM 2 will complete development and transition to 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

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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to ensure that their products meet risk management framework compliance and common interoperability standards such as the Integrated Sensor Architecture (ISA). SSA efforts will transition to the BA7 MOD CBRN IS program (Project IS7) starting in FY22.

CBRN IEW program is a continuation of ECD IEW and will utilize lessons learned to transition and integrate successful mature technologies into a baseline IEW framework to support environmental monitoring and biological surveillance to support immediate force health protection requirements. Applicable technologies within the CBDP will be experimented, integrated, networked, and deployed through rapid acquisition methods and transitioned to programs of record to achieve integrated early warning in accordance with OSD IEW Campaign Plan. CBRN IEW will utilize Table-Top exercises (TTX), Operational Demonstrations, and other venues to provide sensor interoperability and interdependence and integrated layered defense in order to increase readiness within the CBDP. CBRN IEW efforts will move from Project IS4 to Project CA4 in FY22 and will be incorporated into program entitled CBRN Support to Command and Control (CSC2).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: 1) Global-BSP ***Description:*** Program Management	0.021	-	-
Title: 2) Global-BSP ***Description:*** Product Development	0.135	-	-
Title: 3) Global-BSP ***Description:*** Training and Logistics Support	0.048	-	-
Title: 4) Joint Effects Model 2 (JEM 2) ***Description:*** Prototyping and Development	0.205	-	-
Title: 5) JEM 2 ***Description:*** Management Support	0.029	-	-
Title: 6) Software Support Activity (SSA) ***Description:*** Enterprise Service ***FY 2021 Plans:*** Continue to engage with enterprise programs to assist with the development of acquisition products and documentation in the areas of system/network architectures, cybersecurity risk management framework, information assurance, interoperability, and standards and policy compliance for Milestone C activities to reduce risk. ***FY 2021 to FY 2022 Increase/Decrease Statement:***	0.079	0.074	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *Information Systems (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Program/project funding transferred to another funding line. SSA will utilize BA7 beginning in FY22 to support software modernization efforts.			
Title: 7) CBRN Integrated Early Warning (CBRN IEW) ***Description:*** Implementation of common CBRN integrated systems architecture throughout the sensor portfolio enabling a common operating environment and integration hub with sensor data analysis and integrated layered defense. ***FY 2021 Plans:*** Begin integrated systems architecture using current COTS and GOTS sensors and software to test interoperability and increase commanders situational awareness and speed of effects in fielded systems. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project funding transferred to another funding line. Program/project funding transferred to CSC2 (Research, Development Test & Evaluation (RDT&E) Item CA4).	-	4.587	-
Accomplishments/Planned Programs Subtotals	0.517	4.661	-

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
• IS5: *Information Systems (SDD)*	20.723	6.019	0.000	-	0.000	-	-	-	-	-	-
• 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	-	-	-	-	-	-
• 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	-	-	-	-	-	-
• JX0301: *BIOSURVELLENCE PORTAL (BSP)*	3.276	0.000	0.000	-	0.000	-	-	-	-	-	-
• SA0006: *CBRN INFORMATION SYSTEMS (CBRN IS)*	0.276	0.512	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 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *Information Systems (ACD&P)*

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

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.

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 INTEGRATED EARLY WARNING (CBRN IEW)

CBRN IEW focuses on technology maturation, demonstration, integration and transitioning early warning capability sets to fielded CBDP programs of record to combat emerging and potentially urgent threats within the multi-domain operations spectrum. Contracting strategy includes the use of Other Transaction Authority R&D

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
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and prototyping. Annual development cycles and capability drops are requested and validated by all DoD services in the OASD(NCB/CB) IEW Campaign Plan and prioritized based on National Defense Strategy and National Military Strategy goals. Current strategy also collaborates with multi-agency partners to obtain synergy and interoperability across the areas of sensor data analytics, integrated early warning, and protect to warn/protect to treat capabilities.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *Information Systems (ACD&P)*

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 Development	MIPR	Johns Hopkins University - Applied Physics Lab : Laurel, MD	2.663	0.181	Dec 2019	0.000		0.000		0.000		0.000	0.000	2.844	0.000
JEM - JEM 2 - Development and Integration	C/CPAF	General Dynamics Information Technologies : Fairfax, VA	6.911	0.234	Jan 2020	0.000		0.000		0.000		0.000	0.000	7.145	0.000
		Subtotal	9.574	0.415		0.000		0.000		0.000		0.000	0.000	9.989	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
SSA - TD/D C - Engineering Support	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.577	0.079	Nov 2019	0.074	Nov 2020	0.000		0.000		0.000	0.000	0.730	0.000
CBRN IEW - Network Architecture	C/CPFF	TBD : N/A	0.000	0.000		1.500	Mar 2021	0.000		0.000		0.000	0.000	1.500	0.000
CBRN IEW - Systems Integration	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.750	Jan 2021	0.000		0.000		0.000	0.000	0.750	0.000
		Subtotal	0.577	0.079		2.324		0.000		0.000		0.000	0.000	2.980	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *Information Systems (ACD&P)*

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
CBRN IEW - DT - Development Test	MIPR	Various : Various	0.000	0.000		0.800	Jan 2021	0.000		0.000		0.000	0.000	0.800	0.000
		Subtotal	0.000	0.000		0.800		0.000		0.000		0.000	0.000	0.800	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 Support	Various	Various : Various	1.144	0.023	Dec 2019	0.000		0.000		0.000		0.000	0.000	1.167	0.000
CBRN IEW - PM/MS S - Program Management Support	MIPR	Various : Various	0.000	0.000		1.537	Jan 2021	0.000		0.000		0.000	0.000	1.537	0.000
		Subtotal	1.144	0.023		1.537		0.000		0.000		0.000	0.000	2.704	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	11.295	0.517		4.661		0.000		0.000		0.000	0.000	16.473	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *Information Systems (ACD&P)*

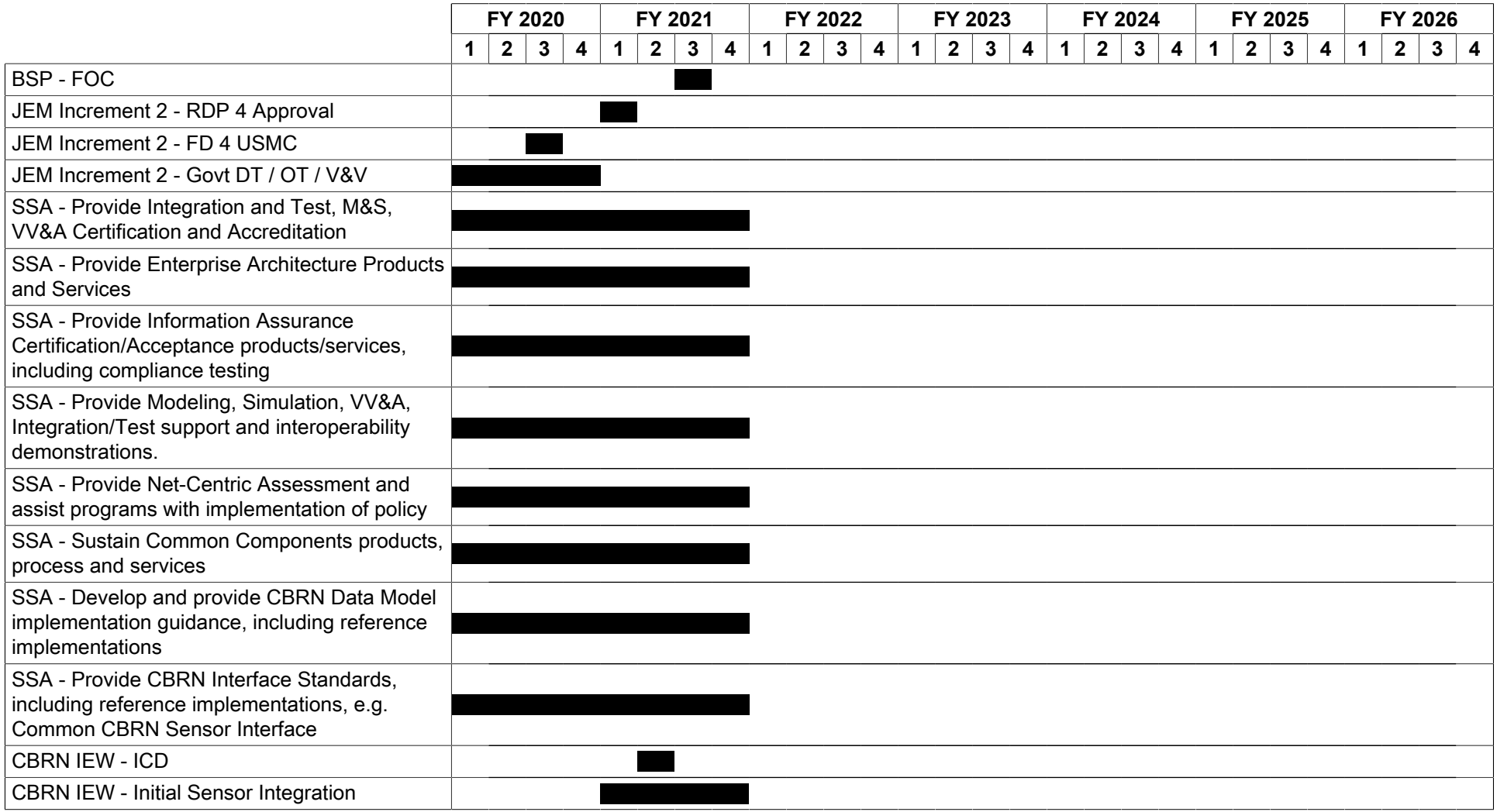

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** IS4 / *Information Systems (ACD&P)*

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
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 IEW - ICD	2	2021	2	2021
CBRN IEW - Initial Sensor Integration	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 / 4					R-1 Program Element (Number/Name) PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*				Project (Number/Name) MB4 / *Medical Biological Defense (ACD&P)*			
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**
MB4: *Medical Biological Defense (ACD&P)*	-	41.997	47.727	47.351	-	47.351	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project includes Medical Countermeasure platform technologies, Medical Countermeasures (vaccines and therapeutics), development of reagents, assays, diagnostic equipment, biosurveillance and supporting efforts.

Efforts included in this project are:
(1) COVID Therapies Monoclonal Antibodies (COVID TX MAB)
(2) COVID Vaccine Validated Nucleic Acid Vaccine Construction (COVID VAC)
(3) Biosafety Level 4 Good Laboratory Practice Test and Evaluation (BSL4 GLP T&E)
(4) Chem Bio Incident Preparedness and Response - Biosafety Level 4 Research Institute of Infectious Diseases (CBIPR - BSL4 RIID)
(5) Chem Bio Incident Preparedness and Response - Advanced Development and Manufacturing (CBIPR - ADM)
(6) Medical Countermeasure Platform Technologies (MCMPT)
(7) Next Generation Diagnostic System 2 (NGDS Increment 2)
(8) NGDS 2 Chemical Diagnostics (NGDS 2 CHEMDX)
(9) Filovirus Vaccine (VAC FILO)
(10) Venezuelan Equine Encephalitis (VAC VEE)

The COVID TX MAB program will leverage lessons learned from the COVID response to rapidly discover, manufacture and clinically evaluate new monoclonal antibodies to deliver short term capabilities against long standing biological threats. Monoclonal antibodies are a proven technology and first line of defense for many biological threats. In FY22, COVID TX MAB will target the discovery, identification and small scale manufacture of mAbs, with sufficient material to support non-clinical and clinical testing.

The COVID VAC Validated Nucleic Acid Vaccine Construction program will leverage lessons learned from the COVID response to shorten future emergency response timelines and create interim capabilities for prophylaxis. In FY22, COVID VAC will work with interagency, industry, and academia to design and construct vaccine prototypes on validated nucleic acid vaccine platforms then evaluate them in appropriate animal models through Phase 1 clinical trials for safety as needed.

The BSL4 GLP T&E program performs T&E and provides the essential data packages to support US Food and Drug Administration (FDA) approval of leading biodefense medical countermeasure candidates to protect the Warfighter and the Nation. This capability provides dedicated capacity at U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) for Department of Defense (DoD) to conduct biosafety level "4" studies that produce Good Laboratory Practices (GLP) study reports required by the FDA.

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *Medical Biological Defense (ACD&P)*

The CBIPR - BSL4 RIID program continues to utilize and maintain a testing capability at the existing and planned new USAMRIID facilities supporting testing of Medical Countermeasures (MCM) against threats that require high-level containment using non-human primates.

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 return on investment is an increased level of preparedness and responsiveness to counter current and emerging chemical and biological threats. By establishing and enhancing proven enabling technologies, the DoD ADM will accelerate development of medical countermeasures (MCMs) at all stages of development, enhance preparedness for existing threats, and accelerate response to emerging threats. MCMs impacted by these efforts include: Vaccines for Viral Agents, Vaccines for Bacterial Agents and Toxins, Monoclonal antibodies, antibody fragments, and antibody conjugates for therapeutic and prophylactic use across all agent classes, and Adjuvants. Funds to support the state of readiness were previously provided through individual product development and manufacturing funding lines. The Department is providing dedicated funds to support operational availability. In FY22, CBIPR-ADM continues tech transfer and enhancement of manufacturing technologies to support MCM development against biological threats.

The MCMPT program intends to streamline and accelerate medical countermeasure delivery to the Warfighter by reducing developmental risk using the CBDP's strategic framework, the Agile Medical Paradigm. MCMPT is establishing enabling technologies and prepositioning 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. 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. In FY22 the MCMPT program continues development of a rapid response capability.

The NGDS 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 Increment 1 improves diagnostic capabilities in deployable and laboratory-based combat health support units. NGDS Increment 2 will complement NGDS Increment 1 by developing diagnostics for unmet biological pathogen and toxin threats, chemical and radiological exposures, and provide capability to lower echelons of care. NGDS Increment 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 Man Portable Diagnostic System (MPDS) Program and NGDS 2 CHEMDX Program. NGDS 2 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 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.

The VAC FILO Program develops vaccines that will offer protection against the threat of Ebola and Marburg viruses. The program office is prioritizing the development and delivery of a licensed Marburg vaccine while working with Science & Technology (S&T) to further develop Ebola vaccine candidates to meet the DoD requirement. The current budget supports responsible closeout of program development efforts. The DoD anticipates that the FDA will approve a vaccine using the Animal Rule,

which allows for the demonstration of efficacy in a relevant animal model(s). Program continuing to conduct market research to identify viable candidates for transition in the out years.

The VAC VEE Program develops a vaccine that will protect the Warfighter against aerosolized exposure to the alphavirus Venezuelan equine encephalitis. Additionally, the Program Office will partner with Health and Human Services/National Institute of Allergies and Infectious Diseases (HHS/NIAID), DoD agencies, and laboratories. This DoD program is the Public Health Emergency Medical Countermeasures lead for the advanced development of this vaccine and is leveraging expertise across the Federal and International sectors to ensure programmatic success. FY20 budget supports responsible closeout of program.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: 1) COVID TX MAB ***Description:*** Rapid Monoclonal Antibody Development ***FY 2022 Plans:*** Target the discovery, identification and small scale manufacture of mAbs, with sufficient material to support non-clinical and clinical testing. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to accelerated development effort. Supports COVID-19/pandemic response efforts.	-	-	10.000
Title: 2) COVID VAC ***Description:*** Validated Nucleic Acid Vaccine Construction Development ***FY 2022 Plans:*** Leverage lessons learned from the COVID response to design and construct vaccine prototypes on validated nucleic acid vaccine platforms then evaluate them in appropriate animal models through Phase 1 clinical trials for safety as needed. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Increase due to accelerated development effort. Supports COVID-19/pandemic response efforts.	-	-	10.000
Title: 3) BSL-4 GLP Test & Evaluation ***Description:*** Clinical Studies ***FY 2021 Plans:*** Complete of one GLP BSL-4 T&E medical countermeasure non-human primate study in a safe and secure environment. Complete work to help implement laboratory draw-down and transition to new facility. Complete strategic planning, program management, and scheduling for GLP BSL-4 T&E capability. ***FY 2021 to FY 2022 Increase/Decrease Statement:***	3.114	3.826	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *Medical Biological Defense (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Decrease due to change in program/project schedule. The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being restructured.			
Title: 4) CBIPR-BSL4 RIID ***Description:*** Performs T&E and provides the essential data packages to support US Food and Drug Administration approval of leading biodefense medical countermeasure candidates to protect the Warfighter and the Nation ***FY 2021 Plans:*** Conduct two GLP BSL-4 T&E medical countermeasure non-human primate studies in a safe and secure environment, implement laboratory draw-down and transition to new facility, continue to provide strategic planning, program management, and scheduling for GLP BSL-4 T&E capability. Provides support for operational availability. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease due to change in program/project schedule.	-	2.498	-
Title: 5) CBIPR - ADM ***Description:*** Establish proven enabling manufacturing technologies at the DoD ADM Capability Building. ***FY 2021 Plans:*** Continue tech transfer and enhancement of manufacturing technologies to support MCM development against biological threats. Manufacturing technologies can come from any government sources (including JSTO, WRAIR, BARDA, etc. when mature enough for BA4 funding) and other external sources and targets of opportunity from industry. ***FY 2022 Plans:*** Continue tech transfer and enhancement of manufacturing technologies to support MCM development against biological threats. Manufacturing technologies can come from any government sources (including JSTO, WRAIR, BARDA, etc. when mature enough for BA4 funding) and other external sources and targets of opportunity from industry. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	8.000	8.126	8.290
Title: 6) Medical Countermeasure Platform Technologies (MCMPT) ***Description:*** Rapid Response ***FY 2021 Plans:***	7.104	13.104	8.875

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *Medical Biological Defense (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Continue development of a rapid response capability. ***FY 2022 Plans:*** Complete development of Biologics On Demand (BOD) rapid response capability and continue polyclonals rapid response capability. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease due to change in program/project technical parameters.			
Title: 7) MCMPT ***Description:*** ADAMANT ***FY 2021 Plans:*** Continue optimization and development of ADAMANT Plague mAbs to support delivery of a product MCM. ***FY 2022 Plans:*** Continue development of ADAMANT Plague mAbs to support delivery of a product MCM. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Decrease due to change in program/project technical parameters.	11.572	17.621	10.186
Title: 8) Next Generation Diagnostic System 2 (NGDS 2) ***Description:*** Chemical Diagnostic System	0.606	-	-
Title: 9) NGDS 2 Chemical Diagnostics (NGDS 2 CHEMDX) ***Description:*** Chemical Diagnostic System ***FY 2021 Plans:*** Complete Technology Maturation and Risk Reduction (TMRR) phase for Chemical agent diagnostics. TMRR will conclude with a Systems Engineering Trade-off Analysis, a Technology Readiness Assessment and a Preliminary Design Review to inform major design parameters culminating in a Beta 2 Prototype technology risk reduction effort. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project transitioned to Engineering and Manufacturing Development Phase.	-	2.552	-
Title: 10) Filovirus Vaccine (VAC FILO) ***Description:*** Assays and nonclinical	6.303	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *Medical Biological Defense (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: 11) VAC FILO ***Description:*** Manufacturing	2.578	-	-
Title: 12) Venezuelan Equine Encephalitis (VAC VEE) ***Description:*** Non Clinical and Clinical	2.720	-	-
Accomplishments/Planned Programs Subtotals	41.997	47.727	47.351

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
• MB5: *Medical Biological Defense (SDD)*	170.345	117.956	137.348	-	137.348	-	-	-	-	-	-
• MB7: *Medical Biological Defense (Op Sys Dev)*	2.663	2.308	3.833	-	3.833	-	-	-	-	-	-
• JM6677: *ADVANCED ANTICONVULSANT SYSTEM (AAS)*	0.000	0.000	4.243	-	4.243	-	-	-	-	-	-
• 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	-	-	-	-	-	-
• SA0043: *NEXT GEN DIAG 2 CHEMICAL DIAGNOSTICS (NGDS 2 CHEM DX)*	0.000	0.000	0.000	-	0.000	-	-	-	-	-	-
• SA0044: *NEXT GEN DIAG 2 MAN PORTABLE DIAGNOSTIC SYSTEM (NGDS 2 MPDS)*	0.000	0.455	4.624	-	4.624	-	-	-	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *Medical Biological Defense (ACD&P)*

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

COVID THERAPIES MONOCLONAL ANTIBODIES (COVID TX MAB)

COVID TX MAB will leverage industry capabilities, in the interest of speed, in order to establish capabilities that can be tech transferred to the DoD ADM for longer term use and scale up as necessary.

COVID VACCINE (COVID VAC)

The COVID VAC Validated Nucleic Acid Vaccine Construction program will leverage lessons learned from the COVID response to shorten future emergency response timelines and creating interim capabilities for prophylaxis. COVID VAC will work with the interagency, industry, and academia to design and construct vaccine prototypes on validated nucleic acid vaccine platforms then evaluate them in appropriate animal models through Phase 1 clinical trials for safety as needed in FY22.

BSL4 GOOD LABORATORY PRACTICES TEST & EVALUATION (BSL4 GLP T&E)

The Medical Countermeasure Systems (MCM) Biosafety Level (BSL) 4 Test and Evaluation (T&E) capability continues to utilize and maintain a testing capability at the existing and planned new USAMRIID facilities. MCM BSL-4 T&E costs support testing of Medical Countermeasures (MCMs) against threats that require high-level containment using non-clinical studies. The period of FY18 and beyond will continue to support the BSL-4 T&E capability with funding that supports the testing , training and continuous qualification of the lab equipment and resources to ensure Good Laboratory Practices (GLP) Food and Drug Administration (FDA) standards are maintained as RIID is the only BSL 4 lab with GLP capability to support the Department of Defense (DoD). In FY21 and beyond, the Defense-Wide Review (DWR) reduced this program for higher priorities.

CHEM BIO INCIDENT PREPAREDNESS AND RESPONSE - BIOSAFETY LEVEL 4 RESEARCH INSTITUTE OF INFECTIOUS DISEASES (CBIPR-BSL4 RIID)

The Medical Countermeasure Systems (MCM) Biosafety Level (BSL) 4 Test and Evaluation (T&E) capability continues to utilize and maintain a testing capability at the existing and planned new USAMRIID facilities. MCM BSL-4 T&E costs support testing of Medical Countermeasures (MCMs) against threats that require high-level containment using non-clinical studies. The BSL-4 capability supports the testing , training and continuous qualification of the lab equipment and resources to ensure Good Laboratory Practices (GLP) Food and Drug Administration (FDA) standards are maintained as RIID is the only BSL 4 lab with GLP capability to support the Department of Defense (DoD).

CHEM BIO INCIDENT PREPAREDNESS AND RESPONSE - ADM

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *Medical Biological Defense (ACD&P)*

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.

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)

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *Medical Biological Defense (ACD&P)*

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.

FILOVIRUS (VAC FILO)

The Filovirus Vaccine Program acquisition strategy develops products for pre-exposure prophylaxis that will offer protection against the threat of Ebola and Marburg viruses, with the initial increment focused on Marburg. The current budget supports responsible close out of program development efforts for prototype transition from our Science and Technology (S&T) partners. Work to develop and qualify necessary assays is on-going to support successful transitions of potential Marburg and Ebola candidates from S&T. Assays will be used to compare transitioned products in order to have a meaningful down select at Milestone B. Program is continuing to conduct market research to identify viable candidates for transition in the out years.

VENEZUELAN EQUINE ENCEPHALITIS VACCINE (VAC VEE)

The VAC VEE acquisition strategy uses a parallel evaluation of Modified Vaccinia Ankara (MVA) and Virus Like Particle (VLP) vaccine prototypes through Phase I clinical trials to achieve competitive prototyping in the Technology Maturation & Risk Reduction phase and one of these candidates will be selected to fill the gap with the Services until a future S&T candidate is ready for transition into advanced development with a successful Phase 1 clinical trial. Several potential decision points will be used to assess the prototypes at competitive selection at MS B. The schedule is based on a competitive selection to one prototype at MS B with delivery of a FDA-licensed VEE vaccine. The current S&T efforts do not have a potential candidate with a completed Phase I clinical trial until FY24. The MDA and an ADM are signed to closeout currently funded work at completion of current activities. The current candidates are based on development of known mature vaccine platforms with potential to utilize the DoD Advanced Development Manufacturing facility for production. The development efforts will be a Cost Plus and Firm Fixed Price CLINs.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *Medical Biological Defense (ACD&P)*

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 TX MAB - Development	Various	Various : Various	0.000	0.000		0.000		8.275	Dec 2021	0.000		8.275	0.000	8.275	0.000
COVID VAC - Vaccine - Development	Various	Various : Various	0.000	0.000		0.000		8.275	Dec 2021	0.000		8.275	0.000	8.275	0.000
CBIPR-ADM - Enabling Manufacturing Technologies	C/CPFF	Ology : Alachua, FL	0.000	6.706	Dec 2019	7.380	Dec 2020	8.290	Dec 2021	0.000		8.290	0.000	22.376	0.000
MCMPT - HW S - ADAMANT MCM Development	C/CPFF	Ology : Alachua, FL	12.847	9.659	Dec 2019	12.590	Dec 2020	8.281	Dec 2021	0.000		8.281	0.000	43.377	0.000
MCMPT - HW S - Rapid Response	C/CPFF	Ology : Alachua, FL	6.386	5.163	Dec 2019	9.330	Dec 2020	6.159	Dec 2021	0.000		6.159	0.000	27.038	0.000
NGDS - HW C - NGDS 2 Develop and mature prototypes for Chemical Agent Diagnostics	C/CPFF	MRIGlobal : Palm Bay, FL	3.244	0.451	Dec 2019	0.000		0.000		0.000		0.000	0.000	3.695	0.000
NGDS - HW C - NGDS 2 Develop and mature Assays for Chemical Agent Diagnostics	MIPR	US Army Medical Research Institute of Chemical Defense : Fort Detrick, MD	0.128	0.040	May 2020	0.000		0.000		0.000		0.000	0.000	0.168	0.000
NGDS 2 CHEMDX - HW C - Develop and mature Assays for Chemical Agent Diagnostics	MIPR	US Army Medical Research Institute of Chemical Defense : Fort Detrick, MD	0.000	0.000		0.032	Dec 2020	0.000		0.000		0.000	0.000	0.032	0.000
NGDS 2 CHEMDX - HW C - Develop and mature prototypes for Chemical Agent Diagnostics	C/CPFF	MRIGlobal : Palm Bay, FL	0.000	0.000		0.548	Nov 2020	0.000		0.000		0.000	0.000	0.548	0.000
VAC VEE - Prototypes Phase 1 Clinical Trials	C/CPIF	Various : Various	6.446	2.720	Oct 2019	0.000		0.000		0.000		0.000	0.000	9.166	0.000
		Subtotal	29.051	24.739		29.880		39.280		0.000		39.280	0.000	122.950	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program			Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *Medical Biological Defense (ACD&P)*	

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
NGDS 2 CHEMDX - ES C - Studies and WIPT Support	C/CPFF	Johns Hopkins University - Applied Physics Lab : Laurel, MD	0.000	0.000		0.150	Dec 2020	0.000		0.000		0.000	0.000	0.150	0.000
VAC FILO - ES S - Regulatory Integration (Environmental and FDA Documentation) and Delivery System	Various	US Army Medical Materiel Development Activity (USAMMDA) : Fort Detrick, MD	3.428	0.576	Dec 2019	0.000		0.000		0.000		0.000	0.000	4.004	0.000
		Subtotal	3.428	0.576		0.150		0.000		0.000		0.000	0.000	4.154	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
BSL4 GLP T&E - DTE SB - T&E Facility	MIPR	US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD	34.630	0.062	Dec 2019	2.777	Dec 2020	0.000		0.000		0.000	0.000	37.469	0.000
BSL4 GLP T&E - DTE C - Non Clinical Studies	MIPR	US Army Medical Research Material Command (USAMRMC) : Fort Detrick, MD	0.000	2.111	Dec 2019	0.000		0.000		0.000		0.000	0.000	2.111	0.000
CBIPR-BSL4 RIID - DTE C - DTE SB - T&E Facility	MIPR	US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD	0.000	0.000		2.498	Dec 2020	0.000		0.000		0.000	0.000	2.498	0.000
		Subtotal	34.630	2.173		5.275		0.000		0.000		0.000	0.000	42.078	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *Medical Biological Defense (ACD&P)*

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
COVID TX MAB - PM/MS C - Program Management	Various	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	0.000	0.000		0.000		0.725	Dec 2021	0.000		0.725	0.000	0.725	0.000
COVID TX MAB - PM/MS C - Program Management #2	Various	JPL Enabling Biotechnologies : Fort Detrick, MD	0.000	0.000		0.000		0.500	Dec 2021	0.000		0.500	0.000	0.500	0.000
COVID TX MAB - PM/MS C - Management Support (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
COVID VAC - PM/MS C - Program Management	Various	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	0.000	0.000		0.000		0.725	Dec 2021	0.000		0.725	0.000	0.725	0.000
COVID VAC - PM/MS C - Management Support	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	0.000	0.000		0.000		0.500	Dec 2021	0.000		0.500	0.000	0.500	0.000
COVID VAC - PM/MS C - PM/MS S - Program Management (SETA)	C/CPFF	Various : Various	0.000	0.000		0.000		0.500	Dec 2021	0.000		0.500	0.000	0.500	0.000
BSL4 GLP T&E - Program Management (SETA)	C/FFP	Various : Various	1.107	0.416	Dec 2019	0.000		0.000		0.000		0.000	0.000	1.523	0.000
BSL4 GLP T&E - Program Management Support	Various	JPM CBRN Medical : Ft. Detrick, MD	0.019	0.123	Dec 2019	0.544	Dec 2020	0.000		0.000		0.000	0.000	0.686	0.000
BSL4 GLP T&E - Program Management	Various	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	0.558	0.402	Dec 2019	0.505	Dec 2020	0.000		0.000		0.000	0.505	1.970	0.000
CBIPR-ADM - PM/MS C - Program Management Support	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	0.000	0.734	Dec 2019	0.746	Dec 2020	0.000		0.000		0.000	0.000	1.480	0.000
CBIPR-ADM - PM/MS C - Program Management Support #2	Various	JPEO Chem/Bio Defense (JPEO-	0.000	0.560	Dec 2019	0.000		0.000		0.000		0.000	0.000	0.560	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program			Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *Medical Biological Defense (ACD&P)*	

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													
MCMPT - Program Management (SETA)	C/FFP	Various : Various	0.000	0.480	Dec 2019	0.000		0.508	Dec 2021	0.000		0.508	0.000	0.988	0.000
MCMPT - PM/MS C - JPL EB Support	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	1.454	1.515	Dec 2019	3.162	Dec 2020	1.779	Dec 2021	0.000		1.779	0.000	7.910	0.000
MCMPT - PM/MS C Program Management	Various	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	2.602	1.202	Dec 2019	3.490	Dec 2020	1.620	Dec 2021	0.000		1.620	0.000	8.914	0.000
MCMPT - PM/MS S - Management	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	2.312	0.657	Dec 2019	2.153	Dec 2020	0.714	Dec 2021	0.000		0.714	0.000	5.836	0.000
NGDS - PM/MS SB - Program Management (JPM) Support	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	5.406	0.060	Dec 2019	0.000		0.000		0.000		0.000	0.000	5.466	0.000
NGDS - PM/MS S - Program Management (JPEO) Support	Various	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	1.567	0.045	Dec 2019	0.000		0.000		0.000		0.000	0.000	1.612	0.000
NGDS - PM/MS S - Program Management (Dx) Support	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	4.263	0.010	Dec 2019	0.000		0.000		0.000		0.000	0.000	4.273	0.000
NGDS 2 CHEMDX - PM/MS S - Program Management Support	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	0.000	0.000		0.290	Dec 2020	0.000		0.000		0.000	0.000	0.290	0.000
NGDS 2 CHEMDX - PM/MS S - Program Management	Various	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	0.000	0.000		0.281	Dec 2020	0.000		0.000		0.000	0.000	0.281	0.000
NGDS 2 CHEMDX - PM/MS S - Program Management (ChemDx)	Various	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	0.000	0.000		0.486	Dec 2020	0.000		0.000		0.000	0.000	0.486	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *Medical Biological Defense (ACD&P)*

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 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		0.112	Dec 2020	0.000		0.000		0.000	0.000	0.112	0.000
NGDS 2 CHEMDX - PM/MS S - Program Management (SETA)	C/FFP	Various : Various	0.000	0.000		0.653	Dec 2020	0.000		0.000		0.000	0.000	0.653	0.000
VAC FILO - Program Management (JPdM MCS)	Various	JPM CBRN Medical : Ft. Detrick, MD	7.624	2.683	Dec 2019	0.000		0.000		0.000		0.000	0.000	10.307	0.000
VAC FILO - Program Management (JPEO) Support	Various	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	11.491	5.622	Dec 2019	0.000		0.000		0.000		0.000	0.000	17.113	0.000
		Subtotal	38.403	14.509		12.422		8.071		0.000		8.071	0.505	73.910	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	105.512	41.997		47.727		47.351		0.000		47.351	0.505	243.092	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *Medical Biological Defense (ACD&P)*

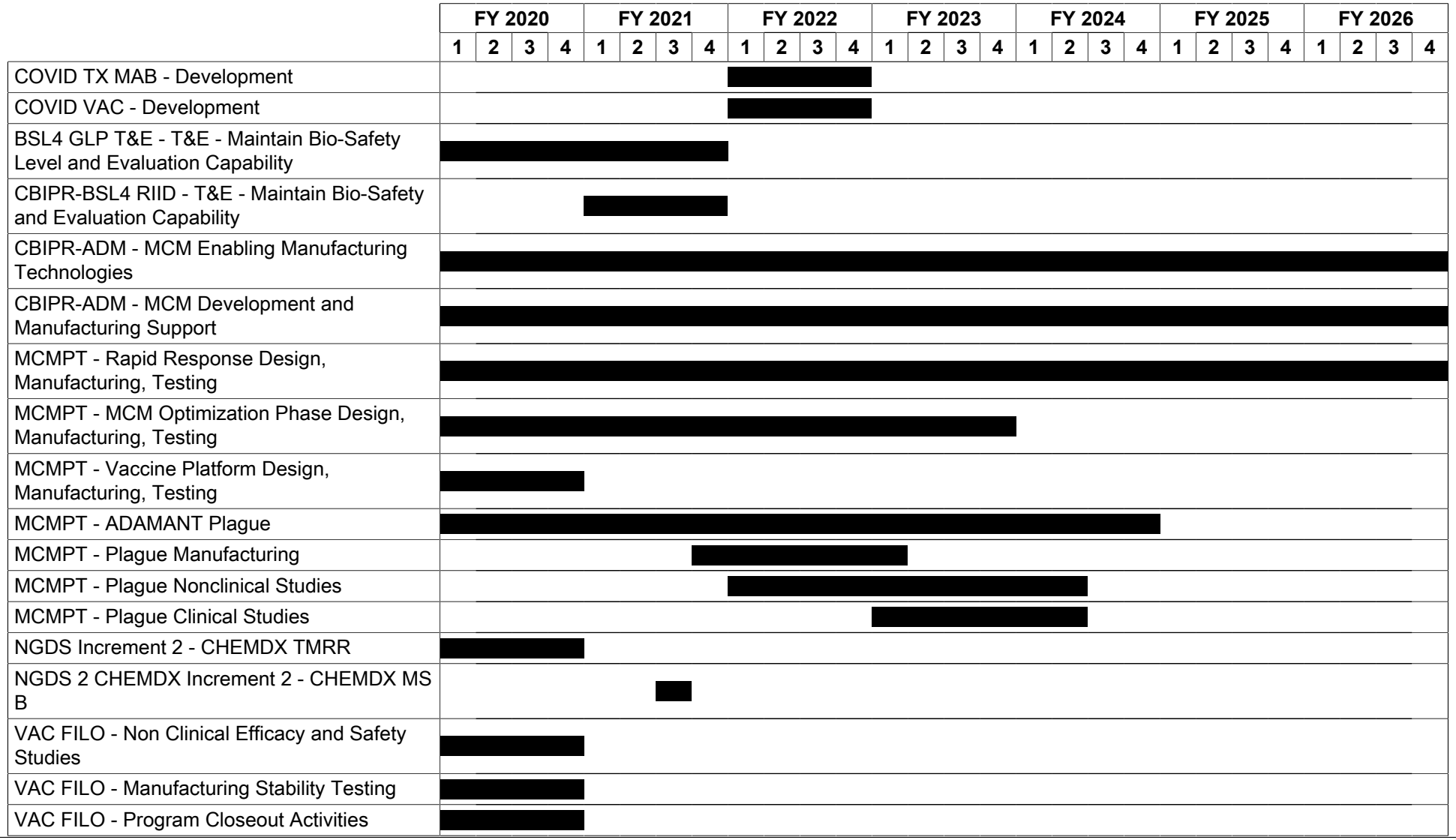

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *Medical Biological Defense (ACD&P)*

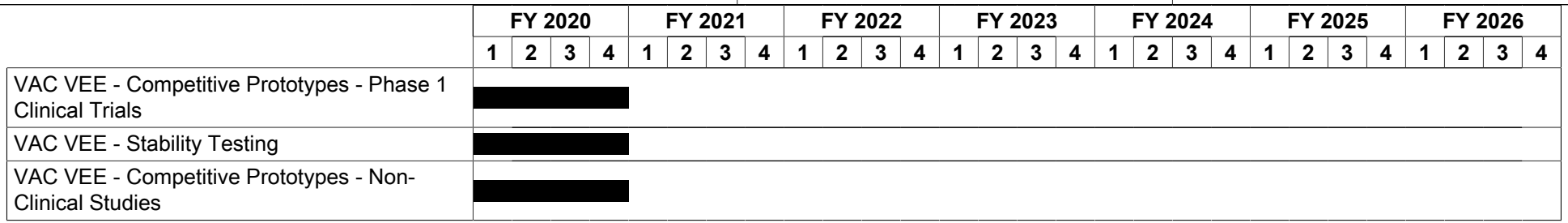

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** MB4 / *Medical Biological Defense (ACD&P)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
COVID TX MAB - Development	1	2022	4	2022
COVID VAC - Development	1	2022	4	2022
BSL4 GLP T&E - T&E - Maintain Bio-Safety Level and Evaluation Capability	1	2020	4	2021
CBIPR-BSL4 RIID - T&E - Maintain Bio-Safety and Evaluation Capability	1	2021	4	2021
CBIPR-ADM - MCM Enabling Manufacturing Technologies	1	2020	4	2026
CBIPR-ADM - MCM Development and Manufacturing Support	1	2020	4	2026
MCMPT - Rapid Response Design, Manufacturing, Testing	1	2020	4	2026
MCMPT - MCM Optimization Phase Design, Manufacturing, Testing	1	2020	4	2023
MCMPT - Vaccine Platform Design, Manufacturing, Testing	1	2020	4	2020
MCMPT - ADAMANT Plague	1	2020	4	2024
MCMPT - Plague Manufacturing	4	2021	1	2023
MCMPT - Plague Nonclinical Studies	1	2022	2	2024
MCMPT - Plague Clinical Studies	1	2023	2	2024
NGDS Increment 2 - CHEMDX TMRR	1	2020	4	2020
NGDS 2 CHEMDX Increment 2 - CHEMDX MS B	3	2021	3	2021
VAC FILO - Non Clinical Efficacy and Safety Studies	1	2020	4	2020
VAC FILO - Manufacturing Stability Testing	1	2020	4	2020
VAC FILO - Program Closeout Activities	1	2020	4	2020
VAC VEE - Competitive Prototypes - Phase 1 Clinical Trials	1	2020	4	2020
VAC VEE - Stability Testing	1	2020	4	2020
VAC VEE - Competitive Prototypes - Non-Clinical Studies	1	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program			Date: May 2021
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	Project (Number/Name) TE4 / *Test & Evaluation (ACD&P)*	

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
TE4: *Test & Evaluation (ACD&P)*	-	5.054	4.107	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 Chemical Biological Defense Program (CBDP). CBMAI provides test fixtures and methodology to support advanced 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	4.248	3.306	-
Description: CBMAI conducts requirements analysis to ensure the availability of needed test infrastructure to meet POR testing and milestone schedules. Conduct studies of the capabilities and limitations of existing infrastructure and methodologies to align with POR test requirements. Initiate requirements generation and early development of new test infrastructure to support POR test requirements. ***FY 2021 Plans:*** Continue to study and prioritize future program requirements and test infrastructure needs. Initiate the development of a chemical standoff detection test fixture, and multiple test fixtures providing accurate protective ensemble performance data. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project is entering completion and all activities will be closed. Funding for CBMAI ends in FY21, any additional developmental costs will be directly tied to programs of record.			
Title: 2) CBMAI	0.806	0.801	-
Description: Government Integrated Product Team program management and IPT Support to all JPEO 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 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TE4 / *Test & Evaluation (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Program/project is entering completion and all activities will be closed. Funding for CBMAI ends in FY21, any additional developmental costs will be directly tied to programs of record.			
Accomplishments/Planned Programs Subtotals	5.054	4.107	-

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
• TE5: *Test & Evaluation (SDD)*	7.523	6.352	0.000	-	0.000	-	-	-	-	-	-
• 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 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TE4 / *Test & Evaluation (ACD&P)*

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 - Seams & Closure Fixture Development	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.150	Mar 2021	0.000		0.000		0.000	0.000	0.150	0.000
CBMAI - HW C - Low Volume Surface Deposition	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.373	Mar 2021	0.000		0.000		0.000	0.000	0.373	0.000
CBMAI - HW C - OADMS	C/CPFF	MRIGlobal : Kansas City, MO	0.000	0.000		0.537	Dec 2020	0.000		0.000		0.000	0.000	0.537	0.000
CBMAI - HW C - Joint Ambient Breeze Tunnel Active Standoff Chamber Updgrades	C/CPFF	MRIGlobal : Kansas City, MO	0.000	0.000		0.831	Mar 2021	0.000		0.000		0.000	0.000	0.831	0.000
CBMAI - HW C - WSLAT	MIPR	West Desert Test Center : Dugway, UT	0.000	0.000		0.650	Apr 2021	0.000		0.000		0.000	0.000	0.650	0.000
CBMAI - HW S - TI Analysis and Requirements	C/CPFF	Various : Various	0.932	3.360	Dec 2019	0.000		0.000		0.000		0.000	0.000	4.292	0.000
CBMAI - HW S - Government/Contractor SE & Technical Management Team	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	1.508	0.888	Nov 2019	0.765	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 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TE4 / *Test & Evaluation (ACD&P)*

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
Subtotal			2.440	4.248		3.306		0.000		0.000		0.000	0.000	9.994	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
CBMAI - PM/MS C - IPT Support/Program Management	MIPR	JPM CBRN Sensors : JPEO-CBRND, Aberdeen Proving Ground, MD	0.698	0.806	Dec 2019	0.801	Dec 2020	0.000		0.000		0.000	0.000	2.305	0.000
Subtotal			0.698	0.806		0.801		0.000		0.000		0.000	0.000	2.305	N/A

	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
Project Cost Totals	3.138	5.054		4.107		0.000		0.000		0.000	0.000	12.299	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TE4 / *Test & Evaluation (ACD&P)*

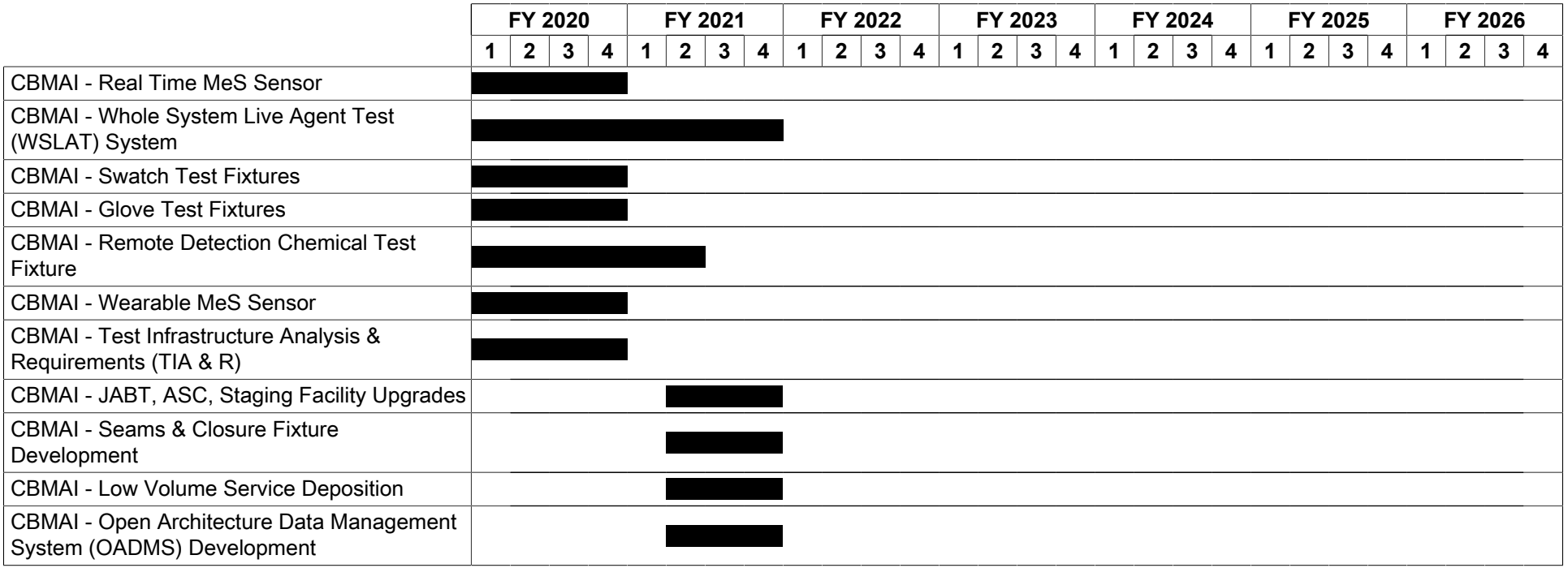

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TE4 / *Test & Evaluation (ACD&P)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
CBMAI - Real Time MeS Sensor	1	2020	4	2020
CBMAI - Whole System Live Agent Test (WSLAT) System	1	2020	4	2021
CBMAI - Swatch Test Fixtures	1	2020	4	2020
CBMAI - Glove Test Fixtures	1	2020	4	2020
CBMAI - Remote Detection Chemical Test Fixture	1	2020	2	2021
CBMAI - Wearable MeS Sensor	1	2020	4	2020
CBMAI - Test Infrastructure Analysis & Requirements (TIA & R)	1	2020	4	2020
CBMAI - JABT, ASC, Staging Facility Upgrades	2	2021	4	2021
CBMAI - Seams & Closure Fixture Development	2	2021	4	2021
CBMAI - Low Volume Service Deposition	2	2021	4	2021
CBMAI - Open Architecture Data Management System (OADMS) Development	2	2021	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program			Date: May 2021
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	Project (Number/Name) TM4 / *Techbase Medical Defense (ACD&P)*	

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
TM4: *Techbase Medical Defense (ACD&P)*	-	29.200	0.000	25.952	-	25.952	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project TM4 supports early-phase clinical development of vaccines and therapeutic drugs to provide safe and effective medical defense against validated biological threat agents and emerging infectious disease biothreats including bacteria, toxins, and viruses. This effort reduces programmatic risk of failure in the advanced development phase by generating clinical and supporting non-clinical safety, tolerability and toxicity data for candidate vaccines and therapeutic drugs prior to transition to System Development & Demonstration.

Individual efforts in this project include:
- Supports the advanced development of medical countermeasures to include prophylaxes, pretreatments, antidotes and therapeutic drugs against identified and emerging biological warfare threat agents.
- Demonstration of human safety and tolerability prior to entry of candidate vaccines and therapeutics into advanced development, supporting the preparation of technical data packages that conform to the Food and Drug Administration (FDA) Investigational New Drug (IND) processes, DoD acquisition regulations, and the oversight of early phase clinical trials in accordance with FDA guidelines.
- In addition, this project supports innovative biotechnology approaches to advance medical systems designed to rapidly identify, diagnose, prevent, and treat emerging biological threats whether naturally occurring or engineered.
- Focuses on therapeutic and prophylactic strategies to effectively minimize injuries resulting from exposure to Chemical Weapons Agents. This effort involves the evaluation FDA approved therapeutics for operational use, as well as generation of novel drug products and formulations to enhance level of protection and/or operational utility for the Warfighter. Efforts in this area are designed to develop drug candidates that will ultimately be submitted for FDA licensure or to identify previously licensed products for new uses in the treatment and pretreatment against chemical warfare injury.

FY20-22 reorganizes, renames previous Bullet titles and introduces new Bullets (Thrust Area). These new "Thrust" titles are in line with the CBDP Core Capability Areas and intended to provide more detail and traceability from the S&T program to advanced development.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: 1) CARES Act: DOMANE (Discovery of MCM against Novel Entities)	29.200	-	-
Description: DOMANE effort seeks to accelerate MCM development against novel threats and emerging diseases of pandemic potential. The planned studies will assess the DOMANE capability in a real-world scenario through execution of proof-of-concept COVID-19 inpatient and outpatient clinical trials. The studies are designed to assess the effectiveness of the DOMANE strategy and identify gaps for future developmental efforts.			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TM4 / *Techbase Medical Defense (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: 2) DOMANE/LIMIT (Layered Integrated Medical Countermeasure Intervention Technologies) (TBMD TMTI) ***Description:*** Develop both prophylactic and therapeutic medical countermeasures against viral, bacterial, and biological toxin threats using a layered approach looking at combinations of effective therapies. ***FY 2022 Plans:*** - Initiate plans to evaluate new countermeasures for novel and emerging threats in animal and organoid models. - Initiate plans to conduct clinical trials to evaluate safety and efficacy for new medical countermeasures. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.	-	-	9.000
Title: 3) Bacterial Therapeutics ***Description:*** Develop therapeutic countermeasures to mitigate the effects of known and emerging bacterial threats to the warfighter. ***FY 2022 Plans:*** - Initiate human clinical trial and supportive current Good Manufacturing Practice (cGMP) manufacture and Non-Human Primate (NHP) studies to establish safety, tolerability, and efficacy of broad spectrum antibacterial candidate. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project transitioned to Advanced Development. Effort reduces programmatic risk of failure in the advanced development phase by generating clinical and supporting non-clinical safety, tolerability and toxicity data for candidate vaccines and therapeutic drugs prior to transition to advanced development.	-	-	7.476
Title: 4) Viral Prophylaxis ***Description:*** Provide the warfighter protection against biothreat agents through the pre exposure administration of prophylactics against known viral threats of interest and emerging infectious threats. ***FY 2022 Plans:*** - Initiate support of cGMP manufacture to supply and the initiation of phase 1 human clinical trial for antiviral vaccine candidate. ***FY 2021 to FY 2022 Increase/Decrease Statement:***	-	-	7.476

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TM4 / *Techbase Medical Defense (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Program/project transitioned to Advanced Development. Effort reduces programmatic risk of failure in the advanced development phase by generating clinical and supporting non-clinical safety, tolerability and toxicity data for candidate vaccines and therapeutic drugs prior to transition to advanced development.			
Title: 5) PBA Medical Countermeasures ***Description:*** Focuses on therapeutic and prophylactic strategies to effectively minimize injuries resulting from exposure to Pharmaceutical Based Agents (PBA), including opioids. This effort involves the evaluation FDA approved therapeutics for operational use, as well as generation of novel drug products and formulations to enhance level of protection and/or operational utility for the Warfighter. Efforts in this area are designed to develop drug candidates that will ultimately be submitted for Food and Drug Administration (FDA) licensure or to identify previously licensed products for new uses in the treatment and pretreatment against PBA injury. ***FY 2022 Plans:*** - Initiate medical countermeasures clinical studies to treat respiratory depression and intoxication caused by synthetic opioids. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project transitioned to Advanced Development. Effort reduces programmatic risk of failure in the advanced development phase by generating clinical and supporting non-clinical safety, tolerability and toxicity data for candidate vaccines and therapeutic drugs prior to transition to advanced development.	-	-	2.000
Accomplishments/Planned Programs Subtotals	29.200	-	25.952

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
• TM3: *Techbase Medical Defense (ATD)*	142.123	137.829	137.495	-	137.495	-	-	-	-	-	-
• MB5: *Medical Biological Defense (SDD)*	170.345	117.956	137.348	-	137.348	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

TECH BASE MEDICAL TRANSITIONAL MED TECHNOLOGY INTIATIVE (TBMD TMTI)

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TM4 / *Techbase Medical Defense (ACD&P)*

Project TM4 supports early-phase clinical development and supporting non-clinical safety, tolerability and toxicity data for candidate vaccines and therapeutic drugs prior to transition to System Development & Demonstration. This work provides safe and effective medical defense against validated biological threat agents and emerging infectious disease biothreats including bacteria, toxins, and viruses. This work also involves the evaluation of Food and Drug Administration (FDA)-approved therapeutics for operational use, as well as generation of novel drug products and formulations, to enhance level of protection and/or operational utility for the Warfighter. This effort reduces programmatic risk of failure in the advanced development phase.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TM4 / *Techbase Medical Defense (ACD&P)*

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
TBMD TMTI - DTE C - DOMANE	MIPR	Various : Various	0.000	29.200	Oct 2020	0.000		0.000		0.000		0.000	0.000	29.200	0.000
TBMD TMTI - DTE C - Bacterial Therapeutics	MIPR	TBD : N/A	0.000	0.000		0.000		7.476	Oct 2021	0.000		7.476	0.000	7.476	0.000
TBMD TMTI - DTE C - Viral Prophylaxis	MIPR	TBD : N/A	0.000	0.000		0.000		7.476	Oct 2021	0.000		7.476	0.000	7.476	0.000
TBMD TMTI - DTE C - DOMANE/LIMIT (Layered Integrated Medical Countermeasure Intervention Technologies)	MIPR	TBD : N/A	0.000	0.000		0.000		9.000	Oct 2021	0.000		9.000	0.000	9.000	0.000
TBMDC CHEM CM - DTE C - PBA Medical Countermeasures	MIPR	TBD : N/A	0.000	0.000		0.000		2.000	Oct 2021	0.000		2.000	0.000	2.000	0.000
		Subtotal	0.000	29.200		0.000		25.952		0.000		25.952	0.000	55.152	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	0.000	29.200		0.000		25.952		0.000		25.952	0.000	55.152	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TM4 / *Techbase Medical Defense (ACD&P)*

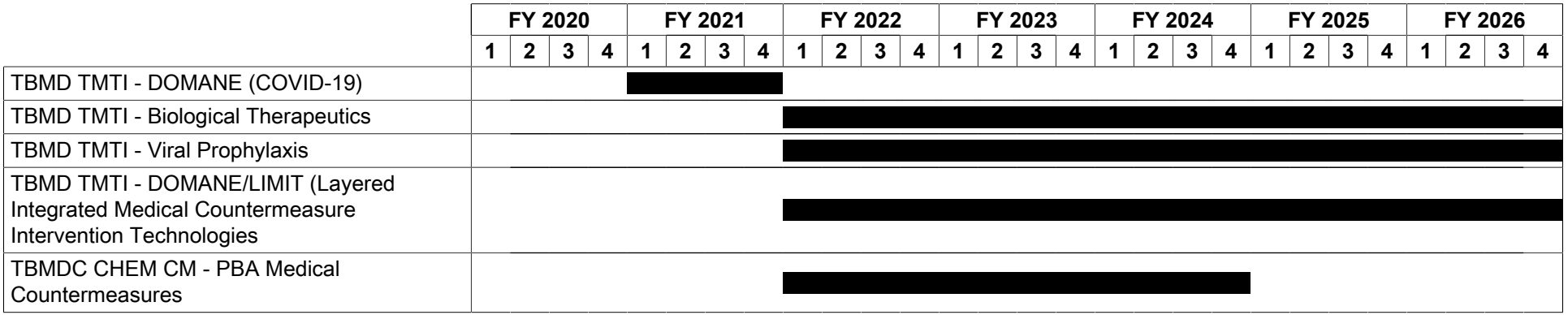

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TM4 / *Techbase Medical Defense (ACD&P)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
TBMD TMTI - DOMANE (COVID-19)	1	2021	4	2021
TBMD TMTI - Biological Therapeutics	1	2022	4	2026
TBMD TMTI - Viral Prophylaxis	1	2022	4	2026
TBMD TMTI - DOMANE/LIMIT (Layered Integrated Medical Countermeasure Intervention Technologies	1	2022	4	2026
TBMDC CHEM CM - PBA Medical Countermeasures	1	2022	4	2024

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program			Date: May 2021
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	Project (Number/Name) TT4 / *Technology Transition (ACD&P)*	

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
TT4: *Technology Transition (ACD&P)*	-	0.000	0.577	0.866	-	0.866	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project TT4 validates technologies and their respective concepts-of-operations in preparation for transition to advanced development programs requiring chemical and biological (CB) defense technologies. These demonstrations seek to demonstrate the potential for enhanced military operational capability and/or cost effectiveness while soliciting end-user determination of the military utility and operational impact of the technology and capability demonstrated. Successfully demonstrated technologies with proven military utility can either be left in place for extended user evaluations, accepted into advanced stages of the formal acquisition process, proceed directly into limited or full-scale production or be returned to the technical base for further development.

FY20-22 reorganizes, renames legacy Bullet titles and introduces new Bullets (Thrust Areas). These new "Thrust" titles are in line with the CBDP Core Capability Areas and intended to provide more detail and traceability from the S&T program to advanced development.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
Title: 1) Techbase Technology Transition (ACD&P)	-	0.577	-
Description: Integrated Early Warning (IEW) and Integrated Layered Defense (ILD) ATD Transition: This project (TT4) validates high-risk/high-payoff technologies and their respective concepts-of-operations for significant improvement to Warfighter capabilities in preparation for transition of mature technologies to advanced development programs requiring chemical and biological (CB) defense technologies. In FY21 this effort is being transferred to new thrust area: Advanced Technology Demonstration.			
FY 2021 Plans: Demonstrate in the Resolute Dragon 1 Integrated Threat Response (ITR) ATD, novel and innovative S&T Chemical, Biological, Radiological, and Nuclear (CBRN) technologies. Ensure efforts are compatible with the CBDP Enterprise, Joint Requirements Office (JRO) led, CBRN Support to Command and Control (CSC2) requirements development initiative and from there into the overarching Joint All Domain Command and Control (JADC2) cross service environment. Integrate, mature, and deliver to advanced development CBRN defense capabilities to include sensors, controllers, and other CBRN enabling capabilities. Facilitate transitions of Integrated Early Warning and Integrated Layered Defense products to CBRN-Information Systems (CBRN-			

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TT4 / *Technology Transition (ACD&P)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2020	FY 2021	FY 2022
IS)/Sensor Integration on Robotic Platforms (C-SIRP), Dismounted Reconnaissance Sets, Kits and Outfits (DRSKO), and Joint Project Manager Protection (JPM-P) Programs of Record. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project funding transferred to another funding line.			
Title: 2) Advanced Technology Demonstration ***Description:*** ATDs enable the effective transition of cutting edge CBRN S&T Technologies to the Warfighter by providing them an opportunity to engage with these new technologies in a mission oriented demonstration. Feedback from the Warfighters ensures that these technologies are operationally relevant, value added, and can be matured and transitioned in a timely and effective manner to end users for employment. ***FY 2022 Plans:*** Demonstrate in the Resolute Dragon 2 Integrated Threat Response (ITR) ATD, novel and innovative S&T CBRN technologies and the integration of their information outputs into a Command and Control (C2) Common Operating Picture (COP). The C2 COP will be instantiated through the employment of integrated systems architectures, software, and hardware and will measuring the information's impact to C2 Decisions using decision support tools. Ensure demonstrations compatibility with the CBDP Enterprise, Joint Requirements Office (JRO) led CBRNE Support to Command and Control (CSC2) initiative and into the overarching Joint All Domain Command and Control (JADC2) cross service environment. Develop, integrate and deliver integrated Chemical, Biological, Radiological, and Nuclear (CBRN) defense capabilities to include sensors, controllers, and other CBRN enabling capabilities such as medical counter measures (MCMs) and modeling and simulation tools. Technologies to be integrated include an Expeditionary Field Forwarding and Sequencing Technology (F-FAST) and other biological sensors and mitigating technologies, UAV-Borne Hyperspectral Imager (HIS) chemical vapor stand-off detector, Opioid and Pharmaceutical Based Agents (PBAs) prophylaxis and therapeutics, Rapid Analysis of Threat Exposure (RATE) Algorithm, EpiGrid Human Effects and Medical modeling tool, advanced service aligned integrated command and control Common Operating Picture (COP) hardware and software capabilities, and medical diagnostics such as Layered and Integrated Medical Intervention Technologies (LIMIT). Delivered products will increase mission readiness profiles for personnel and resources during operations in hazardous environments. ***FY 2021 to FY 2022 Increase/Decrease Statement:*** Program/project funding transferred from another funding line.	-	-	0.866
Accomplishments/Planned Programs Subtotals	-	0.577	0.866

Exhibit R-2A, RDT&E Project Justification: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TT4 / *Technology Transition (ACD&P)*

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
• TT3: *Technology Transition (ATD)*	12.659	10.416	8.787	-	8.787	-	-	-	-	-	-

Remarks

D. Acquisition Strategy

TECHBASE TECH TRANSITION (TECHTRAN)

Advanced Technology Demonstrations (ATDs) exploit mature and maturing technologies to solve important military problems. ATDs emphasize technology integration, operational utility assessment, and transition of operational prototypes for practical use. The goals of efforts under Project TT4 are to provide a prototype capability to the Warfighter and support the evaluation of that capability in operationally-relevant field environments. This will allow Warfighters to evaluate the capabilities in real military exercises and at a scale sufficient to fully assess military utility. The Defense Threat Reduction Agency (DTRA) will fund DoD laboratories and DoD Federally Funded Research Development Centers (FFRDCs) through the Military Interdepartmental Purchase Request (MIPR) in accordance with the Economy Act in order to conduct operational evaluation of technology solutions for Integrated Early Warning (IEW) and Integrated Layered Defense (ILD) ATD efforts. Upon completion of efforts under this project, operational prototypes of Technology Readiness Level (TRL) 6 or TRL 7 with documented operational utility assessment outcomes will be transitioned to Service stakeholders and programs of record to support rapid acquisition and fielding decisions.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program			Date: May 2021
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	Project (Number/Name) TT4 / *Technology Transition (ACD&P)*	

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
TECHTRAN - IEW and ILD Transition	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.116	0.000		0.116	Nov 2020	0.174	Nov 2021	0.000		0.174	0.000	0.406	0.000
		Subtotal	0.116	0.000		0.116		0.174		0.000		0.174	0.000	0.406	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
TECHTRAN - IEW and ILD Transition	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.412	0.000		0.411	Nov 2020	0.617	Nov 2021	0.000		0.617	0.000	1.440	0.000
		Subtotal	0.412	0.000		0.411		0.617		0.000		0.617	0.000	1.440	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
TECHTRAN - PM/MS S - IEW and ILD Transition	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center	0.000	0.000		0.050	Nov 2020	0.075	Nov 2021	0.000		0.075	0.000	0.125	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TT4 / *Technology Transition (ACD&P)*

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
		(CBC) : Aberdeen Proving Ground, MD													
		Subtotal	0.000	0.000		0.050		0.075		0.000		0.075	0.000	0.125	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	0.528	0.000		0.577		0.866		0.000		0.866	0.000	1.971	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TT4 / *Technology Transition (ACD&P)*

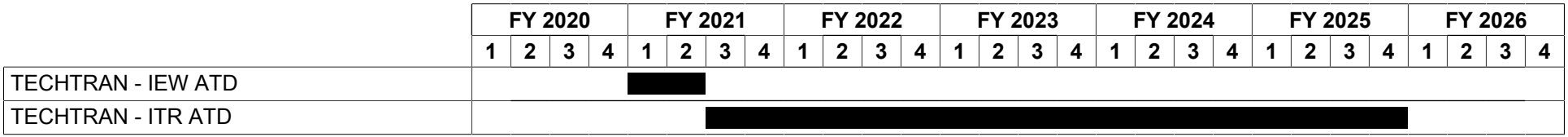

Exhibit R-4A, RDT&E Schedule Details: PB 2022 Chemical and Biological Defense Program		Date: May 2021
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)*	**Project (Number/Name)** TT4 / *Technology Transition (ACD&P)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
TECHTRAN - IEW ATD	1	2021	2	2021
TECHTRAN - ITR ATD	3	2021	4	2025