| Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Chemical and Biological Defense Program | | | | | | | | | | | Date: February 2020 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)* | | | | | R-1 Program Element (Number/Name)<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | | | | | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2019** | **FY 2020** | **FY 2021 Base** | **FY 2021 OCO** | **FY 2021 Total** | **FY 2022** | **FY 2023** | **FY 2024** | **FY 2025** | **Cost To Complete** | **Total Cost** |
| Total Program Element | - | 115.452 | 80.162 | 76.167 | - | 76.167 | 70.953 | 84.263 | 71.189 | 74.083 | Continuing | Continuing |
| CA4: *Contamination Avoidance (ACD&P)* | - | 30.879 | 19.074 | 10.326 | - | 10.326 | 9.853 | 17.868 | 14.727 | 14.294 | Continuing | Continuing |
| DE4: *Decontamination (ACD&P)* | - | 6.819 | 7.235 | 6.286 | - | 6.286 | 8.984 | 12.865 | 9.034 | 7.487 | Continuing | Continuing |
| IP4: *Individual Protection (ACD&P)* | - | 3.172 | 1.997 | 2.483 | - | 2.483 | 3.487 | 0.000 | 4.682 | 8.946 | Continuing | Continuing |
| IS4: *Information Systems (ACD&P)* | - | 0.821 | 0.528 | 4.661 | - | 4.661 | 4.257 | 4.052 | 4.048 | 3.852 | Continuing | Continuing |
| MB4: *Medical Biological Defense (ACD&P)* | - | 63.783 | 46.166 | 47.727 | - | 47.727 | 37.689 | 42.517 | 31.436 | 35.462 | Continuing | Continuing |
| MC4: *Medical Chemical Defense (ACD&P)* | - | 3.685 | 0.000 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 3.685 |
| TE4: *Test & Evaluation (ACD&P)* | - | 6.293 | 5.162 | 4.107 | - | 4.107 | 2.822 | 2.823 | 2.824 | 1.601 | Continuing | Continuing |
| TM4: *Techbase Medical Defense (ACD&P)* | - | 0.000 | 0.000 | 0.000 | - | 0.000 | 2.995 | 2.995 | 2.995 | 0.998 | Continuing | Continuing |
| TT4: *Technology Transition (ACD&P)* | - | 0.000 | 0.000 | 0.577 | - | 0.577 | 0.866 | 1.143 | 1.443 | 1.443 | Continuing | Continuing |

**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, Radiological (CBR) 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.

| Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Chemical and Biological Defense Program | Date: February 2020 |
|---|---|
| **Appropriation/Budget Activity**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* |

- 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, Radiological, and Nuclear (CBRN) 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.

- Medical Chemical Defense (MC4): development of medical materiel and other medical equipment items (e.g., diagnostic equipment, prophylactic, pre-treatment, and therapeutic drugs, and individual/casualty decontamination compounds) necessary to provide an effective capability for medical defense against chemical warfare agent threats facing U.S. Forces in the field.

- Test and Evaluation (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.

| Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Chemical and Biological Defense Program | Date: February 2020 |
|---|---|
| **Appropriation/Budget Activity**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)* | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* |

| B. Program Change Summary ($ in Millions) | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 115.886 | 83.662 | 101.792 | - | 101.792 |
| Current President's Budget | 115.452 | 80.162 | 76.167 | - | 76.167 |
| Total Adjustments | -0.434 | -3.500 | -25.625 | - | -25.625 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | 0.000 | -3.500 | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | 0.000 | - | | | |
| • Congressional Directed Transfers | 0.000 | - | | | |
| • Reprogrammings | -0.434 | - | | | |
| • SBIR/STTR Transfer | 0.000 | - | | | |
| • Other Adjustments | 0.000 | - | -25.625 | - | -25.625 |

**Change Summary Explanation**

Funding: FY19 (-$0.434 Million): Reprogramming adjustments to balance overall portfolio efforts.

FY20 (-$3.500 Million): Congressional Directed Reductions to the Mass Personnel Decontamination and Venezuelan Equine Encephalitis programs.

FY21 (-$25.625 Million): Decreases due to unfunding the Filovirus Vaccine and Venezuelan Equine Encephalitis Vaccine programs (-$20.542 Million), the Defense-Wide Review (DWR) reductions to account for programs being terminated or restructured (-$5.016 Million), and Departmental economic adjustments (-$0.067 Million).

Schedule: N/A

Technical: Provides for critical new start programs, Service Equipment Decontamination System (SEDS) and CBRN Covers, Coatings and Protective Overlays (C3PO).

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | | | | | | | | | | Date: February 2020 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>0400 / 4 | | | | | R-1 Program Element (Number/Name)<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | | | | Project (Number/Name)<br>CA4 / *Contamination Avoidance (ACD&P)* | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2019** | **FY 2020** | **FY 2021 Base** | **FY 2021 OCO** | **FY 2021 Total** | **FY 2022** | **FY 2023** | **FY 2024** | **FY 2025** | **Cost To Complete** | **Total Cost** |
| CA4: *Contamination Avoidance (ACD&P)* | - | 30.879 | 19.074 | 10.326 | - | 10.326 | 9.853 | 17.868 | 14.727 | 14.294 | Continuing | Continuing |
| 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 Chemical Vapor Agent Detector- CVCAD (formerly Wearable Chemical Agent Detector- WCAD)
(2) Biosurveillance (BSV)
(3) Chemical Biological Radiological and Nuclear (CBRN) Sensor Integration on Robotics Platforms (CSIRP)
(4) Chemical Biological Radiological Nuclear, Dismounted Reconnaissance Sets (CBRN DRS)
(5) Enhanced Capability Demonstration Integrated Early Warning (ECD IEW)
(6) Enhanced Capability Demonstration Joint Chemical Biological Radiological Nuclear Advanced Capability Sets (ECD JCACS)
(7) Non-Traditional Agent (NTA) Defense, and
(8) Reactive Chemistry Orthogonal Surface and Environmental Threat Ticket Array (ROSETTA).

The CVCAD formerly known as WCAD 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 unmanned ground systems operations in order to enable timely personnel protective action and other force protection decisions.

BSV efforts provide a set of capabilities that acquire, integrate, and analyze medical, environmental, and incident management data using existing and next generation systems, medical and non-medical sample collection tools and identifiers/diagnostics. BSV will address medical and physical CBRN mission needs spanned in over eleven requirements documents and through Combatant Commander (COCOM) identified needs. BSV supports the Capabilities to Enable NBC Threat Awareness, Understanding, and Response (CENTAUR) effort, and immediate operational needs, which find, demonstrate, transition, and transfer the best operational concepts and technology solutions in support of a holistic approach to countering CB threats from the laboratory to operational use and theater confirmation of a CB Event. CENTAUR serves as the baseline configuration for ECD IEW which will be renamed CBRN IEW and merged to RDT&E Project IS4, Information Systems in FY21.

CSIRP is a prototyping and fielding effort that will focus on repackaging and integrating modular CBRN 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 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.

The CBRN DRS supports Dismounted Reconnaissance, Surveillance, and CBRN Sensitive Site Assessment missions which enables more detailed and near real-time CBRN information flow for the Warfighter. The CBRN DRS will provide an Advanced Capabilities Set to meet emerging requirements for the follow-on technical forces to conduct more in-depth dismounted CBRN reconnaissance, sensitive site assessment, characterization of WMD/hazardous materials, events, or accidents, and sensitive site exploitation/elimination. The Chemical Biological Radiological Nuclear, Dismounted Reconnaissance Sets Advanced Capability Set will provide more sensitive and reliable detection and identification of CBRN threats, enhanced personal protective equipment (PPE) for longer duration missions, and increased situation awareness through networked communications of the hazard. The CBRN DRS configurations will be tailored to meet individual Service mission tasks. The technology upgrade and refresh effort for CBRN DRS transitions from CA4 to CA7 for implementation starting in FY20.

The ECD IEW will integrate 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 Chemical Biological Radiological and Nuclear (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.

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. In FY20, ECD JCACS will focus on the use of robotics to enhance these missions. FY20 is the last year of funding and the ECD JCACS robotics efforts will transition over to CSIRP in FY21.

NTA Defense program works with the Joint Services, interagency, and international partners to focus RDT&E resources to determine readiness against Pharmaceutical Based Agents (PBA) and other emerging threats. Program provides support to the CBDP Enterprise by assessing technology and equipment to enable rapid fielding options for all users.

The ROSETTA is a modernization effort to provide a higher confidence chemical liquid hazard detection ticket in the currently fielded M256A2 kit for the Warfighter to make timely decisions. These decisions will reduce casualties and improve the combat effectiveness of troops engaged in conflicts involving the use of chemical warfare agents. ROSETTA is based on colorimetric technology and will be eye-readable. In addition, the ROSETTA ticket will provide improved hazard detection performance with reduced false alarm rate, potential for increased number of chemicals detected, reduced detection time especially for certain compounds of interest, and potential for integration onto unmanned platforms especially micro-sized unmanned aerial sensors. In FY20, ROSETTA will be testing vendor prototypes to develop technical data packages using BA5 funding.

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>CA4 / *Contamination Avoidance (ACD&P)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|---|---|---|---|
| ***Title:*** 1) Wearable Chemical Agent Detector (WCAD)<br>***Description:*** Program Management and Technology Assessment | 0.426 | - | - |
| ***Title:*** 2) Compact Vapor Chemical Agent Detector (CVCAD)<br>***Description:*** Contract control activities<br>***FY 2021 Plans:***<br>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.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Increase due to change in program/project schedule. Program name changed from WCAD to CVCAD starting in FY21. Transition from Techbase in FY21. | - | - | 0.996 |
| ***Title:*** 3) Biosurveillance (BSV)<br>***Description:*** Capabilities to Enable NBC Threat Awareness, Understanding, and Response (CENTAUR)<br>***FY 2020 Plans:***<br>Complete CENTAUR efforts. Transition residual capabilities to support Enhanced Capability Demonstration Integrated Early Warning (ECD IEW) and programs of record within the enterprise (Joint Biological Tactical Detection System (JBTDS), Next Generation Diagnostic System (NGDS), Enhanced Maritime Biological Detection (EMBD)).<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Program/project is entering completion and all activities will be closed. | 6.866 | 0.397 | - |
| ***Title:*** 4) BSV<br>***Description:*** CENTAUR residual capability and operational demonstration test support | 3.500 | - | - |
| ***Title:*** 5) CBRN Sensor Integration on Robotic Platforms (CSIRP)<br>***Description:*** Product Development, Program Management, Support, Testing and Evaluation<br>***FY 2020 Plans:***<br>Continue sensor integration efforts for unmanned ground and air platforms, and mission modeling efforts. Continue size, weight, and power trade studies for sensor integration. Purchase upgraded developmental test articles. Continue unmanned technology demonstrations and providing support to test events requiring robotic platforms. Coordinate additional demonstrations by new | 4.804 | 7.987 | 4.061 |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>CA4 / *Contamination Avoidance (ACD&P)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|---|---|---|---|
| prototype vendors and end users evaluating the capabilities, reliability and usability of the integrated sensors onto the Unmanned Air Systems (UAS) and Unmanned Ground Vehicles (UGV).<br>***FY 2021 Plans:***<br>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 Program Management including government system engineering, program/financial management, costing, personnel support, travel and overhead.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Decrease due to change in program/project schedule. CSIRP will continue efforts on robotic integration. | | | |
| ***Title:*** 6) CBRN Dismounted Reconnaissance Sets (CBRN DRS)<br>***Description:*** Provide Chemical Biological Radiological and Nuclear (CBRN)DRS Advanced Capability Set (ACS) market assessment and requirement decomposition to assist capability developers in scoping requirements. Efforts include decomposing requirements into performance parameters and specifications, assessing the commercial market, and procuring and testing candidates as required. | 0.480 | - | - |
| ***Title:*** 7) Enhanced Capability Demonstration Integrated Early Warning (ECD IEW)<br>***Description:*** Early Warning common CBRN architecture development and capability integration.<br>***FY 2020 Plans:***<br>Demonstrate Early Warning capability integration for remote CBRN and Non-CBRN sensors and decision support and deploy prototypes to operational unit for experimentation and feedback.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Program/project funding transferred to another funding line. This program will merge to RDT&E Project IS4, Information Systems (CBRN IEW) starting in FY21. | 2.882 | 2.975 | - |
| ***Title:*** 8) ECD IEW<br>***Description:*** Early Warning capability RDT&E test article procurement and assessment.<br>***FY 2020 Plans:***<br>Complete Early Warning capability RDT&E test article procurement and assessment for fixed site operational units.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:*** | 0.750 | 0.500 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>CA4 / *Contamination Avoidance (ACD&P)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|---|---|---|---|
| Program/project funding transferred to another funding line. This program will merge to RDT&E Project IS4, Information Systems (CBRN IEW) starting in FY21. | | | |
| ***Title:*** 9) ECD Joint CBRN Advanced Capability Sets (ECD JCACS)<br>***Description:*** Product Development<br>***FY 2020 Plans:***<br>Complete integration efforts for unmanned air and ground platforms, complete mission modeling efforts. Complete size, weight and power trade studies on sensor integration.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Program/project is entering completion and all activities will be closed. | 6.955 | 1.358 | - |
| ***Title:*** 10) ECD JCACS<br>***Description:*** Program Management, Support, Test and Evaluation<br>***FY 2020 Plans:***<br>Complete Program Management support including Government system engineering, program/financial management, costing, personnel labor, travel and overhead. Initiate and complete test and demonstrations of sensors on unmanned air and ground platforms.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Program/project is entering completion and all activities will be closed. | 1.087 | 0.565 | - |
| ***Title:*** 11) Non-Traditional Agent (NTA) Defense<br>***Description:*** NTA Defense program provides assessment and improvement of detection, protection, and decontamination capabilities to protect the Joint Services against emerging threats, with current focus on Pharmaceutical Based Agents (PBAs). Specific efforts include: assessment of technologies and prototyping for rapid fielding to the Joint Services; and sharing of classified and unclassified data, information, and knowledge regarding PBAs. Efforts seek to minimize duplication of effort and maximize cost-sharing opportunities across the whole of government and with international partners.<br>***FY 2020 Plans:***<br>Continue leverage expanded requirements to broaden data set for PBAs. Produce additional data to fully assess capabilities against new requirements and inform rapid fielding decisions. Develop/assess/publish enhanced techniques for sample collection/ | 2.528 | 5.292 | 5.269 |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>CA4 / *Contamination Avoidance (ACD&P)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|---|---|---|---|
| preparation and decontamination against PBAs. Expand classified NTA Data Library and For Official Use Only (FOUO) PBA data portal with newly available data to ensure widest dissemination possible.<br><br>***FY 2021 Plans:***<br>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.<br><br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Decrease due to change in program/project technical parameters. | | | |
| ***Title:*** 12) NTA Defense support for Threat Agent Characterization<br><br>***Description:*** The International Novel Threat Agent Characterization Trials (INTACT) effort is a series of laboratory and field experiments to characterize the properties of emerging chemical threats and assess potential capabilities against those emerging threats in an operationally-realistic manner. INTACT is a collaboration with other CBDP partners, as well as with other nations, under the Chemical Biological Radiological Memorandum of Understanding (CBR MOU). | 0.125 | - | - |
| ***Title:*** 13) ROSETTA<br><br>***Description:*** Provide system engineering design and program management for Reactive Chemistry Orthogonal Surface and Environmental Threat Ticket Array (ROSETTA). | 0.476 | - | - |
| **Accomplishments/Planned Programs Subtotals** | 30.879 | 19.074 | 10.326 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • CA5: *Contamination Avoidance (SDD)* | 102.827 | 127.833 | 128.954 | - | 128.954 | 64.217 | 32.247 | 28.065 | 29.730 | Continuing | Continuing |
| • JF0100: *JOINT CHEMICAL AGENT DETECTOR (JCAD)* | 1.698 | 2.246 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 3.944 |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | | Date: February 2020 |
|---|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>CA4 / *Contamination Avoidance (ACD&P)* | |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • MC0100: *JOINT NBC RECONNAISSANCE SYSTEM (JNBCRS)* | 0.000 | 0.300 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.300 |
| • MC0101: *CBRN DISMOUNTED RECONNAISSANCE SYSTEMS (CBRN DRS)* | 98.231 | 58.020 | 47.393 | - | 47.393 | 47.009 | 66.488 | 85.905 | 87.775 | Continuing | Continuing |
| • MX0001: *JOINT BIO TACTICAL DETECTION SYSTEM (JBTDS)* | 0.000 | 0.000 | 0.000 | - | 0.000 | 17.492 | 52.290 | 69.255 | 84.824 | Continuing | Continuing |

**Remarks**

**D. Acquisition Strategy**

WEARABLE CHEMICAL AGENT DETECTOR (WCAD)

WCAD will complete Technology Readiness Evaluation, Modeling & Simulation, Table Top Exercises, and initiate Business Case Analysis efforts to support contractual development for a Milestone A award when program funding restarts. WCAD will continue engagement with Other Government Agency (OGA) stakeholders and industry to inform documentation decisions and program decisions. WCAD was unfunded in FY20, but will restart in FY21 with the new name Compact Vapor Chemical Agent Detector (CVCAD).

COMPACT VAPOR CHEMICAL AGENT DETECTOR (CVCAD)

CVCAD will begin to execute the Other Transactional Agreements (OTA) contracts in FY21 (when funding is first aligned), that were initiated by the Defense Threat Reduction Agency (DTRA) in FY20, to evaluate systems against Warfighter requirements. CVCAD will work closely with the CBRN Sensors Integrated onto Robotic Platforms (CSIRP) in order to transition a lightweight chemical detection capability to CSIRP for Unmanned Aerial Vehicle (UAV) integration. Prior to FY21 the effort was called Wearable Chemical Agent Detector (WCAD); CVCAD will build on the work done under the WCAD.

BIOSURVEILLANCE (BSV)

BSV will utilize residual capabilities from Capabilities to Enable NBC Threat Awareness, Understanding, and Response (CENTAUR). With the Close out of CENTAUR , BSV will transition and integrate successful technologies into a baseline Integrated Early Warning (IEW) framework, to support United States Forces Korea (USFK) & 8th Army's need for environmental monitoring and surveillance, in support of immediate force health protection requirements. 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 with in the Chemical Biological Defense Program (CBDP), technologies, lessons learned, test data, will be transitioned to the programs

of record associated with the CBDP (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)). BSV transitions to CBRN IEW in FY21.

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 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 CBRN 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 to support transition decisions to POR or sustained capability of the prototypes.

CBRN DISMOUNTED RECONNAISSANCE SYSTEMS

The Chemical Biological Radiological Nuclear, Dismounted Reconnaissance Systems (CBRN DRS) will provide more sensitive and reliable detection and identification of CBRN threats, enhanced personal protective equipment (PPE) for longer duration missions, and increased situation awareness through networked communications of the hazard. The program will assess requirements and the market for future technology upgrades and refresh efforts to be transferred to and executed under CA7.

ENHANCED CAPABILITY DEMO INTEGRATED EARLY WARNING (ECD IEW)

The Enhanced Capability Demonstration Integrated Early Warning (ECD IEW) 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.

ENHANCED CAPABILITY DEMONSTRATION JOINT CBRNE ADV CAPABILITY SETS (ECD JCACS)

The Enhanced Capability Demonstration (ECD) Joint Chemical Biological Radiological Nuclear Advanced Capability Sets (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

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>CA4 / *Contamination Avoidance (ACD&P)* |

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.

NON TRADITIONAL AGENT DEFENSE (NTA DEFENSE)

The NTA Defense program will transition information, technologies, and capabilities associated with Pharmaceutical Based Agents (PBAs) and other emerging threats into existing and future acquisition programs utilizing a variety of contract mechanisms.

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

ROSETTA will use a streamlined approach. This approach is based on technology that will transition from Science and Technology Efforts and industry. It will be developed using the Countering Weapons of Mass Destruction (CWMD) OTA to award multiple development contracts. The M256A3 Production Contract will use Army Working Capital Funds (AWCF) to purchase the new kits. The ROSETTA funding will complete the development and testing of the new ROSETTA ticket as well as update the currently fielded M256A2 technical data package via an engineering change proposal (ECP) to create a new M256A3 kit that will be available to all Services. The M256A3 kit will replace the M256A2 kit by attrition.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>CA4 / *Contamination Avoidance (ACD&P)* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WCAD - Government SE & Technical Management Team | Various | CCDC CBC : Aberdeen Proving Ground, MD | 0.000 | 0.348 | Jan 2019 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| CVCAD - HW C - Transition from DTRA | MIPR | TBD : N/A | 0.000 | 0.000 | | 0.000 | | 0.996 | Jan 2021 | - | | 0.996 | Continuing | Continuing | 0.000 |
| CSIRP - HW C - OPETS Labor | Various | Patricio Enterprises : Inc., Woodbridge, VA | 0.000 | 0.267 | Feb 2019 | 0.000 | | 0.160 | Feb 2021 | - | | 0.160 | Continuing | Continuing | 0.000 |
| CSIRP - HW C - Government Matrix and Core Labor | Various | CCDC CBC : Aberdeen Proving Ground, MD | 0.000 | 1.284 | Nov 2018 | 0.650 | Oct 2019 | 0.437 | Dec 2020 | - | | 0.437 | Continuing | Continuing | 0.000 |
| CSIRP - OTA - Chemical sensor integration onto existing UAV platform | C/FFP | Intelligent Optical Systems (IOS) : Torrance, CA | 0.000 | 0.687 | Aug 2019 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| CSIRP - Biological sensor integration onto existing UAV platform | C/FFP | FLIR Systems Inc. : Elkridge, MD | 0.000 | 1.000 | Mar 2019 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| CSIRP - OTA Lead integrator for chemical, and radiological sensors onto existing UAV platforms | C/CPFF | Charles Stark Draper Laboratories : Inc., Cambridge, MA | 0.000 | 0.497 | Aug 2019 | 2.789 | Dec 2019 | 1.493 | Dec 2020 | - | | 1.493 | Continuing | Continuing | 0.000 |
| CSIRP - OTA Lead for Deep Purple UAV fielding | C/CPFF | T2S Solutions (T2S : LLC), Belcamp, MD | 0.000 | 0.616 | Aug 2019 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| CBRN DRS - Non Intrustive Detection Support | Various | JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD | 0.221 | 0.441 | Nov 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| ECD JCACS - HW C - Product Development | C/CPFF | Charles Stark Draper Laboratories : Inc., Cambridge, MA | 3.447 | 2.300 | Mar 2019 | 1.358 | Mar 2020 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>CA4 / *Contamination Avoidance (ACD&P)* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ECD JCACS - HW C - CSIRP OTA - Multiple Vendors | MIPR | Various : Various | 0.000 | 1.700 | Jul 2019 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| ECD JCACS - HW C - eCSD OTA | MIPR | Smiths Detection : Watford Hertfordshire, UK | 0.000 | 0.500 | Mar 2019 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| ECD JCACS - HW C - OGAs and FFRDCs | MIPR | Various : Various | 0.000 | 2.455 | Apr 2019 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| NTA DEFENSE - HW C - Capability Assessments | MIPR | CCDC CBC : Aberdeen Proving Ground, MD | 0.000 | 0.329 | Dec 2018 | 0.000 | | 0.150 | Mar 2021 | - | | 0.150 | Continuing | Continuing | 0.000 |
| NTA DEFENSE - HW S - Technology Assessments | MIPR | Various : Various | 0.167 | 0.065 | Mar 2019 | 0.436 | Dec 2019 | 0.202 | Jan 2021 | - | | 0.202 | Continuing | Continuing | 0.000 |
| NTA DEFENSE - NHW S - Threat Understanding and Characterization | MIPR | Various : Various | 0.587 | 0.101 | Mar 2019 | 0.955 | Dec 2019 | 0.100 | Jan 2021 | - | | 0.100 | Continuing | Continuing | 0.000 |
| NTA DEFENSE - HW S - Systems Prototyping and Development | MIPR | Various : Various | 0.436 | 0.477 | Jun 2019 | 0.465 | Dec 2019 | 0.624 | Nov 2020 | - | | 0.624 | Continuing | Continuing | 0.000 |
| NTA DEFENSE - HW S - Strategic Coordination/ Information Management | C/CPFF | Various : Various | 0.463 | 0.190 | Dec 2018 | 0.500 | Dec 2019 | 0.500 | Dec 2020 | - | | 0.500 | Continuing | Continuing | 0.000 |
| NTA DEFENSE - HW S - International Novel Threat Agent Characterization Trials (INTACT) | C/CPFF | MA Institute of Tech - Lincoln Labs (MIT-LL) : Lexington, MA | 1.449 | 0.125 | Mar 2019 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| NTA DEFENSE - HW S - Government SE & Techncial Management Team | MIPR | CCDC CBC : Aberdeen Proving Ground, MD | 0.758 | 0.526 | Dec 2018 | 1.240 | Dec 2019 | 1.160 | Dec 2020 | - | | 1.160 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 7.528 | 13.908 | | 8.393 | | 5.822 | | - | | 5.822 | Continuing | Continuing | N/A |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>CA4 / *Contamination Avoidance (ACD&P)* |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WCAD - ES S - MITRE Support | MIPR | USA Research Dev & Engr Cmd (RDECOM) : Aberdeen Proving Ground, MD | 0.000 | 0.014 | Mar 2019 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| BSV - TD/D C -BSP - JACCS/BSP integration development | C/CPFF | Johns Hopkins University - Applied Physics Lab : Laurel, MD | 4.587 | 0.762 | Jan 2019 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| BSV - ES S - Assessment of Environmental Detectors | MIPR | Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD | 9.001 | 2.246 | Jan 2019 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| BSV - TD/D C - Biological Identification Capability Sets sustainment assays | MIPR | Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD | 5.910 | 1.478 | Jan 2019 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| BSV - ES S - Early Warning sustainment costs for software package | MIPR | Various : Various | 13.986 | 3.748 | Jan 2019 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| CSIRP - HW/SW Sensor Interface Design and Concept Development | Various | Various : Various | 0.000 | 0.000 | | 1.550 | Feb 2020 | 0.399 | Feb 2021 | - | | 0.399 | Continuing | Continuing | 0.000 |
| ECD IEW - Acquisition, Integration and decision tool demonstration | C/CPFF | Various : Various | 1.355 | 2.108 | Jan 2019 | 2.175 | Jan 2020 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| ECD IEW - System Integration | MIPR | CCDC CBC : Aberdeen Proving Ground, MD | 0.500 | 0.200 | Jan 2019 | 0.200 | Jan 2020 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| ECD JCACS - ES C - SIL Support | MIPR | CCDC CBC : Aberdeen Proving Ground, MD | 0.000 | 0.250 | Dec 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 35.339 | 10.806 | | 3.925 | | 0.399 | | - | | 0.399 | Continuing | Continuing | N/A |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>CA4 / *Contamination Avoidance (ACD&P)* |

**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BSV - DTE S - Developmental Testing, Operational Assessment | MIPR | Army Test and Evaluation Command (ATEC) : Aberdeen Proving Ground, MD | 2.494 | 0.750 | Jan 2019 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| CSIRP - Testing and Evaluation | MIPR | Army Test and Evaluation Command (ATEC) : Aberdeen Proving Ground, MD | 0.000 | 0.000 | | 1.800 | Mar 2020 | 0.915 | Mar 2021 | - | | 0.915 | Continuing | Continuing | 0.000 |
| ECD IEW - TTX & OP DEMOs | MIPR | Various : Various | 1.000 | 0.750 | Jan 2019 | 0.500 | Jan 2020 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| ECD JCACS - DTE - Test and Evaluation | MIPR | Various : Various | 1.689 | 0.000 | | 0.500 | Apr 2020 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| NTA DEFENSE - DTE S - Technology Assessments | MIPR | CCDC CBC : Aberdeen Proving Ground, MD | 0.000 | 0.520 | Nov 2018 | 0.436 | Jan 2020 | 0.408 | Dec 2020 | - | | 0.408 | Continuing | Continuing | 0.000 |
| NTA DEFENSE - DTE S - Systems Prototyping and Development | MIPR | Various : Various | 0.000 | 0.000 | | 0.466 | Jan 2020 | 1.277 | Nov 2020 | - | | 1.277 | Continuing | Continuing | 0.000 |
| ROSETTA - DTE C - Technology Readiness Assessment | MIPR | CCDC CBC : Aberdeen Proving Ground, MD | 0.000 | 0.250 | Dec 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 5.183 | 2.270 | | 3.702 | | 2.600 | | - | | 2.600 | Continuing | Continuing | N/A |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WCAD - PM/MS C - Management Overhead Support | MIPR | Various : Various | 0.000 | 0.064 | Jan 2019 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>CA4 / *Contamination Avoidance (ACD&P)* |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BSV - PM/MS S - BMO Labor & Travel Support | MIPR | JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD | 1.481 | 0.819 | Jan 2019 | 0.236 | Jan 2020 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| BSV - PM/MS S - ECBC ATD Team | MIPR | Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD | 1.664 | 0.563 | Jan 2019 | 0.161 | Jan 2020 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| CSIRP - Project Management | MIPR | JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD | 0.000 | 0.453 | Dec 2018 | 1.198 | Dec 2019 | 0.657 | Dec 2020 | - | | 0.657 | Continuing | Continuing | 0.000 |
| CBRN DRS - ACS - PM/MS-Program Management and System Engineering Support | MIPR | JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD | 0.092 | 0.039 | Nov 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| ECD IEW - ECBC ECD Team | MIPR | CCDC CBC : Aberdeen Proving Ground, MD | 0.348 | 0.100 | Jan 2019 | 0.100 | Jan 2020 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| ECD IEW - ECBC Matrix Govt labor | MIPR | CCDC CBC : Aberdeen Proving Ground, MD | 0.500 | 0.233 | Jan 2019 | 0.250 | Jan 2020 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| ECD IEW - Labor and Travel Support | MIPR | JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD | 0.750 | 0.241 | Jan 2019 | 0.250 | Jan 2020 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| ECD JCACS - PM-Program Management and System Engineering Support | MIPR | JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD | 1.353 | 0.837 | Dec 2018 | 0.065 | Jan 2020 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>CA4 / *Contamination Avoidance (ACD&P)* |

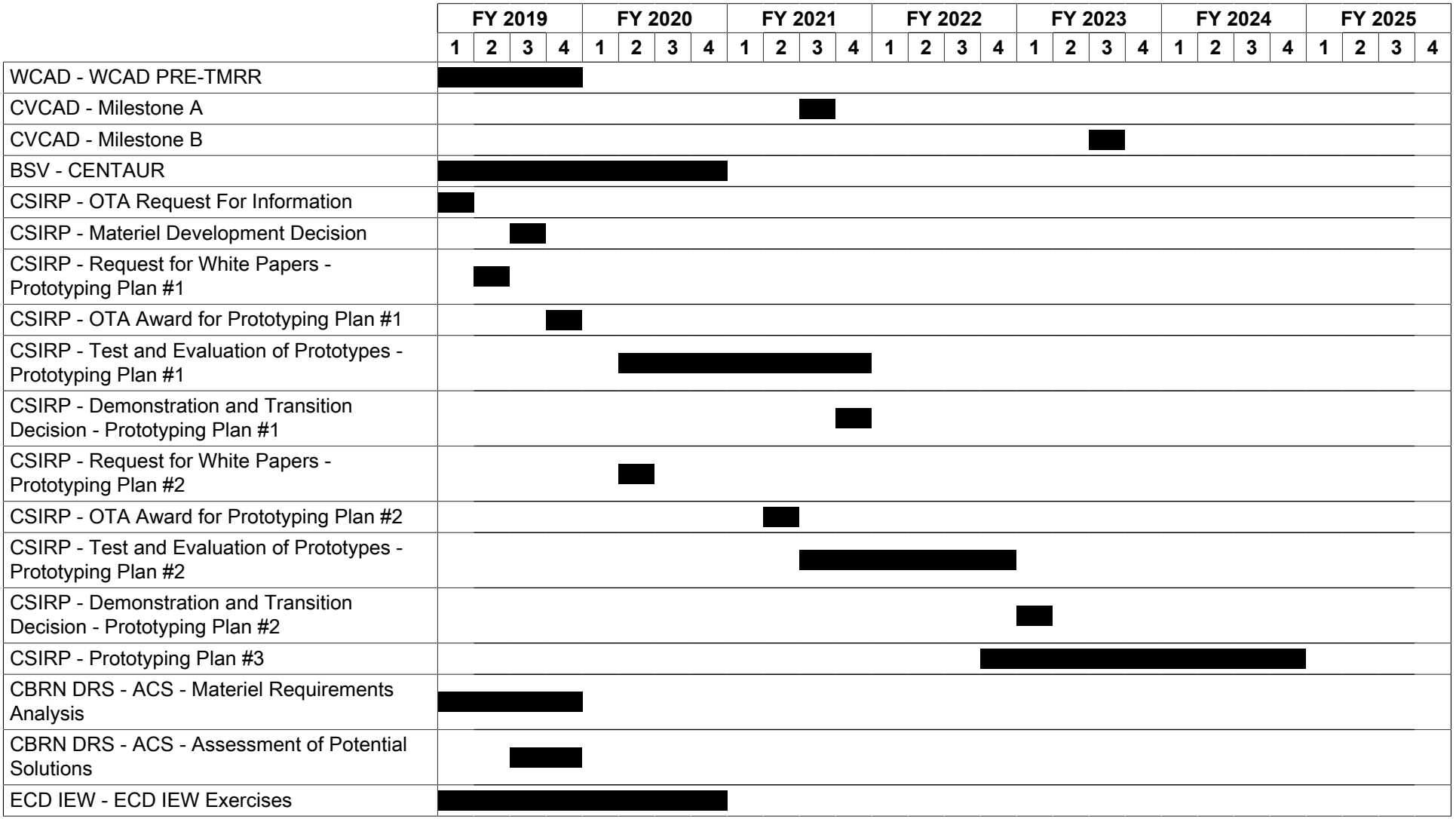
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NTA DEFENSE - PM/MSS - IPT Support/Program Management | MIPR | JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD | 1.309 | 0.320 | Dec 2018 | 0.794 | Dec 2019 | 0.848 | Jan 2021 | - | | 0.848 | Continuing | Continuing | 0.000 |
| ROSETTA - PM/MS C | MIPR | JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD | 0.000 | 0.226 | Oct 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 7.497 | 3.895 | | 3.054 | | 1.505 | | - | | 1.505 | Continuing | Continuing | N/A |

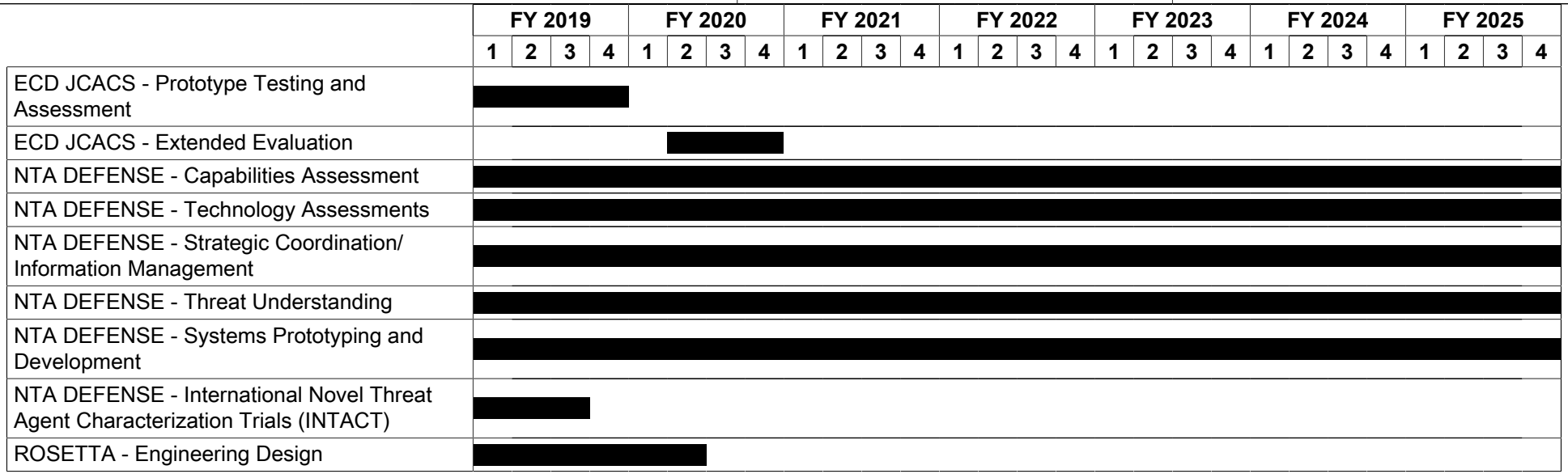
| | Prior Years | FY 2019 | | FY 2020 | | FY 2021 Base | | FY 2021 OCO | | FY 2021 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 55.547 | 30.879 | | 19.074 | | 10.326 | | - | | 10.326 | Continuing | Continuing | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>CA4 / *Contamination Avoidance (ACD&P)* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>CA4 / *Contamination Avoidance (ACD&P)* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>CA4 / *Contamination Avoidance (ACD&P)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| WCAD - WCAD PRE-TMRR | 1 | 2019 | 4 | 2019 |
| CVCAD - Milestone A | 3 | 2021 | 3 | 2021 |
| CVCAD - Milestone B | 3 | 2023 | 3 | 2023 |
| BSV - CENTAUR | 1 | 2019 | 4 | 2020 |
| CSIRP - OTA Request For Information | 1 | 2019 | 1 | 2019 |
| CSIRP - Materiel Development Decision | 3 | 2019 | 3 | 2019 |
| CSIRP - Request for White Papers - Prototyping Plan #1 | 2 | 2019 | 2 | 2019 |
| CSIRP - OTA Award for Prototyping Plan #1 | 4 | 2019 | 4 | 2019 |
| CSIRP - Test and Evaluation of Prototypes - Prototyping Plan #1 | 2 | 2020 | 4 | 2021 |
| CSIRP - Demonstration and Transition Decision - Prototyping Plan #1 | 4 | 2021 | 4 | 2021 |
| CSIRP - Request for White Papers - Prototyping Plan #2 | 2 | 2020 | 2 | 2020 |
| CSIRP - OTA Award for Prototyping Plan #2 | 2 | 2021 | 2 | 2021 |
| CSIRP - Test and Evaluation of Prototypes - Prototyping Plan #2 | 3 | 2021 | 4 | 2022 |
| CSIRP - Demonstration and Transition Decision - Prototyping Plan #2 | 1 | 2023 | 1 | 2023 |
| CSIRP - Prototyping Plan #3 | 4 | 2022 | 4 | 2024 |
| CBRN DRS - ACS - Materiel Requirements Analysis | 1 | 2019 | 4 | 2019 |
| CBRN DRS - ACS - Assessment of Potential Solutions | 3 | 2019 | 4 | 2019 |
| ECD IEW - ECD IEW Exercises | 1 | 2019 | 4 | 2020 |
| ECD JCACS - Prototype Testing and Assessment | 1 | 2019 | 4 | 2019 |
| ECD JCACS - Extended Evaluation | 2 | 2020 | 4 | 2020 |
| NTA DEFENSE - Capabilities Assessment | 1 | 2019 | 4 | 2025 |
| NTA DEFENSE - Technology Assessments | 1 | 2019 | 4 | 2025 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>CA4 / *Contamination Avoidance (ACD&P)* |

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| NTA DEFENSE - Strategic Coordination/Information Management | 1 | 2019 | 4 | 2025 |
| NTA DEFENSE - Threat Understanding | 1 | 2019 | 4 | 2025 |
| NTA DEFENSE - Systems Prototyping and Development | 1 | 2019 | 4 | 2025 |
| NTA DEFENSE - International Novel Threat Agent Characterization Trials (INTACT) | 1 | 2019 | 3 | 2019 |
| ROSETTA - Engineering Design | 1 | 2019 | 2 | 2020 |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | | | | | | | | | | Date: February 2020 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>0400 / 4 | | | | | R-1 Program Element (Number/Name)<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | | | | Project (Number/Name)<br>DE4 / *Decontamination (ACD&P)* | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2019** | **FY 2020** | **FY 2021 Base** | **FY 2021 OCO** | **FY 2021 Total** | **FY 2022** | **FY 2023** | **FY 2024** | **FY 2025** | **Cost To Complete** | **Total Cost** |
| DE4: *Decontamination (ACD&P)* | - | 6.819 | 7.235 | 6.286 | - | 6.286 | 8.984 | 12.865 | 9.034 | 7.487 | Continuing | Continuing |
| 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) CBRN Covers, Coatings and Protective Overlays (C3PO)
(2) Contaminated Human Remains System (CHRS)
(3) Mass Personnel Decontamination (MPD)
(4) Service Equipment Decontamination System (SEDS)
(5) Tactical Disablement System (TacDS)

The CBRN Covers, Coatings and Protective Overlays (C3PO) program is a FY21 new start with a Family of Systems approach that will provide contamination mitigation capability to critical equipment and assets prior to a Chemical, Biological, Radiological, and Nuclear (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. The program will address capability gaps identified in the ConMit Initial Capabilities Document (ICD), date 11 March 2011 modernizing a key capability.

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

The Mass Personnel Decontamination (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

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>DE4 / *Decontamination (ACD&P)* |

National Defense Strategy by prioritizing preparedness for war in order to remain lethal. The MPD program addresses capability gaps identified within the Consequence Management ICD, dated 14 October 2010, the ConMit ICD, dated 1 March 2011, and the Mortuary Affairs Operations ICD, dated October 2008.

The Service Equipment Decontamination System (SEDS) program is a FY21 new start program that will develop reliable and modular hardware intended to decontaminate military equipment including vehicles, aircraft, personal effects, and weapons to pre-contamination conditions, which sustains Joint Force military advantages and a resilient force posture, building a more lethal Force that aligns with the National Defense Strategy. SEDS will provide contamination mitigation capabilities for hardened, sensitive and/or critical equipment in hostile and non-hostile environments that have been exposed to chemical and biological contamination. The program will address capability gaps identified in the ConMit ICD, date 11 March 2011.

The Tactical Disablement System (TacDS), 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. TacDS addresses capability gaps identified in the ICD for WMD-Defeat (August 2010), ICD for WMD Elimination Analytic Report (March 2013), WMD Disablement ICD (July 2017), and the Sponsor-approved Draft CDD for TacDS FoS (March 2018). 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. Two products are currently under development; Product #1, Thermite Bag, a man-portable destruction capability, and Product #2, Epoxy Kit, a delay capability.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|---|---|---|---|
| ***Title:*** 1) C3PO<br>***Description:*** Milestone (MS) A and Prototype Development<br>***FY 2021 Plans:***<br>Initiate Developmental Testing (DT). Conduct MS A, System Readiness Review (SRR), Technology Readiness Assessment (TRA), and Affordability Assessment.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Program/project is new start effort in FY 2021. | - | - | 1.643 |
| ***Title:*** 2) CHRS<br>***Description:*** CHRT Prototypes and DT | 2.495 | - | - |
| ***Title:*** 3) MPD<br>***Description:*** Milestone (MS) A Support and Preliminary Systems Component Testing<br>***FY 2020 Plans:*** | 0.526 | 3.416 | 2.867 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|---|---|---|---|
| Award contract to purchase prototype systems components (generators, heat pumps, roller systems, and spray bars) for down select in support of full system Prototype Testing as part of a two-phase prototyping effort. This will inform Developmental Testing in FY21.<br>***FY 2021 Plans:***<br>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.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Program/project transitioned to Engineering and Manufacturing Development Phase. | | | |
| ***Title:*** 4) SEDS<br>***Description:*** Milestone (MS) A support and Prototype Development<br>***FY 2021 Plans:***<br>Conduct MS A; Initiate contract award to purchase prototype systems for testing. System Readiness Review (SRR), Technology Readiness Assessment (TRA), and Affordability Assessment.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Program/project is new start effort in FY 2021. | - | - | 1.776 |
| ***Title:*** 5) TACDS<br>***Description:*** Prototype Development and Evaluation<br>***FY 2020 Plans:***<br>Advance programs to logical stopping point and archiving of programmatic data and documentation. Continue advanced prototype development product #1 until maturity for a Preliminary Design Review (PDR) and archiving programmatic documentation for future efforts if funding becomes available. Continue product #2 development through operational testing with USSOCOM forces and archiving programmatic documentation.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being terminated. | 3.798 | 3.819 | - |
| **Accomplishments/Planned Programs Subtotals** | 6.819 | 7.235 | 6.286 |

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**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • DE5: *Decontamination (SDD)* | 15.399 | 7.989 | 16.954 | - | 16.954 | 9.729 | 5.074 | 9.793 | 9.317 | Continuing | Continuing |
| • JD0050: *DECONTAMINATION FAMILY OF SYSTEMS (DFoS)* | 16.384 | 17.050 | 10.804 | - | 10.804 | 9.022 | 11.644 | 16.748 | 36.588 | Continuing | Continuing |
| • JD0070: *JOINT BIOLOGICAL AGENT DECONTAMINATION SYSTEM (JBADS)* | 0.000 | 24.609 | 3.404 | - | 3.404 | 16.405 | 18.708 | 0.964 | 0.000 | 0.000 | 64.090 |

**Remarks**

**D. Acquisition Strategy**

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 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.

CONTAMINATED HUMAN REMAINS SYSTEM (CHRS)

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

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 will begin with the program achieving a MS A in 1QFY20, 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

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
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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.

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.

TACTICAL DISABLEMENT SYSTEM (TACDS)

TacDS is being developed 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 FoS program structure of TacDS was developed with streamlining in mind, allowing flexible development of multiple products to optimize the use of available resources and for the PMO to quickly adapt to shifting priorities and initiate or expedite development of specific products as resources permit. A tailored/streamlined approach to acquisition documentation ensures robust program and risk management while ensuring effective utilization of available personnel resources and more efficient staffing, while product/technology-specific streamlining opportunities are being evaluated and implemented to the maximum extent possible as each product is advanced.

The TacDS FoS 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. Two products have since been advanced and are currently progressing through 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. An IPR will replace the traditional MS B checkpoint and be conducted for each product to authorize transition from TMRR to EMD phase activities. Concurrent development of two technologies leverages available manpower and distributes resources across multiple efforts to reduce cost and schedule. Streamlined acquisition documentation and T&E procedures are being utilized in the development of both products as well as streamlined contracting mechanisms. Separate contracts/transactions will be 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. Results of testing and user evaluations for each product will determine design maturity and facilitate identification of opportunities to further accelerate the schedule.

In FY21 and beyond, the Defense-Wide Review reduced this program for higher priorities. The requirements and capability gaps will remain. The Product #1 (Thermite Bag) will be developed in FY 20 to the advanced prototype stage. Programmatic information and all Intellectual Property (IP) will be archived for later use if program is

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
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| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>DE4 / *Decontamination (ACD&P)* |

revived. Product #2 (Epoxy Kit) will be accelerated in FY20 through Operational Test Phase and all data/IP will be transferred to SOCOM for procurement/fielding under their Title 10 Authority.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>DE4 / *Decontamination (ACD&P)* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C3PO - HW S - Advanced Product Development | C/FFP | TBD : N/A | 0.000 | 0.000 | | 0.000 | | 0.701 | Jun 2021 | - | | 0.701 | Continuing | Continuing | 0.000 |
| CHRS - HW S - CHRT - Prototypes Development | C/FFP | Advanced Technologies International : Summerville, SC | 1.317 | 0.287 | Feb 2019 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| MPD - HW S - Hardware System | C/FFP | Advanced Technologies International : Summerville, SC | 0.000 | 0.188 | Jul 2019 | 1.060 | Mar 2020 | 0.312 | Jan 2021 | - | | 0.312 | Continuing | Continuing | 0.000 |
| SEDS - HW S - SEDS Product Development | C/FFP | TBD : N/A | 0.000 | 0.000 | | 0.000 | | 0.751 | Jun 2021 | - | | 0.751 | Continuing | Continuing | 0.000 |
| TACDS - HW S - OTA Prototype Development - Product 1 | MIPR | Southwest Research Institute : San Antonio, TX | 0.000 | 1.266 | Mar 2019 | 0.300 | Jan 2020 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| TACDS - HW S - OTA Prototype Development - Product 2 | MIPR | Applied Research Associates : Inc., Littleton, CO | 0.000 | 0.946 | Aug 2019 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 1.317 | 2.687 | | 1.360 | | 1.764 | | - | | 1.764 | Continuing | Continuing | N/A |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C3PO - ES SB S - Logistics, Engeneering, and IPT Support | MIPR | Various : Various | 0.000 | 0.000 | | 0.000 | | 0.348 | Dec 2020 | - | | 0.348 | Continuing | Continuing | 0.000 |
| CHRS - TD/D S - Logistics, Engeneering, and IPT Support | MIPR | Various : Various | 2.185 | 0.904 | Dec 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| MPD - ES SB S - Logistics, Engineering, and IPT Support | Various | Various : Various | 0.000 | 0.053 | Jan 2019 | 0.323 | Apr 2020 | 1.152 | Dec 2020 | - | | 1.152 | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>DE4 / *Decontamination (ACD&P)* |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SEDS - ES SB - SEDS Logistics, Engineering and IPT Support | MIPR | Various : Various | 0.000 | 0.000 | | 0.000 | | 0.417 | Dec 2020 | - | | 0.417 | Continuing | Continuing | 0.000 |
| TACDS - TD/D S - Logistics, Engeneering, and IPT Support | Various | Various : Various | 1.402 | 1.231 | Jan 2019 | 2.887 | Nov 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 3.587 | 2.188 | | 3.210 | | 1.917 | | - | | 1.917 | Continuing | Continuing | N/A |

**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C3PO - Other S - IPT Testing Planning Support | MIPR | Various : Various | 0.000 | 0.000 | | 0.000 | | 0.249 | Dec 2020 | - | | 0.249 | Continuing | Continuing | 0.000 |
| CHRS - CHRT - DT/OT | Various | Various : Various | 0.764 | 0.892 | Dec 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| MPD - OTHT S - System Component Testing, Prototype Testing, DT, Test Planning | MIPR | Various : Various | 0.000 | 0.207 | May 2019 | 0.595 | Apr 2020 | 0.800 | Mar 2021 | - | | 0.800 | Continuing | Continuing | 0.000 |
| SEDS - OTHT S - SEDS T&E IPR Test Planning | MIPR | Various : Various | 0.000 | 0.000 | | 0.000 | | 0.235 | Dec 2020 | - | | 0.235 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 0.764 | 1.099 | | 0.595 | | 1.284 | | - | | 1.284 | Continuing | Continuing | N/A |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C3PO - PM/MS S-Program Management Support | MIPR | Various : Various | 0.000 | 0.000 | | 0.000 | | 0.345 | Dec 2020 | - | | 0.345 | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
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| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>DE4 / *Decontamination (ACD&P)* |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CHRS - PM/MS S - Program Management Support | MIPR | Various : Various | 1.448 | 0.412 | Nov 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| MPD - PM/MS S - Program Management Support | MIPR | Various : Various | 0.000 | 0.078 | Jan 2019 | 1.438 | Feb 2020 | 0.603 | Dec 2020 | - | | 0.603 | Continuing | Continuing | 0.000 |
| SEDS - PM/MS S - Program Management Support | MIPR | Various : Various | 0.000 | 0.000 | | 0.000 | | 0.373 | Dec 2020 | - | | 0.373 | Continuing | Continuing | 0.000 |
| TACDS - PM/MS S - Program Management Support | MIPR | Various : Various | 0.794 | 0.355 | Dec 2018 | 0.632 | Nov 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 2.242 | 0.845 | | 2.070 | | 1.321 | | - | | 1.321 | Continuing | Continuing | N/A |

| | Prior Years | FY 2019 | | FY 2020 | | FY 2021 Base | | FY 2021 OCO | | FY 2021 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 7.910 | 6.819 | | 7.235 | | 6.286 | | - | | 6.286 | Continuing | Continuing | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
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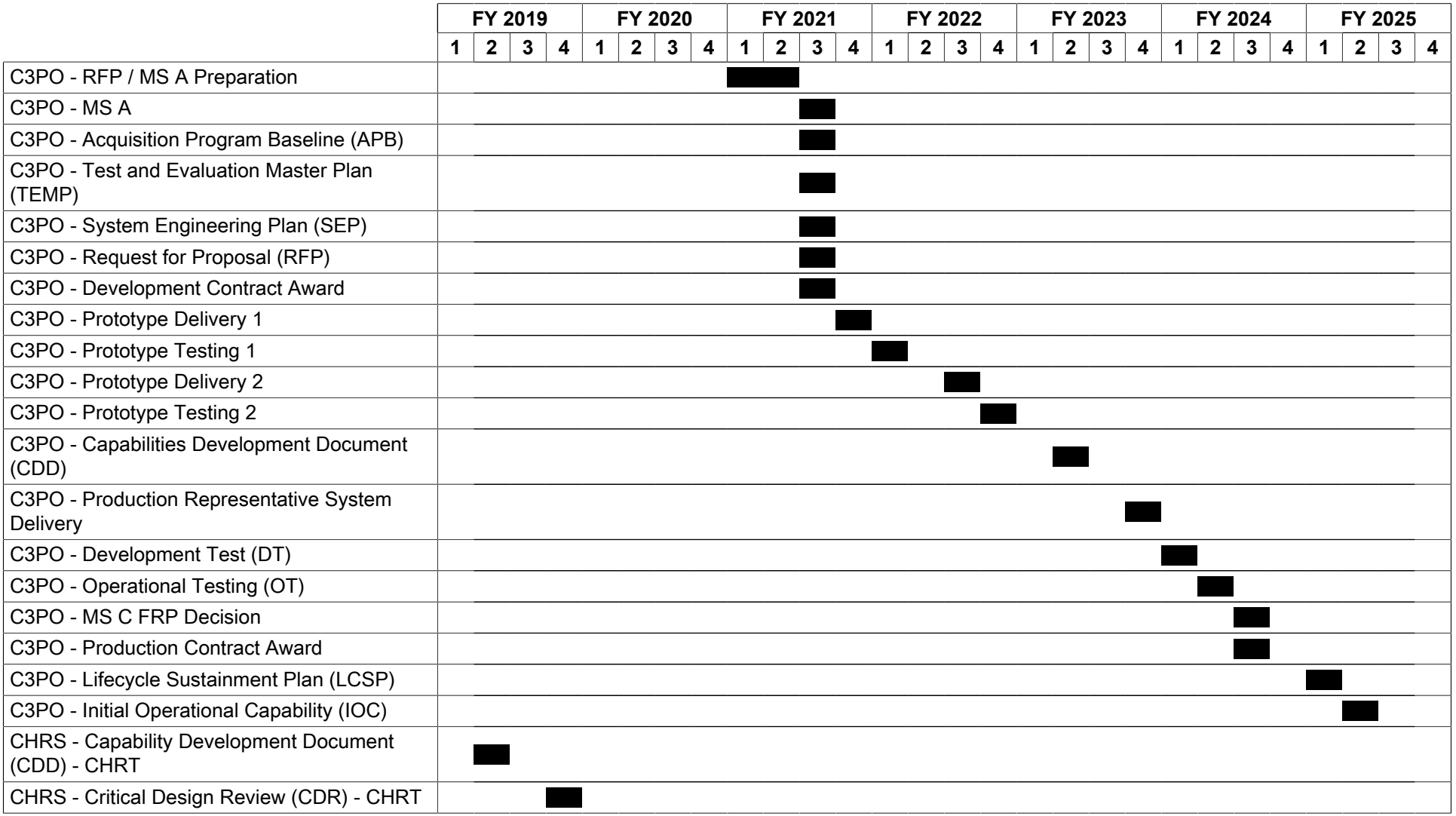
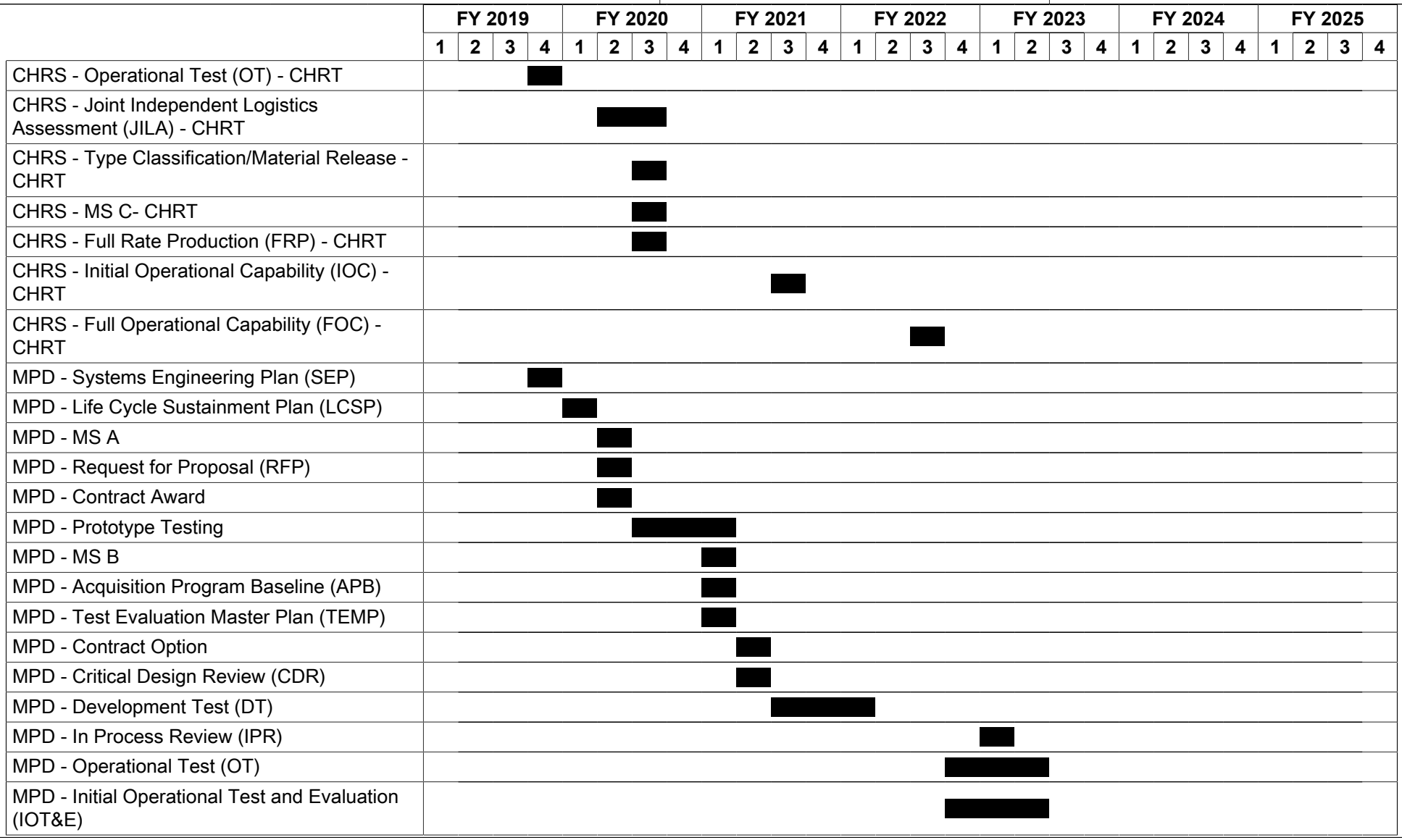
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>DE4 / *Decontamination (ACD&P)* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>DE4 / *Decontamination (ACD&P)* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
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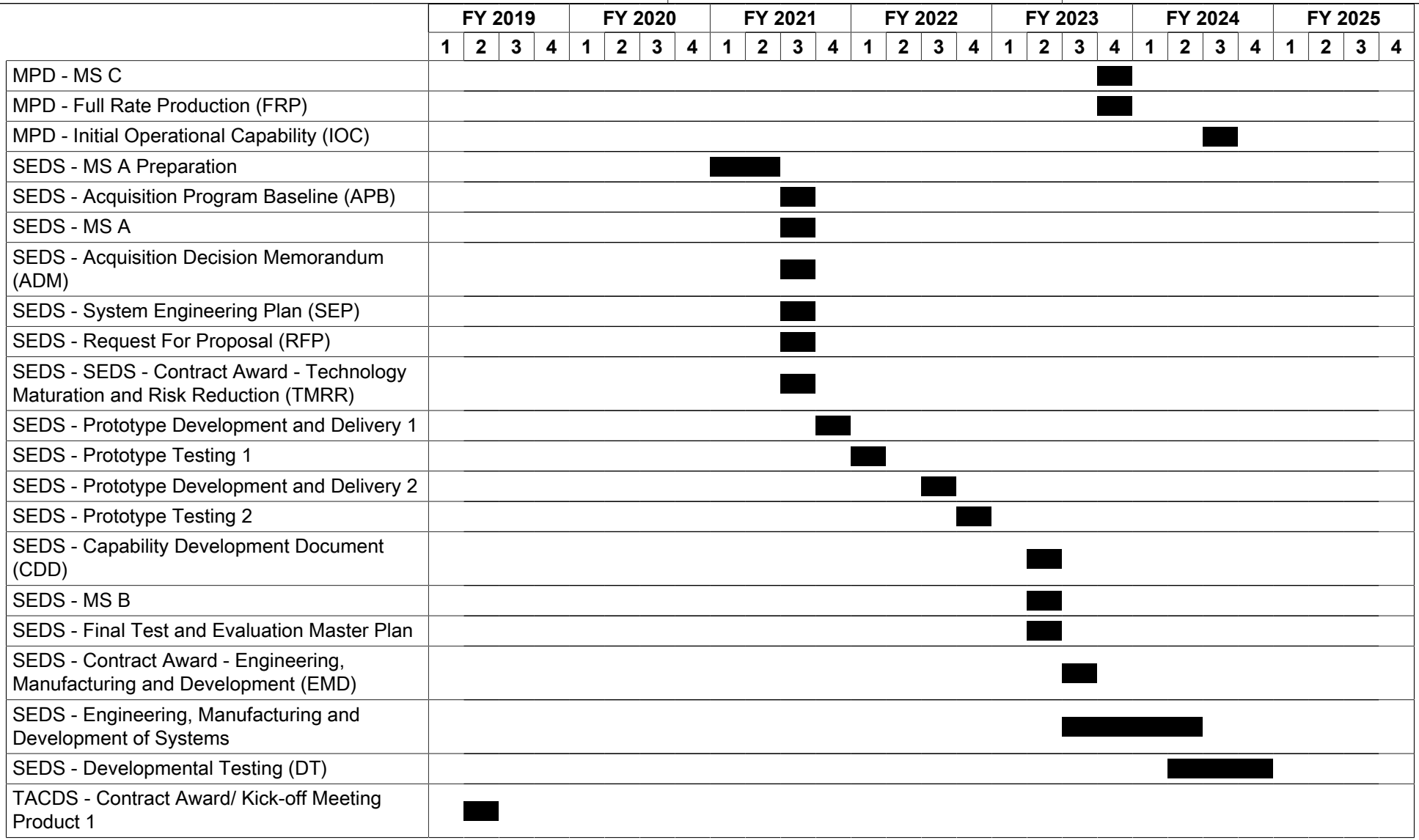
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>DE4 / *Decontamination (ACD&P)* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
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| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>DE4 / *Decontamination (ACD&P)* |

| | FY 2019 | | | | FY 2020 | | | | FY 2021 | | | | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| TACDS - System Requirements Review (SRR) Product 1 | | | | | ■ | | | | | | | | | | | | | | | | | | | | | | | |
| TACDS - Technology Readiness Assessment (TRA) Product 1 | | | | | ■ | | | | | | | | | | | | | | | | | | | | | | | |

| Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
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| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>DE4 / *Decontamination (ACD&P)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| C3PO - RFP / MS A Preparation | 1 | 2021 | 2 | 2021 |
| C3PO - MS A | 3 | 2021 | 3 | 2021 |
| C3PO - Acquisition Program Baseline (APB) | 3 | 2021 | 3 | 2021 |
| C3PO - Test and Evaluation Master Plan (TEMP) | 3 | 2021 | 3 | 2021 |
| C3PO - System Engineering Plan (SEP) | 3 | 2021 | 3 | 2021 |
| C3PO - Request for Proposal (RFP) | 3 | 2021 | 3 | 2021 |
| C3PO - Development Contract Award | 3 | 2021 | 3 | 2021 |
| C3PO - Prototype Delivery 1 | 4 | 2021 | 4 | 2021 |
| C3PO - Prototype Testing 1 | 1 | 2022 | 1 | 2022 |
| C3PO - Prototype Delivery 2 | 3 | 2022 | 3 | 2022 |
| C3PO - Prototype Testing 2 | 4 | 2022 | 4 | 2022 |
| C3PO - Capabilities Development Document (CDD) | 2 | 2023 | 2 | 2023 |
| C3PO - Production Representative System Delivery | 4 | 2023 | 4 | 2023 |
| C3PO - Development Test (DT) | 1 | 2024 | 1 | 2024 |
| C3PO - Operational Testing (OT) | 2 | 2024 | 2 | 2024 |
| C3PO - MS C FRP Decision | 3 | 2024 | 3 | 2024 |
| C3PO - Production Contract Award | 3 | 2024 | 3 | 2024 |
| C3PO - Lifecycle Sustainment Plan (LCSP) | 1 | 2025 | 1 | 2025 |
| C3PO - Initial Operational Capability (IOC) | 2 | 2025 | 2 | 2025 |
| CHRS - Capability Development Document (CDD) - CHRT | 2 | 2019 | 2 | 2019 |
| CHRS - Critical Design Review (CDR) - CHRT | 4 | 2019 | 4 | 2019 |
| CHRS - Operational Test (OT) - CHRT | 4 | 2019 | 4 | 2019 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
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| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| CHRS - Joint Independent Logistics Assessment (JILA) - CHRT | 2 | 2020 | 3 | 2020 |
| CHRS - Type Classification/Material Release - CHRT | 3 | 2020 | 3 | 2020 |
| CHRS - MS C- CHRT | 3 | 2020 | 3 | 2020 |
| CHRS - Full Rate Production (FRP) - CHRT | 3 | 2020 | 3 | 2020 |
| CHRS - Initial Operational Capability (IOC) - CHRT | 3 | 2021 | 3 | 2021 |
| CHRS - Full Operational Capability (FOC) - CHRT | 3 | 2022 | 3 | 2022 |
| MPD - Systems Engineering Plan (SEP) | 4 | 2019 | 4 | 2019 |
| MPD - Life Cycle Sustainment Plan (LCSP) | 1 | 2020 | 1 | 2020 |
| MPD - MS A | 2 | 2020 | 2 | 2020 |
| MPD - Request for Proposal (RFP) | 2 | 2020 | 2 | 2020 |
| MPD - Contract Award | 2 | 2020 | 2 | 2020 |
| MPD - Prototype Testing | 3 | 2020 | 1 | 2021 |
| MPD - MS B | 1 | 2021 | 1 | 2021 |
| MPD - Acquisition Program Baseline (APB) | 1 | 2021 | 1 | 2021 |
| MPD - Test Evaluation Master Plan (TEMP) | 1 | 2021 | 1 | 2021 |
| MPD - Contract Option | 2 | 2021 | 2 | 2021 |
| MPD - Critical Design Review (CDR) | 2 | 2021 | 2 | 2021 |
| MPD - Development Test (DT) | 3 | 2021 | 1 | 2022 |
| MPD - In Process Review (IPR) | 1 | 2023 | 1 | 2023 |
| MPD - Operational Test (OT) | 4 | 2022 | 2 | 2023 |
| MPD - Initial Operational Test and Evaluation (IOT&E) | 4 | 2022 | 2 | 2023 |
| MPD - MS C | 4 | 2023 | 4 | 2023 |
| MPD - Full Rate Production (FRP) | 4 | 2023 | 4 | 2023 |
| MPD - Initial Operational Capability (IOC) | 3 | 2024 | 3 | 2024 |
| SEDS - MS A Preparation | 1 | 2021 | 2 | 2021 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>DE4 / *Decontamination (ACD&P)* |

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| SEDS - Acquisition Program Baseline (APB) | 3 | 2021 | 3 | 2021 |
| SEDS - MS A | 3 | 2021 | 3 | 2021 |
| SEDS - Acquisition Decision Memorandum (ADM) | 3 | 2021 | 3 | 2021 |
| SEDS - System Engineering Plan (SEP) | 3 | 2021 | 3 | 2021 |
| SEDS - Request For Proposal (RFP) | 3 | 2021 | 3 | 2021 |
| SEDS - SEDS - Contract Award - Technology Maturation and Risk Reduction (TMRR) | 3 | 2021 | 3 | 2021 |
| SEDS - Prototype Development and Delivery 1 | 4 | 2021 | 4 | 2021 |
| SEDS - Prototype Testing 1 | 1 | 2022 | 1 | 2022 |
| SEDS - Prototype Development and Delivery 2 | 3 | 2022 | 3 | 2022 |
| SEDS - Prototype Testing 2 | 4 | 2022 | 4 | 2022 |
| SEDS - Capability Development Document (CDD) | 2 | 2023 | 2 | 2023 |
| SEDS - MS B | 2 | 2023 | 2 | 2023 |
| SEDS - Final Test and Evaluation Master Plan | 2 | 2023 | 2 | 2023 |
| SEDS - Contract Award - Engineering, Manufacturing and Development (EMD) | 3 | 2023 | 3 | 2023 |
| SEDS - Engineering, Manufacturing and Development of Systems | 3 | 2023 | 2 | 2024 |
| SEDS - Developmental Testing (DT) | 2 | 2024 | 4 | 2024 |
| TACDS - Contract Award/ Kick-off Meeting Product 1 | 2 | 2019 | 2 | 2019 |
| TACDS - System Requirements Review (SRR) Product 1 | 1 | 2020 | 1 | 2020 |
| TACDS - Technology Readiness Assessment (TRA) Product 1 | 1 | 2020 | 1 | 2020 |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | | Date: February 2020 |
|---|---|---|---|
| Appropriation/Budget Activity<br>0400 / 4 | R-1 Program Element (Number/Name)<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | Project (Number/Name)<br>IP4 / *Individual Protection (ACD&P)* | |

| COST ($ in Millions) | Prior Years | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IP4: *Individual Protection (ACD&P)* | - | 3.172 | 1.997 | 2.483 | - | 2.483 | 3.487 | 0.000 | 4.682 | 8.946 | Continuing | Continuing |
| 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, Biological, and Radiological (CBR) contaminated environments.

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

UIPE FoS will develop a family of systems that will provide 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 will provide protection from operationally relevant traditional and non-traditional CBRN threats likely to be encountered during joint force operations.

In FY21, UIPE FoS transitions to UIPE FoS GP (i.e. Land), UIPE FoS Air and UIPE FoS Gloves. The family of systems is being developed based on agreed upon Service Mission Areas of which there are four: Land, Sea, Air, and Homeland Defense. Each of the Mission Areas have unique mission requirements that the combined UIPE FoS solutions will fulfill. The overarching goal of each of the four Mission Areas is to minimize operational burden and provide improved form, fit, function, and integration with the current Warfighter kits compared to legacy systems.

UIPE FoS Gloves will provide percutaneous protection to the Warfighter against traditional and non-traditional CBRN threats. UIPE FoS Gloves will provide improved tactility and dexterity, and for some Mission Areas, a touchscreen capability.

UIPE FoS GP (i.e. Land) will provide 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.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|---|---|---|---|
| ***Title:*** 1) UIPE FoS | 3.172 | 1.997 | - |
| ***Description:*** Concept Design Evaluation/Technology Maturation and Risk Reduction (TMRR) | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>IP4 / *Individual Protection (ACD&P)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|---|---|---|---|
| ***FY 2020 Plans:***<br>Complete design phase activities, complete system level testing on all prototypes and non-developmental item candidates, begin Tradespace Analysis; update the Business Case Analysis (BCA).<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Program/project funding transferred to another funding line. (UIPE FoS GP & UIPE FoS GLOVE) | | | |
| ***Title:*** 2) UIPE FoS Gloves<br>***Description:*** Development of the Next Generation Protective Glove<br>***FY 2021 Plans:***<br>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.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Program/project funding transferred from another funding line. (UIPE FoS) | - | - | 0.494 |
| ***Title:*** 3) UIPE FoS GP<br>***Description:*** Development of the Next Generation Protective Ensembles<br>***FY 2021 Plans:***<br>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. Mission area focus includes: Land, Sea, and Homeland Defense.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Program/project funding transferred from another funding line. (UIPE FoS) | - | - | 1.989 |
| **Accomplishments/Planned Programs Subtotals** | 3.172 | 1.997 | 2.483 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • IP5: *Individual Protection (SDD)* | 10.597 | 12.663 | 12.960 | - | 12.960 | 12.858 | 12.796 | 8.963 | 8.436 | Continuing | Continuing |
| • JI0002: *JS AIRCREW MASK (JSAM)* | 50.214 | 56.846 | 72.550 | - | 72.550 | 67.325 | 50.412 | 8.247 | 0.000 | 0.000 | 305.594 |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>IP4 / *Individual Protection (ACD&P)* |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JI0003: *JOINT SERVICE GENERAL PURPOSE MASK (JSGPM)* | 18.359 | 13.209 | 22.402 | - | 22.402 | 15.128 | 3.875 | 0.000 | 0.000 | 0.000 | 72.973 |
| • MA0401: *CBRN UNIFORM INTEGRATED PROTECTION ENSEMBLE (UIPE)* | 12.264 | 14.984 | 1.492 | - | 1.492 | 0.457 | 0.000 | 0.000 | 0.000 | 0.000 | 29.197 |

**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 Homeland Defense. 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 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).

UNIFORM INTEGRATED PROTECTIVE ENSEMBLE GENERAL PURPOSE (UIPE FOS GP)

The UIPE FoS GP program utilized an Other Transaction Authority (OTA) contracting approach to procure informational white papers during the Technology Maturation and Risk Reduction (TMRR) phase, prototypes, and test articles of possible solutions. The OTA consists of a consortium of all potential Industry, research institutions, and non-traditional government that could be potential solvers for the program. The OTA yielded several different prototypes that are undergoing material and system

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>IP4 / *Individual Protection (ACD&P)* |

level testing and Early User Tests. Along with the OTA prototypes, the program is exploring the feasibility of a layered concept designed by the government and a manufacturing partner.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>IP4 / *Individual Protection (ACD&P)* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UIPE FOS - HW S - Prototype Development | Various | Various : Various | 0.000 | 1.768 | Dec 2018 | 0.744 | Nov 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| UIPE FOS GLOVES - HW C - Prototype Development | MIPR | Various : Various | 0.000 | 0.000 | | 0.000 | | 0.290 | Dec 2020 | - | | 0.290 | Continuing | Continuing | 0.000 |
| UIPE FOS GP - HW C - Prototype Development | Various | Various : Various | 0.000 | 0.000 | | 0.000 | | 0.584 | Dec 2020 | - | | 0.584 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 0.000 | 1.768 | | 0.744 | | 0.874 | | - | | 0.874 | Continuing | Continuing | N/A |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UIPE FOS - UIPE - ES S - Engineering and Technical IPT Support / SME Support | MIPR | Various : Various | 0.000 | 0.286 | Feb 2019 | 0.000 | Nov 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| UIPE FOS GLOVES - ES C - Engineering and Technical IPT Support / SME Support | MIPR | Various : Various | 0.000 | 0.000 | | 0.000 | | 0.100 | Dec 2020 | - | | 0.100 | Continuing | Continuing | 0.000 |
| UIPE FOS GP - ES C - Engineering and Technical IPT Support/PM and SME Support | Various | Various : Various | 0.000 | 0.000 | | 0.000 | | 0.987 | Dec 2020 | - | | 0.987 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 0.000 | 0.286 | | 0.000 | | 1.087 | | - | | 1.087 | Continuing | Continuing | N/A |

**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UIPE FOS - UIPE - DTE S - DT Design | MIPR | Various : Various | 0.000 | 1.118 | Nov 2018 | 1.063 | Nov 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>IP4 / *Individual Protection (ACD&P)* |

**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Subtotal** | 0.000 | 1.118 | | 1.063 | | 0.000 | | - | | 0.000 | Continuing | Continuing | N/A |

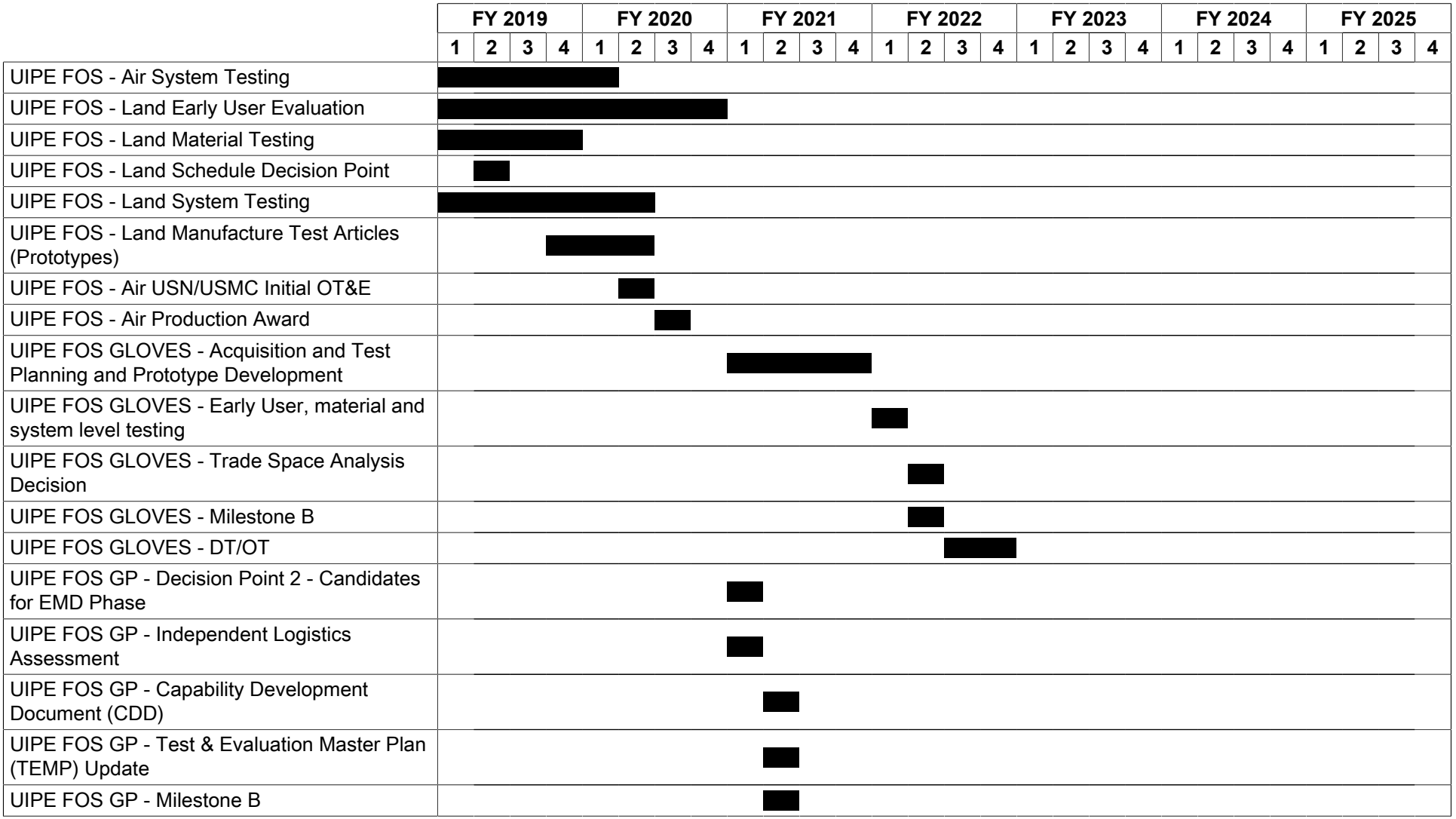
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| UIPE FOS - PM/MS C - Program Management Support | MIPR | Various : Various | 0.001 | 0.000 | | 0.190 | Nov 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| UIPE FOS GLOVES - PM/MS C - Program Management Support | Various | Various : Various | 0.000 | 0.000 | | 0.000 | | 0.104 | Dec 2020 | - | | 0.104 | Continuing | Continuing | 0.000 |
| UIPE FOS GP - PM/MS C - Program Management Support | Various | Various : Various | 0.000 | 0.000 | | 0.000 | | 0.418 | Dec 2020 | - | | 0.418 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 0.001 | 0.000 | | 0.190 | | 0.522 | | - | | 0.522 | Continuing | Continuing | N/A |

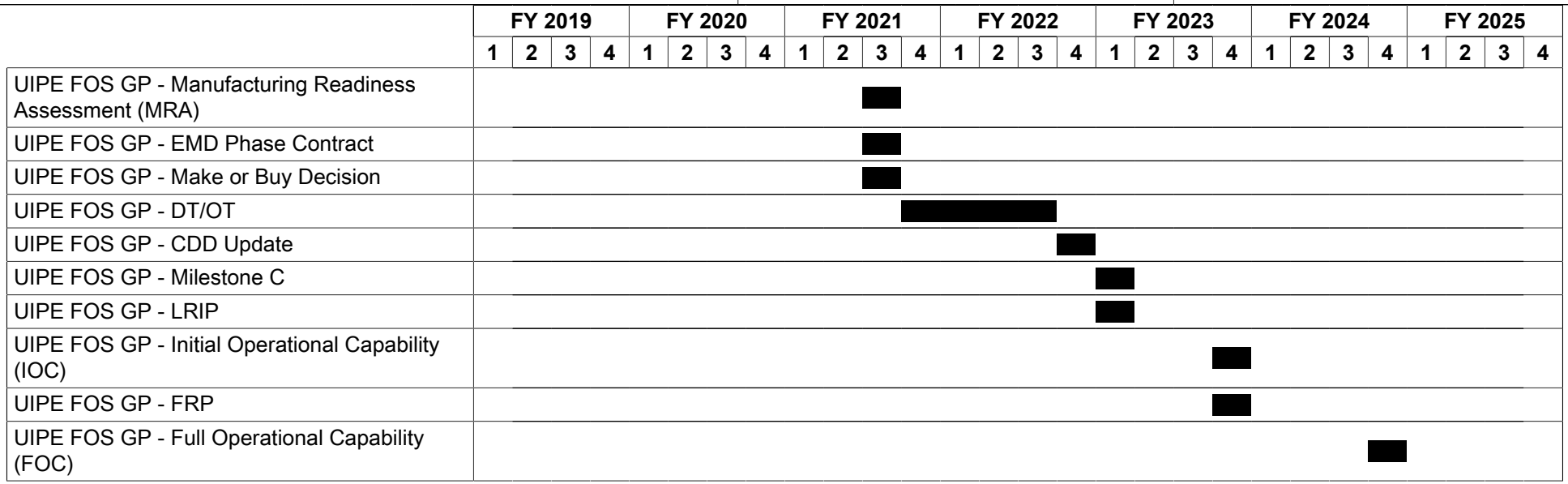
| | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 0.001 | 3.172 | | 1.997 | | 2.483 | | - | | 2.483 | Continuing | Continuing | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>IP4 / *Individual Protection (ACD&P)* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>IP4 / *Individual Protection (ACD&P)* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>IP4 / *Individual Protection (ACD&P)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| UIPE FOS - Air System Testing | 1 | 2019 | 1 | 2020 |
| UIPE FOS - Land Early User Evaluation | 1 | 2019 | 4 | 2020 |
| UIPE FOS - Land Material Testing | 1 | 2019 | 4 | 2019 |
| UIPE FOS - Land Schedule Decision Point | 2 | 2019 | 2 | 2019 |
| UIPE FOS - Land System Testing | 1 | 2019 | 2 | 2020 |
| UIPE FOS - Land Manufacture Test Articles (Prototypes) | 4 | 2019 | 2 | 2020 |
| UIPE FOS - Air USN/USMC Initial OT&E | 2 | 2020 | 2 | 2020 |
| UIPE FOS - Air Production Award | 3 | 2020 | 3 | 2020 |
| UIPE FOS GLOVES - Acquisition and Test Planning and Prototype Development | 1 | 2021 | 4 | 2021 |
| UIPE FOS GLOVES - Early User, material and system level testing | 1 | 2022 | 1 | 2022 |
| UIPE FOS GLOVES - Trade Space Analysis Decision | 2 | 2022 | 2 | 2022 |
| UIPE FOS GLOVES - Milestone B | 2 | 2022 | 2 | 2022 |
| UIPE FOS GLOVES - DT/OT | 3 | 2022 | 4 | 2022 |
| UIPE FOS GP - Decision Point 2 - Candidates for EMD Phase | 1 | 2021 | 1 | 2021 |
| UIPE FOS GP - Independent Logistics Assessment | 1 | 2021 | 1 | 2021 |
| UIPE FOS GP - Capability Development Document (CDD) | 2 | 2021 | 2 | 2021 |
| UIPE FOS GP - Test & Evaluation Master Plan (TEMP) Update | 2 | 2021 | 2 | 2021 |
| UIPE FOS GP - Milestone B | 2 | 2021 | 2 | 2021 |
| UIPE FOS GP - Manufacturing Readiness Assessment (MRA) | 3 | 2021 | 3 | 2021 |
| UIPE FOS GP - EMD Phase Contract | 3 | 2021 | 3 | 2021 |
| UIPE FOS GP - Make or Buy Decision | 3 | 2021 | 3 | 2021 |
| UIPE FOS GP - DT/OT | 4 | 2021 | 3 | 2022 |

| Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>IP4 / *Individual Protection (ACD&P)* |

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| UIPE FOS GP - CDD Update | 4 | 2022 | 4 | 2022 |
| UIPE FOS GP - Milestone C | 1 | 2023 | 1 | 2023 |
| UIPE FOS GP - LRIP | 1 | 2023 | 1 | 2023 |
| UIPE FOS GP - Initial Operational Capability (IOC) | 4 | 2023 | 4 | 2023 |
| UIPE FOS GP - FRP | 4 | 2023 | 4 | 2023 |
| UIPE FOS GP - Full Operational Capability (FOC) | 4 | 2024 | 4 | 2024 |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | | | | | | | | | | Date: February 2020 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>0400 / 4 | | | | | R-1 Program Element (Number/Name)<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | | | | Project (Number/Name)<br>IS4 / *Information Systems (ACD&P)* | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2019** | **FY 2020** | **FY 2021 Base** | **FY 2021 OCO** | **FY 2021 Total** | **FY 2022** | **FY 2023** | **FY 2024** | **FY 2025** | **Cost To Complete** | **Total Cost** |
| IS4: *Information Systems (ACD&P)* | - | 0.821 | 0.528 | 4.661 | - | 4.661 | 4.257 | 4.052 | 4.048 | 3.852 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

**A. Mission Description and Budget Item Justification**

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

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

The Global-BSP is an unclassified, web-based computer and mobile application which facilitates collaboration, communication, and information sharing in support of the preparedness, detection, management, and mitigation of CBRN, as well as all hazard events. These capabilities enable the use of data visualization, real-time messaging and file sharing, and DoD and USG cooperation to expedite the timely identification and detection of CBRN events in order to minimize operational impacts to the local and global populations.

CBRN IEW is a continuation of ECD IEW (CBRN IEW has transitioned from Project Contamination Avoidance (CA4) to Project Information Systems (IS4)). CBRN IEW will utilize residual capabilities from the Capabilities to Enable NBC Threat Awareness Understanding and Reporting (CENTAUR) deployed to Eighth Army as well as ECD IEW 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.

The JEM 2 is 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. 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.

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>IS4 / *Information Systems (ACD&P)* |

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

The SSA provides for enterprise services in the areas of software development, system/network architectures, cybersecurity, technology transition, and information assurance standards and policies to support programs in the evaluation of emerging technologies for transition, standards compliance, interoperability, and cybersecurity risk management framework development.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|---|---|---|---|
| ***Title:*** 1) Global-BSP<br>***Description:*** Program Management<br>***FY 2020 Plans:***<br>Manage development efforts to satisfy G-BSP requirements in preparation for Full Operational Capability Fielding Decision.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being terminated. | 0.042 | 0.021 | - |
| ***Title:*** 2) Global-BSP<br>***Description:*** Product Development<br>***FY 2020 Plans:***<br>Complete remaining efforts for risk-mitigation activities, developing, and evaluating new technologies. Continue efforts to provide high-fidelity models, tools, and resources from both internal and external developers for transition into Global-BSP as needed. Complete SOCOM-defined Secure Internet Protocol Router (SIPR) requirement for Global-BSP.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being terminated. | 0.422 | 0.139 | - |
| ***Title:*** 3) Global-BSP<br>***Description:*** Training and Logistics Support<br>***FY 2020 Plans:*** | 0.076 | 0.048 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>IS4 / *Information Systems (ACD&P)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|---|---|---|---|
| Perform Training Development, Integrated Logistic Support, and Configuration Management.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being terminated. | | | |
| ***Title:*** 4) CBRN Integrated Early Warning (CBRN IEW)<br>***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.<br>***FY 2021 Plans:***<br>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.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Program/project funding transferred from another funding line. Program/project funding transferred from Enhanced Capability Demonstration Integrated Early Warning (ECD IEW) (Research, Development Test & Evaluation (RDT&E) Item CA4). | - | - | 4.587 |
| ***Title:*** 5) Joint Effects Model 2 (JEM 2)<br>***Description:*** Prototyping and Development<br>***FY 2020 Plans:***<br>Continue to transition and integrate the JEM and Hazard Predication and Analysis Capability (HPAC) architecture, based on the Common Chemical, Biological, Radiological, and Nuclear (CBRN) Model Interface (CCMI) single architecture project and develop, transition, and integrate S&T capabilities.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being terminated. | 0.072 | 0.210 | - |
| ***Title:*** 6) JEM 2<br>***Description:*** Management Support<br>***FY 2020 Plans:***<br>Provide program/financial management, costing, contracting, scheduling, and acquisition oversight support.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:*** | - | 0.029 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>IS4 / *Information Systems (ACD&P)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|---|---|---|---|
| Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being terminated. | | | |
| ***Title:*** 7) Joint Warning and Reporting Network 2 (JWARN 2)<br>***Description:*** Prototyping | 0.071 | - | - |
| ***Title:*** 8) JWARN 2<br>***Description:*** Technical Support | 0.047 | - | - |
| ***Title:*** 9) Software Support Activity (SSA)<br>***Description:*** Enterprise Service<br><br>***FY 2020 Plans:***<br>Support the CBRND enterprise through continuous engagement to assist with the development of acquisition products by providing early architecture diagrams for pre-Milestone B activities to reduce risk.<br>***FY 2021 Plans:***<br>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.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Minor change due to routine program adjustments. | 0.091 | 0.081 | 0.074 |
| **Accomplishments/Planned Programs Subtotals** | 0.821 | 0.528 | 4.661 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • IS5: *Information Systems (SDD)* | 21.993 | 21.166 | 6.019 | - | 6.019 | 5.691 | 5.232 | 5.232 | 5.493 | Continuing | Continuing |
| • IS7: *Information Systems (Op Sys Dev)* | 14.039 | 16.111 | 3.234 | - | 3.234 | 3.554 | 15.381 | 15.383 | 16.154 | Continuing | Continuing |
| • G47101: *JOINT WARNING & REPORTING NETWORK (JWARN)* | 0.502 | 0.442 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.944 |
| • JC0208: *JOINT EFFECTS MODEL (JEM)* | 0.911 | 0.689 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 1.600 |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>IS4 / *Information Systems (ACD&P)* |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JS5230: *SOFTWARE SUPPORT ACTIVITY (SSA)* | 0.094 | 0.081 | 0.074 | - | 0.074 | 0.070 | 1.187 | 1.187 | 1.247 | Continuing | Continuing |
| • JX0301: *BIOSURVELLENCE PORTAL (BSP)* | 1.148 | 1.124 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 2.272 |

**Remarks**

**D. Acquisition Strategy**

BIOSURVEILLANCE PORTAL (BSP)

The Global-BSP program is using the SOFCIDS (Special Operations Capabilities Integration and Development System) requirements approach and the JROC's "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. The Global-BSP will achieve Full Operational Capability, complete resourced capabilities, and commence an orderly transition to sustainment in 2020. In FY21 and beyond, the Defense-Wide Review (DWR) reduced this program for higher priorities.

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 and prototyping. Annual development cycles and capability drops are requested and validated by all DOD services in the OSD DAS(D) 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.

JOINT EFFECTS MODEL (JEM)

The JEM 2 acquisition strategy 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 Milestone B and Build Decision for Requirements Definition Package 1 (RDP-1) were approved by the Milestone Decision Authority (MDA) in 4QFY14. Subsequent RDPs have been approved along with Capability Drops (CD) that define capability sets to be developed, tested, and fielded operationally. JEM will prioritize and complete resourced CD's for RDP 1 and 2 to transition into sustainment. In FY21 and beyond, the Defense-Wide Review (DWR) reduced this program for higher priorities.

JOINT WARNING & REPORTING NETWORK (JWARN)

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>IS4 / *Information Systems (ACD&P)* |

JWARN 2 acquisition utilizes Agile software development practices, employing the incrementally fielded software program model in the DODI 5000.02 to conduct multiple, more frequent fieldings in lieu of a single fielding event. As part of the strategy, an over-arching MS B and Build Decision for Requirements Definition Package 1 (RDP-1) were approved by the Milestone Decision Authority (MDA) in 4QFY14. Subsequent RDPs have been approved along with Capability Drops (CD) that define capability sets to be developed, tested, and fielded operationally. JWARN will prioritize and complete resourced CD's for RDP 1 and 2 to transition into sustainment. In FY21 and beyond, the Defense-Wide Review (DWR) reduced this program for higher priorities.

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.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>IS4 / *Information Systems (ACD&P)* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BSP - SW S - Software Development | FFRDC | Johns Hopkins University - Applied Physics Lab : Laurel, MD | 2.241 | 0.422 | Dec 2018 | 0.185 | Dec 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| JEM - JEM 2 - Development and Integration | C/CPAF | General Dynamics Information Technologies : Fairfax, VA | 6.839 | 0.072 | Jan 2019 | 0.239 | Jan 2020 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| JWARN - 2- SW S - Prototype Dev Follow-On | C/CPAF | DCS Corps : Alexandria, VA | 0.001 | 0.071 | Dec 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 9.081 | 0.565 | | 0.424 | | 0.000 | | - | | 0.000 | Continuing | Continuing | N/A |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BSP - ILS C - Training and Logistics Support | Various | Various : Various | 0.000 | 0.076 | Dec 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| CBRN IEW - Network Architecture | C/CPFF | TBD : N/A | 0.000 | 0.000 | | 0.000 | | 1.500 | Jan 2021 | - | | 1.500 | Continuing | Continuing | 0.000 |
| CBRN IEW - Systems Integration | MIPR | CCDC CBC : Aberdeen Proving Ground, MD | 0.000 | 0.000 | | 0.000 | | 0.750 | Jan 2021 | - | | 0.750 | Continuing | Continuing | 0.000 |
| JWARN - 2 ES S - Engineering Support | MIPR | Various : Various | 8.975 | 0.047 | Dec 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| SSA - TD/D C - Engineering Support | MIPR | Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD | 0.486 | 0.091 | Nov 2018 | 0.081 | Nov 2019 | 0.074 | Nov 2020 | - | | 0.074 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 9.461 | 0.214 | | 0.081 | | 2.324 | | - | | 2.324 | Continuing | Continuing | N/A |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>IS4 / *Information Systems (ACD&P)* |

**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CBRN IEW - Development Test | MIPR | Various : Various | 0.000 | 0.000 | | 0.000 | | 0.800 | Jan 2021 | - | | 0.800 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 0.000 | 0.000 | | 0.000 | | 0.800 | | - | | 0.800 | Continuing | Continuing | N/A |

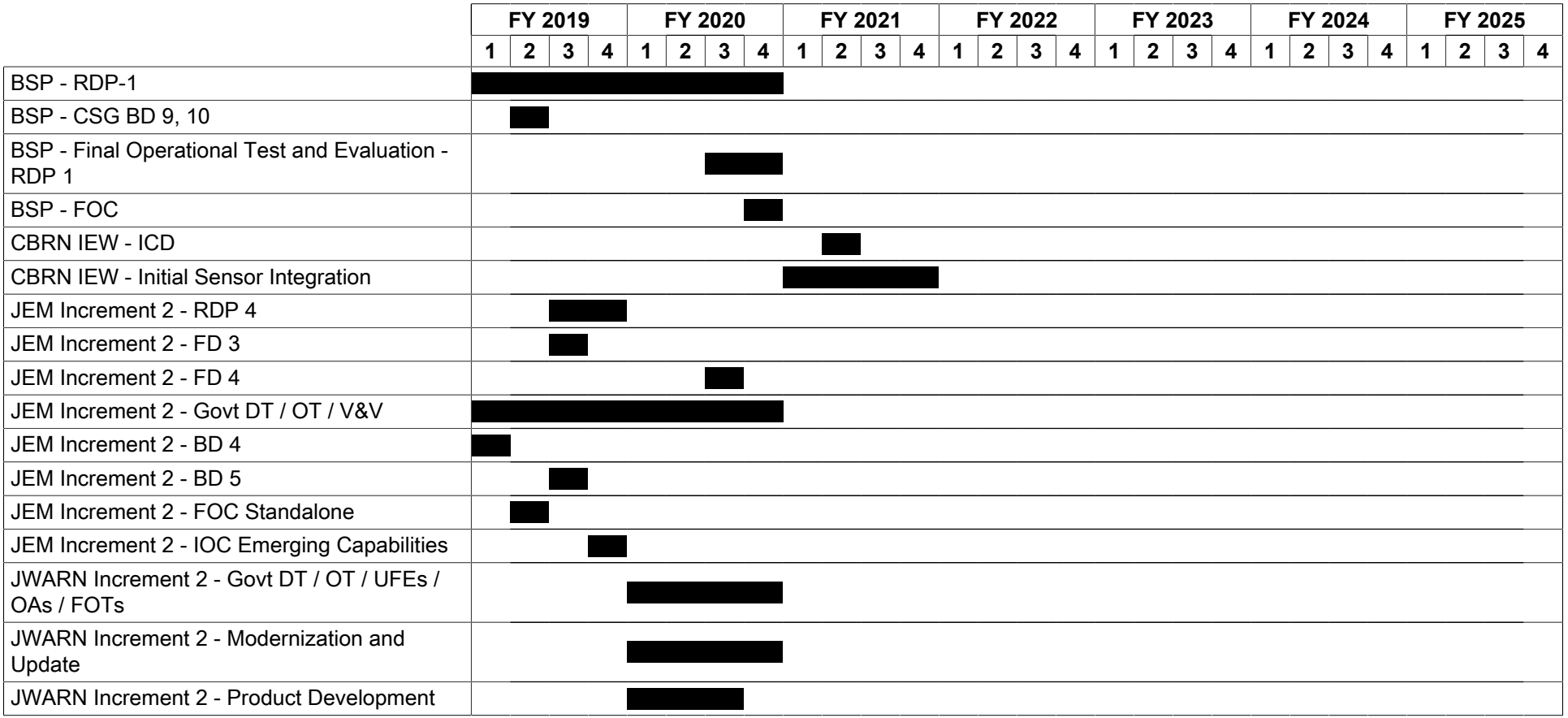
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BSP - PM/MS S - Program Management Support | Various | Various : Various | 1.102 | 0.042 | Dec 2018 | 0.023 | Dec 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| CBRN IEW - Matrix Government Labor | MIPR | CCDC CBC : Aberdeen Proving Ground, MD | 0.000 | 0.000 | | 0.000 | | 1.000 | Jan 2021 | - | | 1.000 | Continuing | Continuing | 0.000 |
| CBRN IEW - Labor and Travel Support | MIPR | JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD | 0.000 | 0.000 | | 0.000 | | 0.537 | Oct 2020 | - | | 0.537 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 1.102 | 0.042 | | 0.023 | | 1.537 | | - | | 1.537 | Continuing | Continuing | N/A |

| | Prior Years | FY 2019 | | FY 2020 | | FY 2021 Base | | FY 2021 OCO | | FY 2021 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 19.644 | 0.821 | | 0.528 | | 4.661 | | - | | 4.661 | Continuing | Continuing | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>IS4 / *Information Systems (ACD&P)* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>IS4 / *Information Systems (ACD&P)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| BSP - RDP-1 | 1 | 2019 | 4 | 2020 |
| BSP - CSG BD 9, 10 | 2 | 2019 | 2 | 2019 |
| BSP - Final Operational Test and Evaluation - RDP 1 | 3 | 2020 | 4 | 2020 |
| BSP - FOC | 4 | 2020 | 4 | 2020 |
| CBRN IEW - ICD | 2 | 2021 | 2 | 2021 |
| CBRN IEW - Initial Sensor Integration | 1 | 2021 | 4 | 2021 |
| JEM Increment 2 - RDP 4 | 3 | 2019 | 4 | 2019 |
| JEM Increment 2 - FD 3 | 3 | 2019 | 3 | 2019 |
| JEM Increment 2 - FD 4 | 3 | 2020 | 3 | 2020 |
| JEM Increment 2 - Govt DT / OT / V&V | 1 | 2019 | 4 | 2020 |
| JEM Increment 2 - BD 4 | 1 | 2019 | 1 | 2019 |
| JEM Increment 2 - BD 5 | 3 | 2019 | 3 | 2019 |
| JEM Increment 2 - FOC Standalone | 2 | 2019 | 2 | 2019 |
| JEM Increment 2 - IOC Emerging Capabilities | 4 | 2019 | 4 | 2019 |
| JWARN Increment 2 - Govt DT / OT / UFEs / OAs / FOTs | 1 | 2020 | 4 | 2020 |
| JWARN Increment 2 - Modernization and Update | 1 | 2020 | 4 | 2020 |
| JWARN Increment 2 - Product Development | 1 | 2020 | 3 | 2020 |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | | | | | | | | | | Date: February 2020 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>0400 / 4 | | | | | R-1 Program Element (Number/Name)<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | | | | Project (Number/Name)<br>MB4 / *Medical Biological Defense (ACD&P)* | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2019** | **FY 2020** | **FY 2021 Base** | **FY 2021 OCO** | **FY 2021 Total** | **FY 2022** | **FY 2023** | **FY 2024** | **FY 2025** | **Cost To Complete** | **Total Cost** |
| MB4: *Medical Biological Defense (ACD&P)* | - | 63.783 | 46.166 | 47.727 | - | 47.727 | 37.689 | 42.517 | 31.436 | 35.462 | Continuing | Continuing |
| 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) Biosafety Level 4 Good Laboratory Practice Test and Evaluation (BSL4 GLP T&E)
(2) Chem Bio Incident Preparedness and Response - Biosafety Level 4 Research Institute of Infectious Diseases (CBIPR - BSL4 RIID)
(3) Chem Bio Incident Preparedness and Response - Advanced Development and Manufacturing (CBIPR - ADM)
(4) Countermeasures for Multi-Drug Resistance-Bacterial (CMDR-B)
(5) Medical Countermeasure Platform Technologies (MCMPT)
(6) Next Generation Diagnostic System 2 (NGDS Increment 2)
(7) NGDS 2 Chemical Diagnostics (NGDS 2 CHEMDX)
(8) Filovirus Vaccine (VAC FILO)
(9) Venezuelan Equine Encephalitis (VAC VEE)

The Medical Countermeasure BSL-4 GLP T&E capability 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 studies to meet programmatic needs following all applicable regulatory, biosurety, and safety standards.

The capability building effort at the DoD ADM will establish and enhance proven biopharmaceutical and vaccine manufacturing technologies to accelerate the delivery of medical countermeasures as part of a medical integrated layered defense. The 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 (CBIPR-ADM) to support operational availability.

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MB4 / *Medical Biological Defense (ACD&P)* |

The CMDR-B program develops MCMs for Service members for protection against multi-drug resistant (MDR) bacteria, including Biological Warfare Agents (BWAs) and organisms that are genetically modified to be MDR and resulting bio-toxins. The resulting product(s) will be FDA approved to prevent or minimize effects of MDR bacterial exposures. The candidate drug was approved by the FDA in Oct 2018 for Community Acquired Bacterial Pneumonia (CAPB) that was required as part of the acquisition strategy for the antibiotic repurposing program from S&T to advanced development.

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

The NGDS 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 1 offers improved operational suitability and affordability over legacy systems by developing FDA cleared biological warfare agent (BWA) and infectious disease in vitro diagnostic (IVD) assays on an existing commercial diagnostic device with a well-established FDA regulatory history and pipeline of commercial non-BWA infectious disease diagnostic tests. NGDS Increment 2 will complement NGDS Increment 1 by developing diagnostics for unmet biological pathogen and toxin threats, chemical and radiological exposures, and to 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 has been broken out into two separate programs; 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 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 responsibly shelving program development efforts until prototype transition from our S&T partners. 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).

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 to include U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID), Defense Threat Reduction Agency (DTRA), Joint Science Technology Office (JSTO)

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MB4 / *Medical Biological Defense (ACD&P)* |

and other agencies. 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.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|---|---|---|---|
| ***Title:*** 1) BSL-4 GLP Test & Evaluation | 6.094 | 5.734 | 3.826 |
| ***Description:*** Clinical Studies<br><br>***FY 2020 Plans:***<br>Continue to 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.<br><br>***FY 2021 Plans:***<br>Continue to conduct a minimum of one GLP BSL-4 T&E medical countermeasure non-human primate study 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.<br><br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being restructured. | | | |
| ***Title:*** 2) CBIPR-BSL4 RIID | - | - | 2.498 |
| ***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<br><br>***FY 2021 Plans:***<br>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.<br><br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Minor change due to routine program adjustments. | | | |
| ***Title:*** 3) CBIPR - ADM | - | 8.000 | 8.126 |
| ***Description:*** Establish proven enabling manufacturing technologies at the DoD ADM Capability Building.<br><br>***FY 2020 Plans:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MB4 / *Medical Biological Defense (ACD&P)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|---|---|---|---|
| Initiate tech transfer and enhancement of manufacturing technologies to support MCM development against biological threats.<br>***FY 2021 Plans:***<br>Continue tech transfer and enhancement of manufacturing technologies to support MCM development against biological threats.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Minor change due to routine program adjustments. | | | |
| ***Title:*** 4) Countermeasures for Multi-Drug Resistance-Bacterial (CMDR-B)<br>***Description:*** Anti-Bacterial Therapeutics | 1.460 | - | - |
| ***Title:*** 5) Medical Countermeasure Platform Technologies (MCMPT)<br>***Description:*** Rapid Response<br>***FY 2020 Plans:***<br>Continue development of a rapid response capability.<br>***FY 2021 Plans:***<br>Continue development of a rapid response capability.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Increase due to change in program/project technical parameters. Efforts will be progressing into manufacturing FY21. | 9.892 | 7.704 | 13.104 |
| ***Title:*** 6) MCMPT<br>***Description:*** ADAMANT<br>***FY 2020 Plans:***<br>Closing out ADAMANT BoNT mAbs activities in preparation for transition to advanced developer and ramping up ADAMANT Plague activities.<br>***FY 2021 Plans:***<br>Continue optimization and development of ADAMANT Plague mAbs to support delivery of a product MCM.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Increase due to change in program/project technical parameters. Overall increase due to manufacturing. | 18.354 | 7.189 | 17.621 |
| ***Title:*** 7) MCMPT<br>***Description:*** Vaccine Platform | 3.872 | 1.397 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MB4 / *Medical Biological Defense (ACD&P)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|---|---|---|---|
| ***FY 2020 Plans:***<br>Complete development efforts for the vaccine platform capability.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Program/project terminated in FY 2020. Vaccine efforts ends FY20. | | | |
| ***Title:*** 8) Next Generation Diagnostic System 2 (NGDS 2)<br>***Description:*** Chemical Diagnostic System<br>***FY 2020 Plans:***<br>Complete development of prototype for Chemical agent diagnostics.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Program/project funding transferred to another funding line. Program/project funding transferred to NGDS 2 CHEMDX in FY21. | 7.151 | 0.619 | - |
| ***Title:*** 9) NGDS 2 Chemical Diagnostics (NGDS 2 CHEMDX)<br>***Description:*** Chemical Diagnostic System<br>***FY 2021 Plans:***<br>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.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Program/project funding transferred from another funding line. Program/project funding transferred from NGDS Increment 2. | - | - | 2.552 |
| ***Title:*** 10) Filovirus Vaccine (VAC FILO)<br>***Description:*** Assays and nonclinical<br>***FY 2020 Plans:***<br>Complete nonclinical studies for vaccine prototype, and complete support of clinical trial.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Program/project is entering completion and all activities will be closed. Program will responsibly shelve development efforts until prototype transition from S&T partners. | 5.042 | 6.303 | - |
| ***Title:*** 11) VAC FILO | 4.191 | 6.500 | - |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
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| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MB4 / *Medical Biological Defense (ACD&P)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|---|---|---|---|
| ***Description:*** Manufacturing<br><br>***FY 2020 Plans:***<br>Complete stability testing.<br><br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Program/project is entering completion and all activities will be closed. Program will responsibly shelve development efforts until prototype transition from S&T partners. | | | |
| ***Title:*** 12) Venezuelan Equine Encephalitis (VAC VEE)<br><br>***Description:*** Non Clinical and Clinical<br><br>***FY 2020 Plans:***<br>Continue clinical and nonclinical and efforts for multiple candidates prior to competitive selection.<br><br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Program/project is entering completion and all activities will be closed. Program will responsibly shelve development efforts until prototype transition from S&T partners. | 7.727 | 2.720 | - |
| **Accomplishments/Planned Programs Subtotals** | 63.783 | 46.166 | 47.727 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • MB5: *Medical Biological Defense (SDD)* | 127.933 | 130.074 | 86.460 | - | 86.460 | 56.868 | 45.226 | 68.593 | 83.282 | Continuing | Continuing |
| • MB7: *Medical Biological Defense (Op Sys Dev)* | 8.602 | 3.231 | 2.308 | - | 2.308 | 2.012 | 2.305 | 5.975 | 9.188 | Continuing | Continuing |
| • JM6677: *ADVANCED ANTICONVULSANT SYSTEM (AAS)* | 0.000 | 3.152 | 0.000 | - | 0.000 | 4.885 | 8.052 | 7.862 | 1.394 | Continuing | Continuing |
| • JM8788: *NEXT GENERATION DIAGNOSTICS SYSTEM (NGDS)* | 6.563 | 4.905 | 0.970 | - | 0.970 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 12.438 |
| • JX0005: *DOD BIOLOGICAL VACCINE PROCUREMENT (VACCINES)* | 0.183 | 0.173 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.356 |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MB4 / *Medical Biological Defense (ACD&P)* |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • JX0210: *DEFENSE BIOLOGICAL PRODUCTS ASSURANCE PROGRAM (DBPAP)* | 0.975 | 2.961 | 2.845 | - | 2.845 | 2.760 | 2.736 | 2.736 | 2.736 | Continuing | Continuing |

**Remarks**

**D. Acquisition Strategy**

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

The Medical Countermeasure Systems (MCM) BSL-4 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 MCMs against threats that require high-level containment using non-human primates. The period of FY18 and beyond will continue to support the BSL-4 T&E capability. In FY21 and beyond, the Defense-Wide Review 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) BSL-4 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 MCMs against threats that require high-level containment using non-human primates. The period of FY18 and beyond will continue to support the BSL-4 T&E capability.

CHEM BIO INCIDENT PREPAREDNESS AND RESPONSE - ADM

A contract was awarded to Ology Bioservices on 20 March 2013 (then Nanotherapeutics, Inc.) to establish a Department of Defense (DoD) ADM Facility to rapidly develop, approve (through FDA approval), and manufacture MCMs. The contract was structured to be executed in two (2) phases:

Phase 1-Establish, commission and validate (facility(ies)/ equipment) for two (2) advanced development and manufacturing suites that use agile, flexible (single use, disposable), modular and multi-product technologies for MCM advanced development and manufacturing. Both suites must meet Biological Safety Level-3 (BSL-3) standards. Phase 1 was completed on 31 March 2017.

Phase 2-Support and maintain that capability in a state of readiness to support MCM development (under the animal rule as applicable) and manufacturing and assist in training personnel in its use. This includes transition and integration of new technologies, from Pre-Investigational New Drug Application phase with readiness to support simultaneous operations, through FDA licensure. The first sustainment option (POP 2 years) was completed in 2QFY19; the subsequent sustainment option began thereafter and is scheduled for completion in 4QFY20, but can be extended until 2QFY21 if needed.

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MB4 / *Medical Biological Defense (ACD&P)* |

COUNTERMEASURES FOR DRUG RESISTANT BACTERIA (CMDR-B)

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

MCM PLATFORM TECHNOLOGIES (MCMPT)

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

NEXT GENERATION DIAGNOSTICS SYSTEM (NGDS)

The NGDS 1 program was a MS A to MS C - acquisition strategy, with MS C approval granted in Dec 2016 for limited production and fielding. NGDS 1 is replacing the legacy Joint Biological Agent Identification and Diagnostic System (JBAIDS) beginning in FY17. 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 is broken out into NGDS 2 CHEMDx and NGDS 2 MPDS starting in FY21.

NEXT GEN DIAG 2 CHEMICAL DIAGNOSTICS (NGDS 2 CHEMDX)

NGDS Increment 2 will employ a family of systems approach to bridge identified capability gaps for man-portable diagnostics, immunoassay diagnostics, and chemical diagnostics systems. NGDS 2 CHEMDX will provide a lightweight, portable, and simple-to-use diagnostic capability against chemical threat agents to end-users in

non-laboratory, far-forward environments. NGDS 2 CHEMDX initiated prototyping in FY18 and will conclude prototyping in FY21. NGDS 2 CHEMDX is using an Other Transactions Authority (OTA) agreement to take advantage of nontraditional Defense contractor offerings. NGDS 2 CHEMDX program is broken out from the NGDS Increment 2 program starting in FY21.

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 responsibly shelving program development efforts until 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 (MS B). At MS B, the best pre-exposure prophylaxis prototype will be selected through a full and open competition to transition to the Engineering and Manufacturing Development (EMD) phase with the delivery of an Food and Drug Administration (FDA) licensed Marburg pre-exposure prophylactic product. It is anticipated that the EMD phase contract will be a mix of Cost Plus and Fixed Price. In addition, the program office may leverage the Advanced Development and Manufacturing capability, and other DoD agencies and laboratories to include the United States Army Medical Research Institute of Infectious Diseases (USAMRIID). Following a successful MS B, the program will conduct manufacturing qualification/validation, expanded clinical and nonclinical testing, and assay qualification and validation efforts. These efforts will support the Biological Licensure Application (BLA) submission to the FDA and licensure of a Marburg pre-exposure prophylactic product.

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 from MS B to MS C. The schedule is based on a competitive selection to one prototype at MS C 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, therefore the current effort of the MVA and VLP will be the candidates utilized for the MS B down select until a future candidate can be assessed for advanced development. 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 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MB4 / *Medical Biological Defense (ACD&P)* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CBIPR-ADM - Enabling Manufacturing Technologies | C/CPFF | Ology : Alachua, FL | 0.000 | 0.000 | | 6.706 | Dec 2019 | 7.380 | Dec 2020 | - | | 7.380 | Continuing | Continuing | 0.000 |
| MCMPT - HW S - Rapid Response | C/CPFF | Ology : Alachua, FL | 0.420 | 5.966 | Jul 2019 | 4.161 | Dec 2019 | 9.328 | Dec 2020 | - | | 9.328 | Continuing | Continuing | 0.000 |
| MCMPT - HW S - Vaccine Platform Development Efforts | C/CPFF | Ology : Alachua, FL | 0.000 | 2.815 | Mar 2019 | 1.002 | Dec 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| MCMPT - HW S - ADAMANT MCM Development | C/CPFF | Ology : Alachua, FL | 0.000 | 12.847 | Jan 2019 | 7.430 | Dec 2019 | 12.592 | Dec 2020 | - | | 12.592 | Continuing | Continuing | 0.000 |
| NGDS - HW C - NGDS 2 Develop and mature prototypes for Chemical Agent Diagnostics | C/CPFF | MRIGlobal : Palm Bay, FL | 1.566 | 1.678 | Dec 2018 | 0.452 | Dec 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 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 | 0.038 | 0.090 | Nov 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 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 | | 0.000 | | 0.032 | Dec 2020 | - | | 0.032 | Continuing | Continuing | 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 | | 0.000 | | 0.800 | Dec 2020 | - | | 0.800 | Continuing | Continuing | 0.000 |
| VAC FILO - Non Clinical Studies | MIPR | US Army Medical Research Institute of Infectious Disease (USAMRIID) : Fort Detrick, MD | 21.395 | 0.216 | Dec 2018 | 3.239 | Dec 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| VAC FILO - HW S - Manufacturing | C/CPIF | Various : Various | 15.508 | 0.751 | Dec 2018 | 0.500 | Dec 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MB4 / *Medical Biological Defense (ACD&P)* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VAC VEE - Prototypes Phase 1 Clinical Trials | C/CPIF | Various : Various | 0.000 | 6.446 | Dec 2018 | 1.614 | Oct 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| VAC VEE - Prototypes Non Clinical Comparability Studies | Allot | Various : Various | 0.000 | 0.000 | | 0.670 | Oct 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| VAC VEE - Manufacturing | Various | TBD : N/A | 0.000 | 0.080 | | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 38.927 | 30.889 | | 25.774 | | 30.132 | | - | | 30.132 | Continuing | Continuing | N/A |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NGDS - ES C - Studies and WIPT Support | C/CPFF | John Hopkins University : Laurel, MD | 0.282 | 0.168 | Dec 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| NGDS 2 CHEMDX - ES C - Studies and WIPT Support | C/CPFF | Johns Hopkins University - Applied Physics Lab : Laurel, MD | 0.000 | 0.000 | | 0.000 | | 0.300 | Dec 2020 | - | | 0.300 | Continuing | Continuing | 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 | 3.408 | 0.020 | Dec 2018 | 0.040 | Dec 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 3.690 | 0.188 | | 0.040 | | 0.300 | | - | | 0.300 | Continuing | Continuing | N/A |

**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BSL4 GLP T&E - DTE SB - T&E Facility | MIPR | US Army Medical Research Institute of | 30.220 | 4.410 | Dec 2018 | 4.682 | Dec 2019 | 2.777 | Dec 2020 | - | | 2.777 | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MB4 / *Medical Biological Defense (ACD&P)* |

**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Infectious Disease (USAMRIID) : Fort Detrick, MD | | | | | | | | | | | | | |
| 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 | | 0.000 | | 2.498 | Dec 2020 | - | | 2.498 | Continuing | Continuing | 0.000 |
| VAC FILO - OTHT SB - Testing, Evaluation, and Clinical Trials | MIPR | Walter Reed Institute of Research : Washington, DC | 41.819 | 1.260 | Dec 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| VAC FILO - OTE C - Assay Development, Testing and Evaluation | C/CPFF | Various : Various | 16.259 | 1.163 | Dec 2018 | 1.014 | Dec 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| VAC FILO - OTHT SB - Clinical Trials | C/CPIF | Various : Various | 1.650 | 1.001 | Dec 2018 | 3.482 | Dec 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 89.948 | 7.834 | | 9.178 | | 5.275 | | - | | 5.275 | Continuing | Continuing | N/A |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BSL4 GLP T&E - Program Management (OPETS) | C/FFP | JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD | 0.000 | 1.107 | Feb 2019 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| BSL4 GLP T&E - Program Management (JPM) Support | Various | JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD | 0.000 | 0.019 | Dec 2018 | 0.545 | Dec 2019 | 0.544 | Dec 2020 | - | | 0.544 | Continuing | Continuing | 0.000 |
| BSL4 GLP T&E - Program Management (JPdM MCS) | Various | JPEO Chem/Bio Defense (JPEO- | 0.000 | 0.558 | Dec 2018 | 0.507 | Dec 2019 | 0.505 | Dec 2020 | - | | 0.505 | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MB4 / *Medical Biological Defense (ACD&P)* |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CBD) : Aberdeen Proving Ground, MD | | | | | | | | | | | | | |
| CBIPR-ADM - PM/MS C - Program Management Support | Various | JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD | 0.000 | 0.000 | | 0.560 | Dec 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| CBIPR-ADM - PM/MS C - Program Management Support #2 | Various | JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD | 0.000 | 0.000 | | 0.734 | Dec 2019 | 0.746 | Dec 2020 | - | | 0.746 | Continuing | Continuing | 0.000 |
| CMDR-B - PM/MS SB - Program Management (Biological Therapeutics) | Various | JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD | 0.332 | 0.623 | Dec 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| CMDR-B - PM/MS S - Program Management Support (OPETS) | C/FFP | Various : Various | 0.323 | 0.837 | Nov 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| MCMPT - PM/MS C Program Management | Various | JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND) | 0.000 | 2.602 | Dec 2018 | 2.056 | Dec 2019 | 3.490 | Dec 2020 | - | | 3.490 | Continuing | Continuing | 0.000 |
| MCMPT - PM/MS C - JPdM PRISM Support | Various | JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD | 0.000 | 1.454 | Dec 2018 | 0.000 | | 3.162 | Dec 2020 | - | | 3.162 | Continuing | Continuing | 0.000 |
| MCMPT - PM/MS S - Management | Various | JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD | 0.080 | 2.232 | Dec 2018 | 1.641 | Dec 2019 | 2.153 | Dec 2020 | - | | 2.153 | Continuing | Continuing | 0.000 |
| MCMPT - PM/MS C - ADMC Support | C/CPFF | Ology : Alachua, FL | 0.000 | 4.202 | Dec 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MB4 / *Medical Biological Defense (ACD&P)* |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NGDS - PM/MS S - Program Management (JPEO) Support | Various | JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD | 0.530 | 1.037 | Dec 2018 | 0.045 | Dec 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| NGDS - PM/MS C - Program Management (Dx) Support | MIPR | Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD | 0.000 | 0.215 | Nov 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| NGDS - PM/MS SB - Program Management (JPM) Support | Various | JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD | 3.647 | 1.759 | Dec 2018 | 0.041 | Dec 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| NGDS - PM/MS S - Program Management (Dx) Support | Various | JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD | 2.059 | 2.204 | Dec 2018 | 0.081 | Dec 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| NGDS 2 CHEMDX - PM/MS S - Program Management (JPM) Support | Various | JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD | 0.000 | 0.000 | | 0.000 | | 0.179 | Dec 2020 | - | | 0.179 | Continuing | Continuing | 0.000 |
| NGDS 2 CHEMDX - PM/MS S - Program Management (JPEO) | Various | JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND) | 0.000 | 0.000 | | 0.000 | | 0.291 | Dec 2020 | - | | 0.291 | Continuing | Continuing | 0.000 |
| NGDS 2 CHEMDX - PM/MS S - Program Management (ChemDx) | Various | JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD | 0.000 | 0.000 | | 0.000 | | 0.017 | Dec 2020 | - | | 0.017 | Continuing | Continuing | 0.000 |
| NGDS 2 CHEMDX - PM/MS S - Product Management Support | MIPR | Combat Capabilities Development Command (CCDC) | 0.000 | 0.000 | | 0.000 | | 0.228 | Dec 2020 | - | | 0.228 | Continuing | Continuing | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MB4 / *Medical Biological Defense (ACD&P)* |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Chemical Biological Center : Aberdeen Proving Ground, MD | | | | | | | | | | | | | |
| NGDS 2 CHEMDX - PM/MS S - Program Management (OPETS) | C/FFP | Various : Various | 0.000 | 0.000 | | 0.000 | | 0.705 | Dec 2020 | - | | 0.705 | Continuing | Continuing | 0.000 |
| VAC FILO - Program Management (JPM) Support | Various | Various : Various | 3.266 | 1.015 | Dec 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| VAC FILO - Program Management (JPdM MCS) | Various | JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD | 7.180 | 0.444 | Dec 2018 | 2.683 | Dec 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| VAC FILO - Program Management (JPEO) Support | Various | JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD | 9.269 | 2.222 | Dec 2018 | 1.845 | Dec 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| VAC FILO - Program Management (OPETS) | C/FFP | Various : Various | 2.500 | 1.141 | Feb 2019 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| VAC VEE - Program Management (JPM) Support | Various | JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD | 0.000 | 0.160 | Dec 2018 | 0.094 | Dec 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| VAC VEE - Program Management (JPEO) Support | Various | JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD | 0.000 | 1.041 | Dec 2018 | 0.342 | Dec 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 29.186 | 24.872 | | 11.174 | | 12.020 | | - | | 12.020 | Continuing | Continuing | N/A |

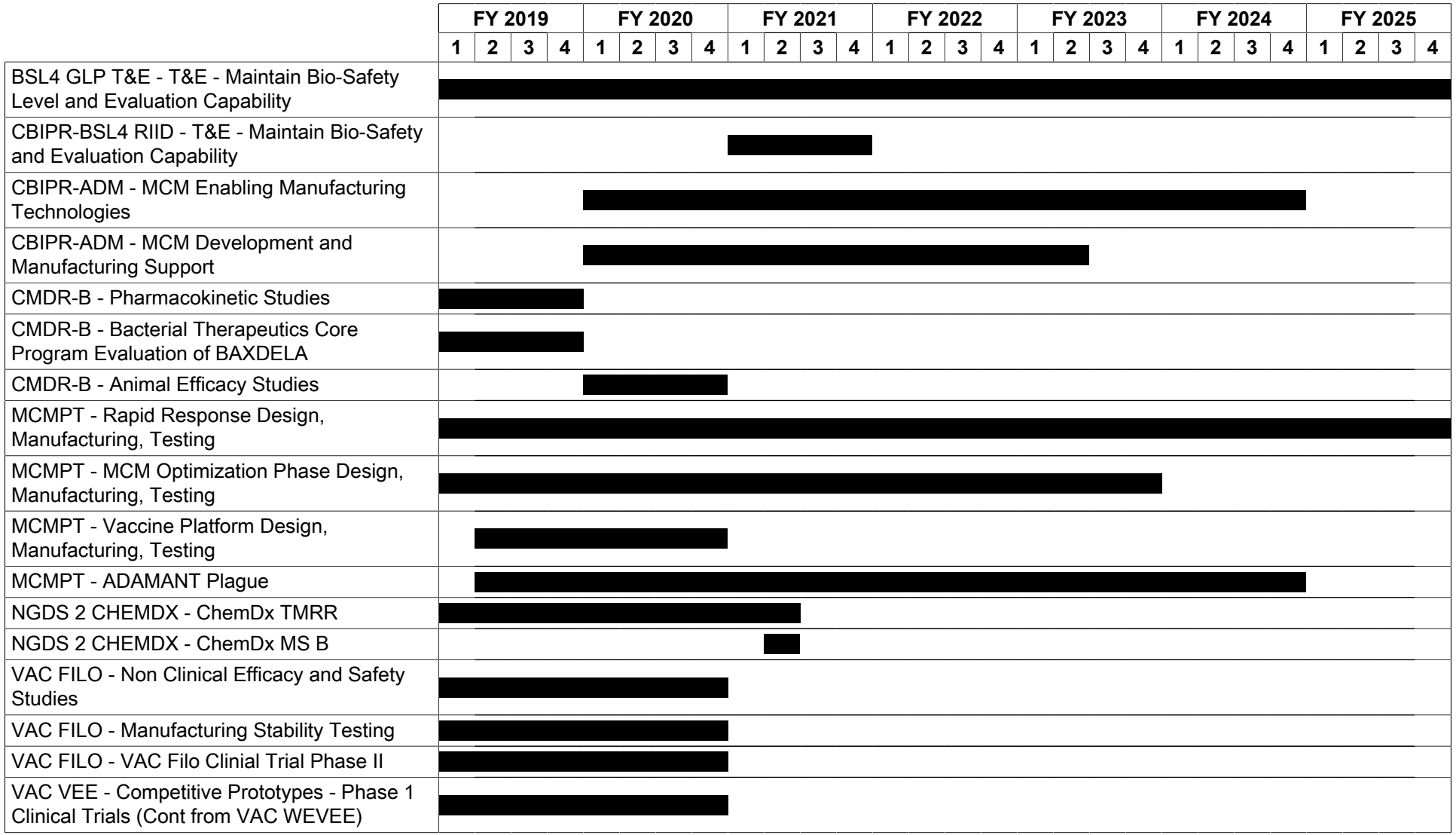
| | Prior Years | FY 2019 | | FY 2020 | | FY 2021 Base | | FY 2021 OCO | | FY 2021 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 161.751 | 63.783 | | 46.166 | | 47.727 | | - | | 47.727 | Continuing | Continuing | N/A |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | | Date: February 2020 |
|---|---|---|---|
| Appropriation/Budget Activity<br>0400 / 4 | R-1 Program Element (Number/Name)<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | Project (Number/Name)<br>MB4 / *Medical Biological Defense (ACD&P)* | |

| | Prior Years | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MB4 / *Medical Biological Defense (ACD&P)* |



| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MB4 / *Medical Biological Defense (ACD&P)* |

| | FY 2019 | | | | FY 2020 | | | | FY 2021 | | | | FY 2022 | | | | FY 2023 | | | | FY 2024 | | | | FY 2025 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| VAC VEE - Stability Testing | [redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| VAC VEE - Competitive Prototypes - Non-Clinical Studies | [redacted] | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MB4 / *Medical Biological Defense (ACD&P)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| BSL4 GLP T&E - T&E - Maintain Bio-Safety Level and Evaluation Capability | 1 | 2019 | 4 | 2025 |
| CBIPR-BSL4 RIID - T&E - Maintain Bio-Safety and Evaluation Capability | 1 | 2021 | 4 | 2021 |
| CBIPR-ADM - MCM Enabling Manufacturing Technologies | 1 | 2020 | 4 | 2024 |
| CBIPR-ADM - MCM Development and Manufacturing Support | 1 | 2020 | 2 | 2023 |
| CMDR-B - Pharmacokinetic Studies | 1 | 2019 | 4 | 2019 |
| CMDR-B - Bacterial Therapeutics Core Program Evaluation of BAXDELA | 1 | 2019 | 4 | 2019 |
| CMDR-B - Animal Efficacy Studies | 1 | 2020 | 4 | 2020 |
| MCMPT - Rapid Response Design, Manufacturing, Testing | 1 | 2019 | 4 | 2025 |
| MCMPT - MCM Optimization Phase Design, Manufacturing, Testing | 1 | 2019 | 4 | 2023 |
| MCMPT - Vaccine Platform Design, Manufacturing, Testing | 2 | 2019 | 4 | 2020 |
| MCMPT - ADAMANT Plague | 2 | 2019 | 4 | 2024 |
| NGDS 2 CHEMDX - ChemDx TMRR | 1 | 2019 | 2 | 2021 |
| NGDS 2 CHEMDX - ChemDx MS B | 2 | 2021 | 2 | 2021 |
| VAC FILO - Non Clinical Efficacy and Safety Studies | 1 | 2019 | 4 | 2020 |
| VAC FILO - Manufacturing Stability Testing | 1 | 2019 | 4 | 2020 |
| VAC FILO - VAC Filo Clinial Trial Phase II | 1 | 2019 | 4 | 2020 |
| VAC VEE - Competitive Prototypes - Phase 1 Clinical Trials (Cont from VAC WEVEE) | 1 | 2019 | 4 | 2020 |
| VAC VEE - Stability Testing | 1 | 2019 | 4 | 2020 |
| VAC VEE - Competitive Prototypes - Non-Clinical Studies | 1 | 2019 | 4 | 2020 |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | | Date: February 2020 |
|---|---|---|---|
| Appropriation/Budget Activity<br>0400 / 4 | R-1 Program Element (Number/Name)<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | Project (Number/Name)<br>MC4 / *Medical Chemical Defense (ACD&P)* | |

| COST ($ in Millions) | Prior Years | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MC4: *Medical Chemical Defense (ACD&P)* | - | 3.685 | 0.000 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 3.685 |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

**A. Mission Description and Budget Item Justification**

This Project provides for the development of medical materiel and other medical equipment items necessary for the Technology Maturation and Risk Reduction phase of the acquisition life cycle for the advanced development of Medical Countermeasures (MCMs) for chemical warfare agents including diagnostic equipment, prophylactic, pre-treatment, and therapeutic drugs, and individual/casualty decontamination compounds. A family-of-systems approach for medical defense against chemical warfare agents is required to provide protection, to sustain performance in a chemical environment, and to provide for self-aid/buddy-aid and medical treatment of chemical casualties. Fielding of prophylactic, pre-treatment, and therapeutic drugs and medical devices requires Food and Drug Administration (FDA) approval. Given the family-of-systems approach for development of chemical MCMs for the treatment of nerve agent intoxication, multiple long-term studies are required to obtain FDA approval to deliver products that effectively integrate with current and projected therapeutic regimens. Efficacy testing of most candidate drugs against chemical warfare agents cannot be conducted in humans; therefore, animal surrogate models must be developed and employed.

Efforts included in this project are:
(1) Emerging Threats (EMRT)
(2) Improved Nerve Agent Treatment System (INATS)

EMRT program is developing and fielding of FDA-approved therapeutic medical countermeasures (MCMs). The purpose of the MCM is to provide therapeutic benefits to the Joint Service warfighter against operational exposures to the opioid class of pharmaceutical-based agents (PBAs) as a high priority. The EMRT program is called the Rapid Opioid Countermeasure System (ROCS) in FY20 MC5. ROCS will use MC5 funds for advanced development of a 10 mg naloxone autoinjector as a rescue therapeutic to treat against operational opioid exposure.

The INATS advanced development provides an enhanced capability treatment regimen offering greater protection over a broader spectrum of toxic nerve agent threats. Components of the development include (1) a new and improved oxime (replacing 2-pralidoxime chloride (2-PAM) to treat current and emerging threats and (2) insertion of a centrally-acting (CA) anticholinergic agent to the treatment regimen to increase survivability and decrease morbidity.

The INATS treatment regimen both improves the performance of, and eventually replaces the Antidote Treatment Nerve Agent Auto-injector (ATNAA).

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|---|---|---|---|
| ***Title:*** 1) Emerging Threats (EMRT) - Prototype Development | 1.735 | - | - |
| ***Description:*** Regulatory | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MC4 / *Medical Chemical Defense (ACD&P)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|---|---|---|---|
| ***Title:*** 2) Improved Nerve Agent Treatment System (INATS)<br>***Description:*** Clinical - Oxime | 1.344 | - | - |
| ***Title:*** 3) INATS<br>***Description:*** Manufacturing - Oxime | 0.300 | - | - |
| ***Title:*** 4) INATS<br>***Description:*** Nonclinical - Oxime | 0.306 | - | - |
| **Accomplishments/Planned Programs Subtotals** | 3.685 | - | - |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • MC5: *Medical Chemical Defense (SDD)* | 43.648 | 60.220 | 54.392 | - | 54.392 | 52.813 | 31.441 | 15.215 | 15.019 | Continuing | Continuing |
| • JM6677: *ADVANCED ANTICONVULSANT SYSTEM (AAS)* | 0.000 | 3.152 | 0.000 | - | 0.000 | 4.885 | 8.052 | 7.862 | 1.394 | Continuing | Continuing |

**Remarks**

**D. Acquisition Strategy**

EMERGING THREAT CHEMICAL THERAPEUTICS (EMRT)

The EMRT program transitioned to Rapid Opioid Countermeasure System (ROCS) in FY20 using MC5 funds.

EMRT program is developing and fielding of FDA-approved therapeutic medical countermeasures (MCMs). The purpose of the MCM is to provide therapeutic benefits to the Joint Service warfighter against operational exposures to the opioid class of pharmaceutical-based agents (PBAs) as a high priority. The first increment of the EMRT program will develop a naloxone autoinjector as a rescue treatment that will counteract the adverse effects from exposure to opioids. The program will use MC5 funds in FY20 to develop and gain FDA approval the autoinjector.

IMPROVED NERVE AGENT TREATMENT SYSTEM (INATS)

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MC4 / *Medical Chemical Defense (ACD&P)* |

The INATS (MC4) program concludes as INATS in FY19.

In the Technology Maturation and Risk Reduction (TM&RR) phase, close collaborations will occur with the science/ technology, and user communities to assess technical viability, capability delivery options, and to refine operational concepts; the Government will be the systems integrator overseeing the conduct of centrally acting formulation development efforts, nonclinical toxicology and efficacy studies and clinical safety studies. In the Engineering and Manufacturing Development (EMD) phase, the Government will engage with commercial partner(s) to ensure that INATS CA development and manufacture is in accordance with Food and Drug Administration (FDA) regulations. In FY21 and beyond, the Defense-Wide Review (DWR) reduced this program for higher priorities, resulting in only the INATS CA component being pursued.

The INATS (MC7) line initiates in FY20 and transitions to INATS CA (MC7) in FY21. INATS (MC7) will support the modernization of Soman Nerve Agent Pretreatment Pyridostigmine (SNAPP) using contract actions to extend operational shelf-life and generate data to expand storage temperature conditions.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MC4 / *Medical Chemical Defense (ACD&P)* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EMRT - HW C - Emerging Threats | C/CPFF | kaleo : Richmond, VA | 0.000 | 1.462 | Jul 2019 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 1.462 | 0.000 |
| INATS - HW C - CMC Manufacturing of trial material | C/CPFF | Battelle Memorial Institute : Columbus, OH | 0.849 | 0.100 | Dec 2018 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.949 | 0.000 |
| | | **Subtotal** | 0.849 | 1.562 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 2.411 | N/A |

**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INATS - DTE C - Cause of Death studies | C/CPFF | Battelle Memorial Institute : Columbus, OH | 2.041 | 0.023 | Nov 2018 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 2.064 | 0.000 |
| INATS - DTE C - Oxime Phase 1 Clinical Trial | C/CPFF | Battelle Memorial Institute : Columbus, OH | 4.771 | 1.238 | Nov 2018 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 6.009 | 0.000 |
| | | **Subtotal** | 6.812 | 1.261 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 8.073 | N/A |

**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EMRT - Program Management (OPETS) | Various | JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD | 0.000 | 0.185 | Dec 2018 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.185 | 0.000 |
| EMRT - Program Management (JPEO) | Various | JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND) | 0.000 | 0.088 | Nov 2018 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.088 | 0.000 |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MC4 / *Medical Chemical Defense (ACD&P)* |

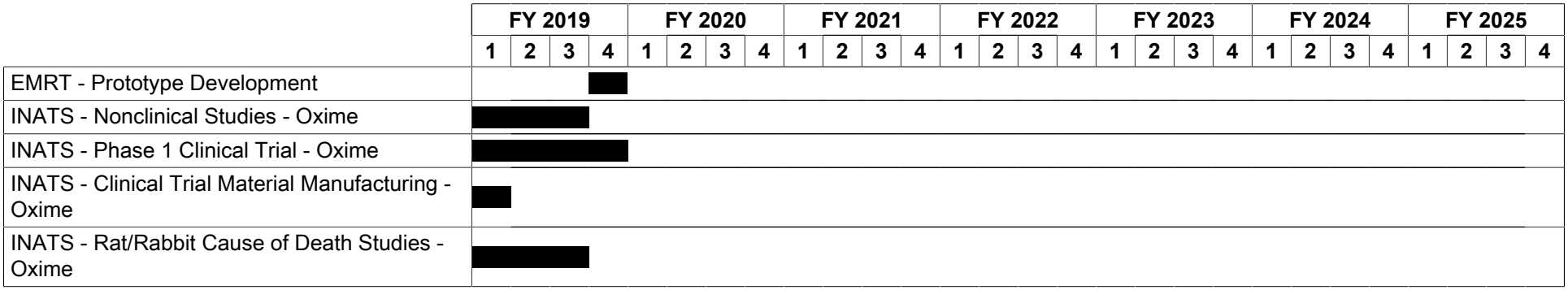
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| INATS - Program Management (JPEO) | Various | JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND) | 0.000 | 0.060 | Dec 2018 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.060 | 0.000 |
| INATS - ADMc Sustainment | C/CPFF | Ology : Alachua, FL | 0.000 | 0.237 | Dec 2018 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 0.237 | 0.000 |
| INATS - Program Management (MCS) Support | Various | JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD | 1.957 | 0.292 | Dec 2018 | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 2.249 | 0.000 |
| | | **Subtotal** | 1.957 | 0.862 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 2.819 | N/A |

| | Prior Years | FY 2019 | | FY 2020 | | FY 2021 Base | | FY 2021 OCO | | FY 2021 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 9.618 | 3.685 | | 0.000 | | 0.000 | | - | | 0.000 | 0.000 | 13.303 | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MC4 / *Medical Chemical Defense (ACD&P)* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>MC4 / *Medical Chemical Defense (ACD&P)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| EMRT - Prototype Development | 4 | 2019 | 4 | 2019 |
| INATS - Nonclinical Studies - Oxime | 1 | 2019 | 3 | 2019 |
| INATS - Phase 1 Clinical Trial - Oxime | 1 | 2019 | 4 | 2019 |
| INATS - Clinical Trial Material Manufacturing - Oxime | 1 | 2019 | 1 | 2019 |
| INATS - Rat/Rabbit Cause of Death Studies - Oxime | 1 | 2019 | 3 | 2019 |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | | Date: February 2020 |
|---|---|---|---|
| Appropriation/Budget Activity<br>0400 / 4 | R-1 Program Element (Number/Name)<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | Project (Number/Name)<br>TE4 / *Test & Evaluation (ACD&P)* | |

| COST ($ in Millions) | Prior Years | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TE4: *Test & Evaluation (ACD&P)* | - | 6.293 | 5.162 | 4.107 | - | 4.107 | 2.822 | 2.823 | 2.824 | 1.601 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

**A. Mission Description and Budget Item Justification**

Chemical Biological Material Assessment Infrastructure (CBMAI) addresses test infrastructure needs with improvements, modifications, and/or new critical test capabilities for chemical, biological, and emerging threat products across the CBDP. The CBMAI funding (BA4-5) is required to provide existing and future test fixtures and methodology to support advanced development test and evaluation intended to meet a changing threat regardless of the test site/location. These activities support current PoRs (e.g., UIPE FoS, NBCRV SSU, etc.) as well as future PoRs such as interdependent contamination mitigation (C3PO, WADS, SEDS), future protective mask programs (i.e., M50 Tech Refresh), remote detection (air to ground/C-SIRP) and integrated early warning (IEW).

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|---|---|---|---|
| ***Title:*** 1) CBMAI | 0.773 | 1.802 | 0.850 |
| ***Description:*** Government Integrated Product Team program management and IPT Support to all JPEO programs and external partners.<br><br>***FY 2020 Plans:***<br>Continue Program Management including Government system engineering, program/financial management, costing, personnel support, travel and overhead.<br><br>***FY 2021 Plans:***<br>Continue Program Management including Government system engineering, program/financial management, costing, personnel support, travel and overhead.<br><br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Decrease due to change in program/project technical parameters. Major developmental programs are ending in FY20, to include the Test Grid and OADMS, therefore funding decreases in FY21. | | | |
| ***Title:*** 2) CBMAI | 5.520 | 3.360 | 3.257 |
| ***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.<br><br>***FY 2020 Plans:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>TE4 / *Test & Evaluation (ACD&P)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|---|---|---|---|
| Continue to study and prioritize future program requirements and test infrastructure needs. Develop equipment and methodologies to provide improved detection and protective ensemble performance data. Develop equipment and technologies to modernize infrastructure to support emerging requirements for early warning/standoff detection systems.<br>***FY 2021 Plans:***<br>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.<br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being restructured. | | | |
| **Accomplishments/Planned Programs Subtotals** | 6.293 | 5.162 | 4.107 |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TE5: *Test & Evaluation (SDD)* | 8.792 | 7.684 | 6.352 | - | 6.352 | 5.878 | 5.879 | 5.879 | 6.371 | Continuing | Continuing |
| • TE7: *Test & Evaluation (Op Sys Dev)* | 6.179 | 5.403 | 0.000 | - | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 11.582 |

**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. In FY21 and beyond, the Defense-Wide Review (DWR) reduced this program for higher priorities.

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>TE4 / *Test & Evaluation (ACD&P)* |

**Product Development ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CBMAI - HW S - Multi Commodity Agent Chamber (MCAC) | C/CPFF | MRIGlobal : Kansas City, MO | 0.000 | 1.090 | Dec 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| CBMAI - HW S - HD Sensor | C/CPFF | MRIGlobal : Kansas City, MO | 0.000 | 1.212 | Nov 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| CBMAI - HW C - Swatch Test Fixtures | MIPR | Combat Capabilities Development Command (CCDC) Chemical Biological Center : Aberdeen Proving Ground, MD | 0.000 | 0.000 | | 0.000 | | 0.600 | Oct 2020 | - | | 0.600 | Continuing | Continuing | 0.000 |
| CBMAI - HW C - Glove Test Fixtures | MIPR | Combat Capabilities Development Command (CCDC) Chemical Biological Center : Aberdeen Proving Ground, MD | 0.000 | 0.000 | | 0.000 | | 0.500 | Oct 2020 | - | | 0.500 | Continuing | Continuing | 0.000 |
| CBMAI - HW C - Remote Detection Chemical Test Fixture | C/CPFF | MRIGlobal : Kansas City, MO | 0.000 | 0.000 | | 0.000 | | 0.800 | Oct 2020 | - | | 0.800 | Continuing | Continuing | 0.000 |
| CBMAI - HW C - Wearable MeS Sensor | C/CPFF | MRIGlobal : Kansas City, MO | 0.000 | 0.000 | | 0.000 | | 0.500 | Oct 2020 | - | | 0.500 | Continuing | Continuing | 0.000 |
| CBMAI - HW S - TI Analysis and Requirements | C/CPFF | Various : Various | 0.000 | 0.932 | Feb 2019 | 3.360 | Dec 2019 | 0.857 | Dec 2020 | - | | 0.857 | Continuing | Continuing | 0.000 |
| CBMAI - HW S - Real Time Man in Simulant Test (MIST) Sensor | C/CPFF | MRIGlobal : Kansas City, MO | 0.000 | 0.564 | Dec 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| CBMAI - HW S - Government/Contractor SE & Technical Management Team | MIPR | CCDC CBC : Aberdeen Proving Ground, MD | 0.000 | 1.508 | Dec 2018 | 0.774 | Nov 2019 | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 0.000 | 5.306 | | 4.134 | | 3.257 | | - | | 3.257 | Continuing | Continuing | N/A |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | | Date: February 2020 |
|---|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>TE4 / *Test & Evaluation (ACD&P)* | |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CBMAI - TD/D S - TECA | C/CPFF | MRIGlobal : Kansas City, MO | 0.000 | 0.075 | Dec 2018 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 0.000 | 0.075 | | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | N/A |

**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CBMAI - WSLAT Decon Study | MIPR | CCDC CBC : Aberdeen Proving Ground, MD | 0.000 | 0.214 | Apr 2019 | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 0.000 | 0.214 | | 0.000 | | 0.000 | | - | | 0.000 | Continuing | Continuing | N/A |

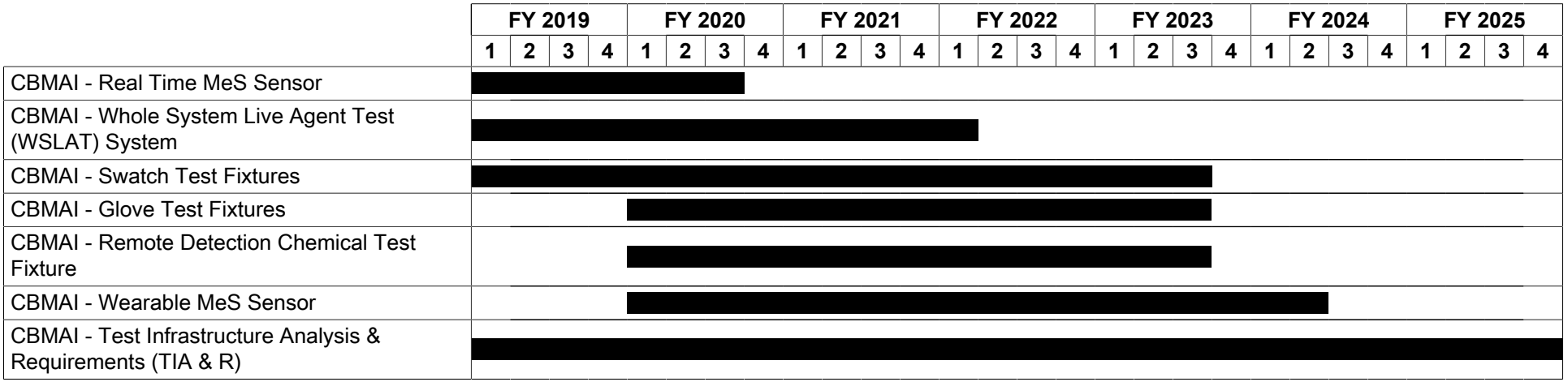
**Management Services ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CBMAI - PM/MS C - IPT Support/Program Management | MIPR | JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD | 0.000 | 0.698 | Dec 2018 | 1.028 | Dec 2019 | 0.850 | Dec 2020 | - | | 0.850 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 0.000 | 0.698 | | 1.028 | | 0.850 | | - | | 0.850 | Continuing | Continuing | N/A |

| | Prior Years | FY 2019 | | FY 2020 | | FY 2021 Base | | FY 2021 OCO | | FY 2021 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 0.000 | 6.293 | | 5.162 | | 4.107 | | - | | 4.107 | Continuing | Continuing | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>TE4 / *Test & Evaluation (ACD&P)* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>TE4 / *Test & Evaluation (ACD&P)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| CBMAI - Real Time MeS Sensor | 1 | 2019 | 3 | 2020 |
| CBMAI - Whole System Live Agent Test (WSLAT) System | 1 | 2019 | 1 | 2022 |
| CBMAI - Swatch Test Fixtures | 1 | 2019 | 3 | 2023 |
| CBMAI - Glove Test Fixtures | 1 | 2020 | 3 | 2023 |
| CBMAI - Remote Detection Chemical Test Fixture | 1 | 2020 | 3 | 2023 |
| CBMAI - Wearable MeS Sensor | 1 | 2020 | 2 | 2024 |
| CBMAI - Test Infrastructure Analysis & Requirements (TIA & R) | 1 | 2019 | 4 | 2025 |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | | Date: February 2020 |
|---|---|---|---|
| Appropriation/Budget Activity<br>0400 / 4 | R-1 Program Element (Number/Name)<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | Project (Number/Name)<br>TM4 / *Techbase Medical Defense (ACD&P)* | |

| COST ($ in Millions) | Prior Years | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TM4: *Techbase Medical Defense (ACD&P)* | - | 0.000 | 0.000 | 0.000 | - | 0.000 | 2.995 | 2.995 | 2.995 | 0.998 | Continuing | Continuing |
| 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.

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | | Date: February 2020 |
|---|---|---|---|
| Appropriation/Budget Activity<br>0400 / 4 | R-1 Program Element (Number/Name)<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | Project (Number/Name)<br>TT4 / *Technology Transition (ACD&P)* | |

| COST ($ in Millions) | Prior Years | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TT4: *Technology Transition (ACD&P)* | - | 0.000 | 0.000 | 0.577 | - | 0.577 | 0.866 | 1.143 | 1.443 | 1.443 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

**A. Mission Description and Budget Item Justification**

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. These programs offer an opportunity to identify and efficiently mature emerging technologies from laboratory experiments to acquisition programs through risk reduction, engineering and integration. These demonstrations and programs seek to demonstrate the potential for enhanced military operational capability and/or cost effectiveness. Upon conclusion of the technical and operational demonstrations, the user or sponsor provides a 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. This project funds efforts to enhance technology transition for two Advanced Technology Demonstration (ATD) areas: Integrated Early Warning (IEW), and Integrated Layered Defense (ILD). The IEW ATD family of products achieve enhanced command and control decision making capabilities as a result of a combined and orchestrated family of chemical and biological defense systems deployed on various platforms in strategic locations. The ILD ATD family of products achieve solutions for capability gaps across medical and non-medical commodity areas to enable warfighter survival and rapid recovery in CBRN environments.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2019 | FY 2020 | FY 2021 |
|---|---|---|---|
| ***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.<br><br>***FY 2021 Plans:***<br>Facilitate transitions of Integrated Early Warning and Integrated Layered Defense products to CBRN-Information Systems (CBRN-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.<br><br>***FY 2020 to FY 2021 Increase/Decrease Statement:***<br>Program/project funding transferred from another funding line. Increase due to transition of demonstration activities from budget activity 3 (RDT&E Project, TT3 Techbase Technology Transition). | | | |
| **Accomplishments/Planned Programs Subtotals** | - | - | 0.577 |

| Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>TT4 / *Technology Transition (ACD&P)* |

**C. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2019 | FY 2020 | FY 2021 Base | FY 2021 OCO | FY 2021 Total | FY 2022 | FY 2023 | FY 2024 | FY 2025 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • TT3: *Technology Transition (ATD)* | 9.577 | 10.982 | 10.416 | - | 10.416 | 10.121 | 9.842 | 9.540 | 9.540 | Continuing | Continuing |

**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 the TT4 project 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 2021 Chemical and Biological Defense Program | | | Date: February 2020 |
|---|---|---|---|
| Appropriation/Budget Activity<br>0400 / 4 | R-1 Program Element (Number/Name)<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | Project (Number/Name)<br>TT4 / *Technology Transition (ACD&P)* | |

**Support ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TECHTRAN - IEW and ILD Transition | MIPR | Combat Capabilities Development Command (CCDC) Chemical Biological Center : Aberdeen Proving Ground, MD | 0.116 | 0.000 | | 0.000 | | 0.116 | Nov 2020 | - | | 0.116 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 0.116 | 0.000 | | 0.000 | | 0.116 | | - | | 0.116 | Continuing | Continuing | N/A |

**Test and Evaluation ($ in Millions)**

| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TECHTRAN - IEW and ILD Transition | MIPR | Combat Capabilities Development Command (CCDC) Chemical Biological Center : Aberdeen Proving Ground, MD | 0.412 | 0.000 | | 0.000 | | 0.411 | Nov 2020 | - | | 0.411 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 0.412 | 0.000 | | 0.000 | | 0.411 | | - | | 0.411 | Continuing | Continuing | N/A |

**Management Services ($ in Millions)**

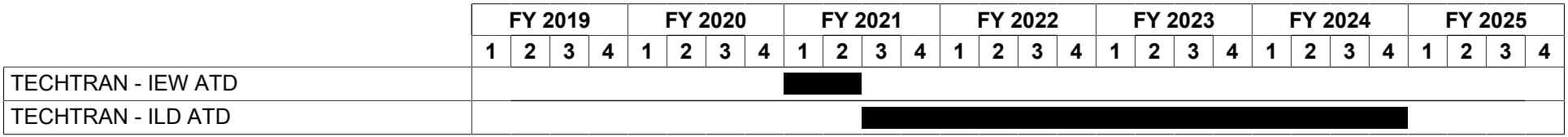
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | FY 2019 Cost | FY 2019 Award Date | FY 2020 Cost | FY 2020 Award Date | FY 2021 Base Cost | FY 2021 Base Award Date | FY 2021 OCO Cost | FY 2021 OCO Award Date | FY 2021 Total Cost | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TECHTRAN - PM/MS S - IEW and ILD Transition | MIPR | Combat Capabilities Development Command (CCDC) Chemical Biological Center : Aberdeen Proving Ground, MD | 0.000 | 0.000 | | 0.000 | | 0.050 | Nov 2020 | - | | 0.050 | Continuing | Continuing | 0.000 |
| | | **Subtotal** | 0.000 | 0.000 | | 0.000 | | 0.050 | | - | | 0.050 | Continuing | Continuing | N/A |

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program | | | Date: February 2020 |
|---|---|---|---|
| Appropriation/Budget Activity<br>0400 / 4 | R-1 Program Element (Number/Name)<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | Project (Number/Name)<br>TT4 / *Technology Transition (ACD&P)* | |

| | Prior Years | FY 2019 | | FY 2020 | | FY 2021 Base | | FY 2021 OCO | | FY 2021 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Project Cost Totals** | 0.528 | 0.000 | | 0.000 | | 0.577 | | - | | 0.577 | Continuing | Continuing | N/A |

**Remarks**

| Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>TT4 / *Technology Transition (ACD&P)* |



| Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program | | Date: February 2020 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 4 | **R-1 Program Element (Number/Name)**<br>PE 0603884BP / *CHEMICAL/BIOLOGICAL DEFENSE (ACD&P)* | **Project (Number/Name)**<br>TT4 / *Technology Transition (ACD&P)* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| TECHTRAN - IEW ATD | 1 | 2021 | 2 | 2021 |
| TECHTRAN - ILD ATD | 3 | 2021 | 4 | 2024 |