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

<b>Appropriation/Budget Activity</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide / BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	50.708	39.530	58.261	-	58.261	-	-	-	-	-	-
CA7: <i>Contamination Avoidance (Op Sys Dev)</i>	-	10.064	15.789	15.051	-	15.051	-	-	-	-	-	-
CM7: <i>Homeland Defense (Op Sys Dev)</i>	-	2.238	1.421	1.522	-	1.522	-	-	-	-	-	-
C07: <i>Collective Protection (Op Sys Dev)</i>	-	5.690	7.865	8.442	-	8.442	-	-	-	-	-	-
DE7: <i>Decontamination (Op Sys Dev)</i>	-	1.414	0.633	1.072	-	1.072	-	-	-	-	-	-
IP7: <i>Individual Protection (Op Sys Dev)</i>	-	6.364	6.463	11.724	-	11.724	-	-	-	-	-	-
IS7: <i>Information Systems (Op Sys Dev)</i>	-	15.773	3.234	15.281	-	15.281	-	-	-	-	-	-
MB7: <i>Medical Biological Defense (Op Sys Dev)</i>	-	2.663	2.308	3.833	-	3.833	-	-	-	-	-	-
MC7: <i>Medical Chemical Defense (Op Sys Dev)</i>	-	1.222	1.817	1.336	-	1.336	-	-	-	-	-	-
TE7: <i>Test &amp; Evaluation (Op Sys Dev)</i>	-	5.280	0.000	0.000	-	0.000	-	-	-	-	-	-

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

The projects in this program element (PE) support efforts to upgrade systems that have been fielded or have received approval for full rate production in order to maintain Joint Force readiness.

Individual projects include:

- Contamination Avoidance (CA7): technology refresh of fielded analytical laboratory system capabilities to conduct on-site analysis of any unknown sample and test potential life-threatening substances.

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<b>Appropriation/Budget Activity</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	
<p>- Homeland Defense (CM7): technology refresh of fielded analytical laboratory system capabilities to conduct on-site analysis of any unknown sample and test potential life-threatening substances.</p> <p>- Collective Protection (CO7): technology upgrade and refresh of fielded collective protection systems that are smaller, lighter, less costly to produce and maintain, and more logistically supportable, enabling mission accomplishment in spaces safe from the effects of chemical, biological, and radiological (CBR) contamination.</p> <p>- Decontamination (DE7): technology refresh of fielded Contamination Mitigation (ConMit) systems that will remove and/or detoxify contaminated material without damaging combat equipment, personnel, or the environment.</p> <p>- Individual Protection (IP7): technology refresh of fielded individual protective equipment which enable the Joint Force to operate in a contaminated CBR environment with little or no degradation to performance.</p> <p>- Information Systems (IS7): technology refresh, modernization and continuous engineering of software applications and information systems to shape and inform the battlespace against CBRN threats.</p> <p>- Medical Biological Defense (MB7): technology refresh of fielded medical diagnostic systems and associated capabilities (e.g., assays) that contribute to the layered medical defenses against biological warfare agent and fielded medical nerve agent treatment system threats facing U.S. Forces in the field.</p> <p>- Medical Chemical Defense (MC7): technology upgrade of fielded medical nerve agent treatment system that contribute to the layered medical defenses against chemical warfare agent threats facing U.S. Forces in the field.</p> <p>- Test and Evaluation (TE7): technology upgrades and revitalization of fielded test capabilities and infrastructure at Dugway Proving Ground necessary to evaluate CBRN Defense systems in realistic operating environments.</p> <p>The projects in this PE support operational systems development necessary to maintain operational effectiveness and are therefore correctly placed in Budget Activity 7.</p>		

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2022 Chemical and Biological Defense Program	<b>Date:</b> May 2021
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<b>Appropriation/Budget Activity</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>
Previous President's Budget	51.834	39.530	42.982	-	42.982
Current President's Budget	50.708	39.530	58.261	-	58.261
Total Adjustments	-1.126	0.000	15.279	-	15.279
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	0.000	-			
• Congressional Directed Transfers	0.000	-			
• Reprogrammings	-0.008	-			
• SBIR/STTR Transfer	-1.118	-			
• Other Adjustments	0.000	-	15.279	-	15.279

**Change Summary Explanation**

Funding: FY20 (-\$0.008 Million): Reprogramming adjustments to balance overall portfolio efforts.

FY20 (-\$1.118 Million) Transfer of funding to support Small Business Innovative Research/Small Business Technology Transfer efforts.

FY22 (+\$15.279 Million): Increase supports Reactive Chemistry Orthogonal Surface and Environmental Threat Ticket Array acceleration, and efforts to reduce hazard for aircrew respiratory and ocular protection on Modernization Individual Protection programs (+\$16.423 Million). Departmental inflation/travel adjustments (-\$1.144 Million).

Schedule: N/A

Technical: N/A

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program										<b>Date:</b> May 2021		
<b>Appropriation/Budget Activity</b> 0400 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				<b>Project (Number/Name)</b> CA7 / Contamination Avoidance (Op Sys Dev)			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
CA7: Contamination Avoidance (Op Sys Dev)	-	10.064	15.789	15.051	-	15.051	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

The project supports technology upgrade and refresh of fielded dismounted reconnaissance and detection systems that minimize chemical, biological, and radiological (CBR) contamination and prevent further cross-contamination during operations. The project supports technology upgrade and refresh of fielded dismounted reconnaissance and detection systems that minimize chemical, biological, and radiological (CBR) contamination and prevent further cross-contamination during operations.

Efforts included in this project are:

- (1) Chemical Biological Radiological Nuclear Dismounted Reconnaissance Systems (CBRN DRS)
- (2) Expeditionary Analytic Modernization (EXANA MOD)
- (3) Modernization Sensors (MOD SEN)
- (4) Enhanced Maritime Biological Detection (EMBD)
- (5) Joint Chemical Agent Detector (JCAD), and
- (6) Reactive Chemistry Orthogonal Surface and Environmental Threat Ticket Array (ROSETTA)

The CBRN DRS program effort provides the technology upgrade and refresh for the CBRN DRS system supporting Dismounted Reconnaissance, Surveillance, CBRN Sensitive Site Assessment, and CBRN Sensitive Site Exploitation missions, which enables more detailed and near real-time CBRN information flow for the Warfighter. The program will be moved into the MOD SEN program starting in FY22.

The EXANA MOD effort supports the evaluation of analytical components for technical refreshment and upgrades of key components of the analytical laboratory systems that have become obsolete or are no longer being supported by the manufacturer. This allows the Common Analytical Laboratory System (CALs) and Analytical Laboratory System Modification (ALS MOD) users to maintain their operational capability and operational effectiveness. The program will be moved into the MOD SEN program starting in FY22.

The MOD SEN program will address critical analytical equipment obsolescence and system functionality issues for the Services by establishing a time phased modernization plan to integrate and incorporate advancements in technology for the ALS MOD, CALs Field Confirmatory Analytical Capability Set (FC ACS), CALs Theater Validation Integrated System (TV IS) and CBRN DRS. This program consolidates the efforts previously included in the EXANA MOD and CBRN DRS program efforts. In FY22 MOD SEN supports the evaluation of components for technical refreshment of the CBRN DRS, CALs and ALS MOD.

The EMBD is the Navy's automated biological point detection, collection and identification system. EMBD replaces/upgrades the 135 Joint Biological Point Detection Systems (JBPDs) currently fielded to the Navy and provides 40 systems for new construction ships. EMBD improves detection sensitivity providing the Navy the

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<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> CA7 / Contamination Avoidance (Op Sys Dev)
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ability to detect to inform reducing the number of contaminated ships during a biological warfare agent attack and minimizing sailor casualties. EMBD reduces false alarm rates, modernizes the computing architecture and increases reliability and sailors confidence in the system. These improvements decrease fleet O&S costs and reduce the obsolescence issues with current biological detection capability. In FY22 the EMBD program plans to execute Full Rate Production contract options for Obsolescence Support in Production (OSIP). OSIP will address obsolescence concerns that may arise during the production of the EMBD kit.

The JCAD Solid Liquid Adaptor (SLA) effort is an Additional Authorized List (AAL) item that extends the capability of the JCAD M4A1 from a vapor-only capability to generate vapors from non-volatile liquids and solids. JCAD SLA continues the development of the JCAD CED, which was an Next Generation Chemical Detection (NGCD) acceleration effort for USSOCOM. The SLA interfaces with the fielded M4A1 JCAD to allow for solid and liquid sampling of Non-Traditional Agents (NTAs), Pharmaceutical Based Agents (PBAs), and explosives off surfaces. In addition, JCAD SLA is an explosive detector candidate for CBRN DRS.

The ROSETTA is a modernization effort to provide the General Forces a low-cost, easy to use surface and/or vapor hazard detection ticket for a wide range of Chemical Warfare Agents (CWAs) and NTAs. These highly-selective, multiplexed array tickets will enable accurate hazard identification in the presence of common battlefield interferents at the tactical-level. ROSETTA is based on colorimetric technology and will be eye-readable and has potential for integration onto unmanned platforms especially micro-sized unmanned aerial sensors. In addition, the ROSETTA tickets will provide improved hazard detection performance with reduced false alarm rate, potential for increased number of chemicals detected, reduced detection time especially for compounds of interest (CWAs, PBAs, NTAs and Toxic Industrial Chemicals (TICs)), and potential for integration onto unmanned platforms especially micro-sized unmanned aerial sensors. In FY22 ROSETTA will initiate contract award, and Contractor Preliminary Design Review for a Vapor Detector.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2020	FY 2021	FY 2022
<p><b>Title:</b> 1) CBRN Dismounted Reconnaissance System (CBRN DRS) - Obsolescence</p> <p><b>Description:</b> Provide analysis of the existing components of CBRN Dismounted Reconnaissance Systems to ensure current requirements baseline can be met. Identify potential obsolescence in current components, identify concerns with current components (technical, human factors, sustainment), assess the current market, procurement and testing of candidates that could correct concerns, and integrate the new items into the product baseline. Identifies and tests technology that can meet emerging requirements.</p> <p><b>FY 2021 Plans:</b> Continue obsolescence management activities for existing fielded components. Continue/complete purchasing of components for testing. Continue and complete testing of potential candidates. Incorporate successful candidates to product baseline.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Program/project funding transferred to another funding line. Funding transferred to Modernization Sensors funding in FY22 to continue efforts on obsolescence management and technology insertion for CBRN DRS and CALS family of systems.</p>	6.253	4.411	-
<p><b>Title:</b> 2) CBRN DRS - Development of System Modernization Packages</p>	-	9.000	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021		
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> CA7 / Contamination Avoidance (Op Sys Dev)		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<p><b>Description:</b> Identify and test solutions to meet evolving demands of the National Defense Strategy (NDS) to Counter Weapons of Mass Destruction via a System Modernization Package to support dismounted reconnaissance, sensitive site assessment and exploitation, and render safe operations. Efforts will be focused on system modernization packages for improved biological detection, improved protective equipment, improve chemical detection, and improved battlespace awareness.</p> <p><b>FY 2021 Plans:</b> Initiate and conduct requirements analyses on emerging technologies for system modernization packages to meet required changes to the system. Identify, procure and test technologies to support specific improved capability.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Program/project funding transferred to another funding line. Funding transferred to Modernization Sensors funding in FY22 to continue efforts on obsolescence management and technology insertion for CBRN DRS and CALS family of systems.</p>				
<p><b>Title:</b> 3) EXANA MOD</p> <p><b>Description:</b> Expeditionary Analytics</p> <p><b>FY 2021 Plans:</b> Funding supports the evaluation of analytical components for technical refreshment of the Common Analytical Laboratory System (CALS) and Analytical Laboratory System (ALS) Modification (MOD). Plans include, identifying new Fourier Transform Infrared Spectroscopy (FTIR)'s, new toxin identifiers, new Ion Mobility Spectrometry (IMS) chemical agent detector, new computer subsystems and testing the Hydrogen 2 generators.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Program/project funding transferred from another funding line. Funding transferred to Modernization Sensors (MOD SEN) starting in FY22.</p>		-	2.378	-
<p><b>Title:</b> 4) MOD SEN</p> <p><b>Description:</b> Sensors Modernization</p> <p><b>FY 2022 Plans:</b> Funding supports the evaluation of components for technical refreshment of the CBRN Dismounted Reconnaissance Systems, Common Analytical Laboratory System (CALS) and Analytical Laboratory System (ALS) Modification (MOD). Plans include improved and integrated sensors and PPE, identifying new electrochemiluminescence (ECL) technology.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b></p>		-	-	10.391

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
Program/project funding transferred from another funding line. Program/project transferred from CBRN DRS and EXANA MOD funding lines to create potential efficiencies in operational assessment.				
<b>Title:</b> 5) EMBD <b>Description:</b> Obsolescence and replacement efforts <b>FY 2022 Plans:</b> Initiate obsolescence events and will include all engineering efforts to finalize the production design of the replacement item/ technology, integration efforts, test hardware fabrication, test (verification and validation), and document changes resulting from OSIP efforts. <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Program/project transitioned to Production and Deployment Phase. BA7 funding line starts in FY22 to address obsolescence.		-	-	1.615
<b>Title:</b> 6) Joint Chemical Agent Detector (JCAD) Solid Liquid Adapter (SLA) <b>Description:</b> Product Development, Program Management, T&E and Support		3.811	-	-
<b>Title:</b> 7) ROSETTA <b>Description:</b> Product Development <b>FY 2022 Plans:</b> Initiate contract Award, Contractor Preliminary Design Review for Vapor Detector. <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Program/project funding transferred from another funding line. ROSETTA transitioned from RDT&E Project Contamination Avoidance (CA5) into CA7 to continue modernization efforts.		-	-	3.045
<b>Accomplishments/Planned Programs Subtotals</b>		10.064	15.789	15.051
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>D. Acquisition Strategy</b> CBRN DISMOUNTED RECONNAISSANCE SYSTEMS				

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program	<b>Date:</b> May 2021
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<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> CA7 / <i>Contamination Avoidance (Op Sys Dev)</i>
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The Chemical Biological Radiological Dismounted Reconnaissance Systems (CBRN DRS) program uses a GOTS/COTS non-developmental item (NDI) single step acquisition approach to a full capability. This strategy employs an NDI acquisition concept to establish a simplified management framework to translate mission needs and emerging technology capabilities into a stable, affordable, well-managed acquisition program. Current efforts focus on maintaining baseline capabilities through obsolescence management and technology insertions. In order to meet the demands of the National Defense Strategy (NDS) to Counter Weapons of Mass Destruction, units equipped with the CBRN DRS must be able to both assess CBRN hazards and exploit them. Advancing threats and current capability gaps in sensitive site exploitation capability require a System Modernization Package (SMP) to the baseline CBRN DRS. In FY21 and beyond, the Defense-Wide Review (DWR) reduced this program for higher priorities.

**EXPEDITIONARY ANALYTIC MODERNIZATION (EXANA MOD)**

The Common Analytical Laboratory System (CALs) and the Analytical Laboratory System (ALS) Modification (MOD) program's objective is to address critical analytical equipment obsolescence (Analytical Suite) and system functionality issues for the National Guard Bureau's (NGB) Civil Support Teams. This includes market survey, down select, testing, integration, and update of Technical Data Package and logistical documentation. It is anticipated that Capability Development Document (CDD) updates will be finalized for the CALs Theater Validation Integrated System (TV IS) and Field Confirmatory Analytical Capability Set (FC ACS) variants in FY21. As such, this program will follow continue to follow the most up-to-date requirement documentation for CALs and ALS MOD.

**MODERNIZATION SENSORS (MOD SEN)**

MOD SEN program uses a COTS/GOTS non-developmental item (NDI) single step acquisition approach to a full capability. This strategy employs an NDI acquisition concept to establish a simplified management framework to translate mission needs and emerging technology capabilities into a stable, affordable, well managed acquisition program. Current efforts focus on supporting CALs TV-IS, FC-ACS, ALS MOD, and CBRN DRS PoR's through maintaining baseline capabilities with obsolescence management, technology insertions, and enhancements based on changes in requirements. Additionally, in order to meet the demands of the NDS to Counter Weapons of Mass Destruction, units equipped with the systems must be able to both assess and exploit CBRN hazards. OSD (CB) goals to modernize the Joint Force to combat advancing threats and current capability gaps in sensitive site exploitation capability require a system modernization (SM) strategy for each system.

**ENHANCED MARITIME BIOLOGICAL DETECTION (EMBD)**

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

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> CA7 / <i>Contamination Avoidance (Op Sys Dev)</i>
<b>JOINT CHEMICAL AGENT DETECTOR (JCAD)</b>  The JCAD SLA kit will be an Additional Authorized List (AAL) item to the M4A1 JCAD. The JCAD SLA attaches to the JCAD and expands existing JCAD capability to detect NTAs, PBAs (opioids and fentanyl), and explosives. The JCAD SLA acquisition strategy will award a FFP / CPFF IDIQ to produce the required JCAD SLA quantities based on service requirements with initial fielding in FY21 to SOCOM.		
<b>REACTIVE CHEMISTRY ORTHOGONAL SURFACE AND ENVIRONMENTAL THREAT TICKET ARRAY (ROSETTA)</b>  ROSETTA will use a streamlined approach to rapidly field multiple modernizations of currently fielded components of the M256 kit via engineering change proposals (ECPs). This approach is based on technology that will transition from Science and Technology Efforts and/or commercial off the shelf (COTS) products to the M256 kit. These efforts will utilize multiple contract vehicles including Countering Weapons of Mass Destruction (CWMD) OTA and JERDAP in order to streamline the acquisition of the products. The ROSETTA funding completed the acquisition of the M8 component to the M256 kit and will support the acquisition of a PBA ticket, the M256 vapor unmasking tool, and the other NTAs and TICs. These products will be transitioned to TACOM for production and sustainment.		

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> CA7 / Contamination Avoidance (Op Sys Dev)
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<b>Product Development (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
CBRN DRS - HW - Product Development	MIPR	Various : Various	3.149	1.307	Nov 2019	0.000		0.000		0.000		0.000	0.000	4.456	0.000
CBRN DRS - HW S - System Modernization OTA	C/CPAF	TBD : N/A	0.000	1.065	Nov 2020	9.000	Feb 2021	0.000		0.000		0.000	0.000	10.065	0.000
CBRN DRS - HW C - Government Product Development Team Labor	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.475	0.000		0.688	Nov 2020	0.000		0.000		0.000	0.000	1.163	0.000
MOD SEN - HW C - Government Product Development Team Labor	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.423	Nov 2021	0.000		0.423	0.000	0.423	0.000
EMBD - HW SB - Obsolescence Support in Production	C/CPIF	Various : Various	0.000	0.000		0.000		0.965	Dec 2021	0.000		0.965	0.000	0.965	0.000
JCAD - PM/MS S - Government Product Development Core Team Labor	MIPR	JPM CBRN Sensors : JPEO-CBRND, Aberdeen Proving Ground, MD	0.000	0.130	Apr 2020	0.000		0.000		0.000		0.000	0.000	0.130	0.000
JCAD - PM/MS S - Contractor Product Development Team Labor	MIPR	JPM CBRN Sensors : JPEO-CBRND, Aberdeen Proving Ground, MD	0.000	0.134	Apr 2020	0.000		0.000		0.000		0.000	0.000	0.134	0.000
JCAD - PM/MS S - Government Product	MIPR	U.S. Army Combat Capabilities Development	0.000	1.803	Mar 2020	0.000		0.000		0.000		0.000	0.000	1.803	0.000

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program** **Date:** May 2021

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<b>Product Development (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Development Matrix Team Labor		Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD													
ROSETTA - HW C - Government Product Development Team Labor	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.146	Nov 2021	0.000		0.146	0.000	0.146	0.000
ROSETTA - HW C - OTA Contract	C/CPFF	Various : Various	0.000	0.000		0.000		2.845	Jun 2022	0.000		2.845	0.000	2.845	0.000
<b>Subtotal</b>			3.624	4.439		9.688		4.379		0.000		4.379	0.000	22.130	N/A

<b>Support (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
CBRN DRS - ES - Market Analysis	MIPR	Various : Various	1.878	0.750	Nov 2019	0.000		0.000		0.000		0.000	0.000	2.628	0.000
CBRN DRS - ES C - Requirements Analysis and Obsolescence Management	C/CPFF	Johns Hopkins University - Applied Physics Lab : Laurel, MD	2.284	0.000		0.945	Nov 2020	0.000		0.000		0.000	0.000	3.229	0.000
CBRN DRS - ES - Obsolescence Management	MIPR	Various : Various	2.869	1.183	Nov 2019	0.000		0.000		0.000		0.000	0.000	4.052	0.000
EXANA MOD - ES C - Science & Engineering Support	MIPR	Naval Air Warfare Center (Aircraft Division) : Patuxent River, MD	0.000	0.000		1.479	Mar 2021	0.000		0.000		0.000	0.000	1.479	0.000

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> CA7 / Contamination Avoidance (Op Sys Dev)
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<b>Support (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
MOD SEN - ES C - Obsolescent Management	Various	Various : Various	0.000	0.000		0.000		0.938	Nov 2021	0.000		0.938	0.000	0.938	0.000
MOD SEN - ES C - Science and Engineering Support	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.294	Nov 2021	0.000		0.294	0.000	0.294	0.000
JCAD - ES C - Navy Combat Support	MIPR	Indian Head : Indian Head, MD	0.000	0.145	Apr 2020	0.000		0.000		0.000		0.000	0.000	0.145	0.000
JCAD - ES C - Logistics Support	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.290	Apr 2020	0.000		0.000		0.000		0.000	0.000	0.290	0.000
<b>Subtotal</b>			7.031	2.368		2.424		1.232		0.000		1.232	0.000	13.055	N/A

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
CBRN DRS - OTE - Candidate Testing	Various	Various : Various	5.100	0.591	Mar 2020	0.864	Mar 2021	0.000		0.000		0.000	0.000	6.555	0.000
EXANA MOD - OTHT C - Tech Refresh Efforts	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	0.000		0.566		0.000		0.000		0.000	0.000	0.566	0.000
MOD SEN - DTE C - Component Test and Evaluation	MIPR	U.S. Army Combat Capabilities Development	0.000	0.000		0.000		1.191	Nov 2021	0.000		1.191	0.000	1.191	0.000

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> CA7 / Contamination Avoidance (Op Sys Dev)
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<b>Test and Evaluation (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract	
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost				
		Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD														
MOD SEN - DTE C - Information Assurance	Various	Various : Various	0.000	0.000		0.000		0.254	Nov 2021	0.000		0.254	0.000	0.254	0.000	
MOD SEN - DTE C - System Modernization	Various	Various : Various	0.000	0.000		0.000		5.661	Nov 2021	0.000		5.661	0.000	5.661	0.000	
EMBD - Obsolescence Support in Production testing and verification	C/CPIF	Various : Various	0.000	0.000		0.000		0.400	Dec 2021	0.000		0.400	0.000	0.400	0.000	
JCAD - DTE C - Operational Test	MIPR	Aberdeen Test Center (ATC) : Aberdeen Proving Ground, MD	0.000	0.037	Mar 2020	0.000		0.000		0.000		0.000	0.000	0.037	0.000	
JCAD - Test Support	MIPR	Indian Head : Indian Head, MD	0.000	0.118	Mar 2020	0.000		0.000		0.000		0.000	0.000	0.118	0.000	
JCAD - DTE C - Battelle Support	MIPR	Defense Technical Information Center (DTIC) : Fort Belvoir, VA	0.000	0.201	May 2020	0.000		0.000		0.000		0.000	0.000	0.201	0.000	
JCAD - DTE C - Operational Test Support	MIPR	Navy Operational Test and Eval Force (OPTEVFOR) : Norfolk, VA	0.000	0.255	May 2020	0.000		0.000		0.000		0.000	0.000	0.255	0.000	
JCAD - DTE C - Test Plan & Oversight	MIPR	Army Test and Evaluation Command (ATEC) : Aberdeen Proving Ground, MD	0.000	0.144	Apr 2020	0.000		0.000		0.000		0.000	0.000	0.144	0.000	
JCAD - DTE C - Scott Hunter Support	MIPR	West Desert Test Center : Dugway, UT	0.000	0.043	Apr 2020	0.000		0.000		0.000		0.000	0.000	0.043	0.000	

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> CA7 / Contamination Avoidance (Op Sys Dev)
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<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
JCAD - DTE C - Ship Shock	MIPR	Naval Surface Warfare Center (NSWC) - Dahlgren Center : Dahlgren, VA	0.000	0.018	Apr 2020	0.000		0.000		0.000		0.000	0.000	0.018	0.000
<b>Subtotal</b>			5.100	1.407		1.430		7.506		0.000		7.506	0.000	15.443	N/A

<b>Management Services (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
CBRN DRS - PM/MS S - Program Management Support	MIPR	Various : Various	2.622	1.357	Nov 2019	1.914	Nov 2020	0.000		0.000		0.000	0.000	5.893	0.000
EXANA MOD - PM/MS S - Program Management Support	MIPR	Various : Various	0.000	0.000		0.333	Jan 2021	0.000		0.000		0.000	0.000	0.333	0.000
MOD SEN - PM/MS S - Program Management Support	Various	Various : Various	0.000	0.000		0.000		1.630	Jan 2022	0.000		1.630	0.000	1.630	0.000
EMBD - PM/MS S - Program Management Support	MIPR	Various : Various	0.000	0.000		0.000		0.250	Dec 2021	0.000		0.250	0.000	0.250	0.000
JCAD - PM/MS C - Program Management Support	MIPR	JPM CBRN Sensors : JPEO-CBRND, Aberdeen Proving Ground, MD	0.000	0.493	Mar 2020	0.000		0.000		0.000		0.000	0.000	0.493	0.000
ROSETTA - PM/MS S - Program Management Support	MIPR	Various : Various	0.000	0.000		0.000		0.054	Nov 2021	0.000		0.054	0.000	0.054	0.000
<b>Subtotal</b>			2.622	1.850		2.247		1.934		0.000		1.934	0.000	8.653	N/A



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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> CA7 / Contamination Avoidance (Op Sys Dev)

	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	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
CBRN DRS - Test components to replace obsolete items and insert new technologies	████████████████																											
CBRN DRS - System Modernization Packages (SMP) Production					████████████████																							
EXANA MOD - CALS & ALS MOD - Upgrade Fielded Systems					████████████████																							
MOD SEN - CALS, ALS MOD, CBRN DRS - Upgrade Fielded Systems									██																			
EMBD - MS C	████																											
EMBD - FRP Production					██																							
EMBD - IOC									████																			
JCAD - JCAD SLA- Kit Development	████████████████																											
JCAD - JCAD SLA (Material Release)					████																							
ROSETTA - Engineering Design (Vapor)									████████████████																			
ROSETTA - Update TDP and TMs (Vapor)																					████████████████							
ROSETTA - OTA Contract Award (Vapor)									██																			

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> CA7 / Contamination Avoidance (Op Sys Dev)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
CBRN DRS - Test components to replace obsolete items and insert new technologies	1	2020	4	2021
CBRN DRS - System Modernization Packages (SMP) Production	4	2020	4	2021
EXANA MOD - CALS & ALS MOD - Upgrade Fielded Systems	1	2021	4	2021
MOD SEN - CALS, ALS MOD, CBRN DRS - Upgrade Fielded Systems	1	2022	4	2026
EMBD - MS C	3	2020	3	2020
EMBD - FRP Production	2	2021	4	2026
EMBD - IOC	4	2022	4	2022
JCAD - JCAD SLA- Kit Development	1	2020	2	2021
JCAD - JCAD SLA (Material Release)	4	2021	4	2021
ROSETTA - Engineering Design (Vapor)	4	2022	2	2023
ROSETTA - Update TDP and TMs (Vapor)	1	2026	4	2026
ROSETTA - OTA Contract Award (Vapor)	3	2022	4	2026

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program										<b>Date:</b> May 2021		
<b>Appropriation/Budget Activity</b> 0400 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				<b>Project (Number/Name)</b> CM7 / Homeland Defense (Op Sys Dev)			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
CM7: Homeland Defense (Op Sys Dev)	-	2.238	1.421	1.522	-	1.522	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

This project supports technology refresh of fielded analytical laboratory system capabilities which allows the conduct on-site analysis of any unknown sample and test potential life-threatening substances.

Efforts included in this Project are:

- (1) Common Analytical Laboratory System (CALs) and Analytical Laboratory System Modification (ALS MOD), and
- (2) Weapons of Mass Destruction - Civil Support Team (WMD CST)

The CALs/ALS MOD program supports the evaluation of analytical components for technical refreshment and upgrades of key components of the CALs and ALS MOD systems that have become obsolete, or are no longer being supported by the manufacturer. This allows the CALs and ALS MOD users to maintain their operational capability and operational effectiveness.

The WMD CST program supports the fielded system upgrade and ongoing assessment and acquisition of commercial off-the-shelf (COTS) and Government off-the-shelf (GOTS) analytical detection, protection, decontamination and sampling equipment for survey in order to expand/enhance the operational capabilities of the (57) WMD CST Teams. Program efforts support upgrades of key components of the WMD CST Program that have become obsolete, or are no longer being supported by the manufacturer. In FY22 the WMD CST program continues system-related test activities, including costs of specially fabricated hardware to obtain or validate engineering data on the performance of the system.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<b>Title:</b> 1) ALS MOD	0.829	-	-
<b>Description:</b> Technology Refresh Effort			
<b>Title:</b> 2) WMD CST	1.409	1.421	1.522
<b>Description:</b> System Upgrade and Support			
<b>FY 2021 Plans:</b> Provides system-related test activities, including costs of specially fabricated hardware to obtain or validate engineering data on the performance of the system. This element also includes costs of the detailed planning, conduct, support, data reduction,			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> CM7 / Homeland Defense (Op Sys Dev)

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
and reports from such testing, as well as hardware items that are consumed or planned to be consumed in the conduct of such operations. Provides functions of logistics engineering and ILS management (e.g., maintenance support, facilities, personnel, training, testing, and activation of the system).  <b>FY 2022 Plans:</b> Continue system-related test activities, including costs of specially fabricated hardware to obtain or validate engineering data on the performance of the system. Continue the detailed planning, conduct, support, data reduction, and reports from such testing, as well as hardware items that are consumed or planned to be consumed in the conduct of such operations. Conduct logistics engineering and ILS management (e.g., maintenance support, facilities, personnel, training, testing, and activation of the system).  <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Minor change due to routine program adjustments.			
<b>Accomplishments/Planned Programs Subtotals</b>	2.238	1.421	1.522

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

N/A

**Remarks**

**D. Acquisition Strategy**

ANALYTICAL LABORATORY SYSTEM MODIFICATION (ALS MOD)

The Common Analytical Laboratory System (CALs) and the Analytical Laboratory System (ALS) Modification (MOD) program's objective is to address critical analytical equipment obsolescence (Analytical Suite) and system functionality issues for the National Guard Bureau's (NGB) Civil Support Teams. This includes market survey, down select, testing, integration, and update of Technical Data Package and logistical documentation. As such, this program will continue to follow the most up-to-date requirement documentation for CALs and ALS MOD.

WMD - CIVIL SUPPORT TEAMS (WMD CST)

The Weapons of Mass Destruction Civil Support Team Program (WMD-CST) is a COTS based program that supports the evaluation of advancements in CBRN commercial off the shelf (COTS)/government-off-the-shelf (GOTS) equipment against the current technology baseline of equipment fielded to the (57) WMD CST Teams, this is to address analytical equipment obsolescence. As such, the program establishes a time phased modernization plan to integrate and incorporate proven advancements in commercially available technology into the CST operating mission set based on highest priority capability requirements and availability of resources.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> CM7 / Homeland Defense (Op Sys Dev)
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<b>Support (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
WMD CST - ES C - Government Product Development Team Labor	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	0.000	0.000		0.150	Nov 2020	0.085	Nov 2021	0.000		0.085	0.000	0.235	0.000
WMD CST - ES C - Science & Engineering Support	MIPR	Naval Air Warfare Center (Aircraft Division) : Patuxent River, MD	0.000	0.096	Nov 2019	0.000		0.095	Nov 2021	0.000		0.095	0.000	0.191	0.000
<b>Subtotal</b>			0.000	0.096		0.150		0.180		0.000		0.180	0.000	0.426	N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ALS MOD - OTE C - Chlorinated Compound Effort	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	0.749	Mar 2020	0.000		0.000		0.000		0.000	0.000	0.749	0.000
WMD CST - OTHC C - CBRN COTS Component	MIPR	U.S. Army Combat Capabilities Development Command (DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD	5.724	0.921	Feb 2020	0.923	Feb 2021	1.110	Feb 2022	0.000		1.110	0.000	8.678	0.000
<b>Subtotal</b>			5.724	1.670		0.923		1.110		0.000		1.110	0.000	9.427	N/A

**Remarks**  
 ALS MOD: The capability for assessing for chlorinated compounds within CALS was lost due to obsolescence. This effort is to find an alternative to that technology. Without this capability, and with no down-range capability, CALS Users would lose the ability to detect and identify volatile corrosive chlorinated compounds brought into the laboratory.



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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> CM7 / Homeland Defense (Op Sys Dev)

FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
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

ALS MOD - ALS MOD / CALS- Technology Refresh	[REDACTED]																											
WMD CST - Upgrade Fielded Systems	[REDACTED]																											

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> CM7 / Homeland Defense (Op Sys Dev)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
ALS MOD - ALS MOD / CALS- Technology Refresh	2	2020	1	2021
WMD CST - Upgrade Fielded Systems	1	2020	4	2026

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program										<b>Date:</b> May 2021		
<b>Appropriation/Budget Activity</b> 0400 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				<b>Project (Number/Name)</b> C07 / Collective Protection (Op Sys Dev)			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
C07: Collective Protection (Op Sys Dev)	-	5.690	7.865	8.442	-	8.442	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

This project provides for technology upgrade and refresh of fielded Collective Protection (CP) equipment and systems that are smaller, lighter, less costly to produce and maintain, and more logistically supportable enabling mission accomplishment in spaces safe from the effects of chemical, biological, and radiological (CBR) contamination.

Efforts included in this project are:

- (1) Joint Expeditionary Collective Protection (JECF)
- (2) Modernization Protection (MODPROT), and
- (3) Modernization Protection Collective Protection (MODPROT CP)

JECF provides the Joint Forces a CP capability which is lightweight, compact, modular, and affordable. Modernization and improvement efforts addressed include development of a field leakage test capability that allows Warfighters to validate the integrity of JECF and other fielded CP systems; integration of a newly developed filtration material into existing M98 Gas Particulate Filter Sets to provide the Warfighter with improved protection against Toxic Industrial Chemicals (TICs) and Toxic Industrial Materials (TIMs), while maintaining current performance characteristics against Chemical Warfare Agents (CWAs) and meeting military standards; development of a CP kit for non-CP Environmental Control Units (ECUs) and improvement on the current tent liner restraint systems. The JECF BA7 program transitions to the MODPROT CP BA7 program in FY21.

MODPROT will be split into three programs in FY21 to fund three separate Modernization Efforts: Modernization Protection Collective Protection (MODPROT CP), Modernization Protection Decontamination (MODPROT DE), and Modernization Protection Individual Protection (MODPROT IP).

MODPROT CP incorporates a value engineering approach to address the need to reduce logistics cost and solve obsolescence issues to the DoD /Joint Services fielded CBR protection portfolio for mobile, transportable, fixed facility and shipboard CP systems. MODPROT CP provides for upgrades, improvements and modernizations of fielded CP Systems such as Mobile ColPro Systems, Fixed Site ColPro Systems, Transportable ColPro Systems, Modular CP Equipment Systems, and Collectively Protected Field Hospitals (CPFH). MODPROT CP also addresses obsolescence issues in test quality standards for gas filters and tests sealants and coatings to mitigate corrosion on filter systems to extend service life of these systems. In FY22, MODPROT CP completes Non-Destructive Production Acceptance Leak Test improvements, continues redesign of M49 gas filters, continues M48A1 Filter Redesign, continues developing ColPro training upgrades, and continues Collective Protection Modernization for Ships and Buildings and conduct system scale lab testing.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> C07 / Collective Protection (Op Sys Dev)

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<b>Title:</b> 1) JECP <b>Description:</b> Field Leakage Test Capability (FLTC), M98 gas particulate filter sets, CP kit for Non-CP Environmental Control Units (ECU), and tent liner restraint system improvement	1.955	-	-
<b>Title:</b> 2) MODPROT <b>Description:</b> Upgrades, improvements, and modernizations to fielded CP systems	3.735	-	-
<b>Title:</b> 3) MODPROT CP <b>Description:</b> Upgrades, improvements, and modernizations to fielded CP systems  <b>FY 2021 Plans:</b> Complete Electromagnetic Interference (EMI) testing on the M93/M59 Gas Particulate Filter Unit (GPFU), complete environmental M98 guard bed testing, continue Non-Destructive Production Acceptance Leak Test improvements. Complete testing for the seals of the M48A1 Filter Redesign. Begin Collective Protection Modernization for Ships and Buildings redesign and acquire component prototypes of modernized M98 filter housing. Begin development of updated training materials for Collective Protection systems. Initiate redesign of M49 gas filters.  <b>FY 2022 Plans:</b> Complete Non-Destructive Production Acceptance Leak Test improvements. Continue redesign of M49 gas filters. Continue M48A1 Filter Redesign. Continue Collective Protection Modernization for Ships and Buildings and conduct system scale lab testing. Continue development of updated training materials for Collective Protection Systems. Begin conducting collective protection system filter surveillance testing to improve system sustainment.  <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Minor change due to routine program adjustments.	-	7.865	8.442
<b>Accomplishments/Planned Programs Subtotals</b>	5.690	7.865	8.442

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

N/A

**Remarks**

**D. Acquisition Strategy**

JOINT EXPEDITIONARY COLLECTIVE PROTECTION (JECP)

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program	<b>Date:</b> May 2021
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<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> C07 / Collective Protection (Op Sys Dev)
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JECP Family of Systems (FoS) (Phase 1 and Phase 2) involves multiple contract types throughout the Engineering and Manufacturing Development (EMD) and Production and Deployment Phases of the program. Having achieved a Full Rate Production (FRP) decision for Phase 1 Systems in December 2016, the program exercised Fixed Price Incentive (FPI) production options in FY17 & FY18 through the now expired contract with Leidos in support of Initial Operational Capability (IOC). A competitive build-to print follow-on production delivery order contract was awarded June 2019 to Production Products Manufacturing and will support the remaining production of Phase 1 Systems to meet Full Operational Capability (FOC). Phase 2 systems will be developed as engineering changes to the Phase 1 systems under a separate competitive delivery order awarded March 2019 to Leidos and undergo limited developmental and operational testing in pursuit of a FRP decision. Production options are included in the delivery order to meet FOC for Phase 2 systems. Additionally, BA7 funding will develop incremental improvements to fielded JECP FoS. BA7 efforts include a range of improvements intended to enhance filtration protection, provide a field leakage test capability and update various fielded Environmental Control Unit (ECU) interface types for use with collective protection. These efforts involve development of designs and prototyping under the Other Transaction Authority (OTA) through the Countering Weapons Mass Destruction (CWMD) Consortium contract as well as exploitation of commercial off-the-shelf items.

**MODERNIZATION PROTECTION (MODPROT)**

In FY21, MODPROT will be split into three programs to fund three separate Modernization Efforts: Modernization Protection Collective Protection (MODPROT CP), Modernization Protection Decontamination (MODPROT DE), and Modernization Protection Individual Protection (MODPROT IP). The original MODPROT acquisition strategies will continue to be followed after the transition occurs in FY21.

**MODERNIZATION PROTECTION COLLECTIVE PROTECTION (MODPROT CP)**

MODPROT CP leverages mature technology from contractor developed components to address and replace obsolete components of various fielded collective protection systems. Modernization efforts will also use items developed by the government that have transitioned from lower to higher technology readiness levels that can be inserted into fielded systems. A combination of competitive and sole source contracts to various industry vendors and project orders to various government activities will be used to adapt previously developed components to modernize systems. Robust component and system level testing will validate both government and contractor furnished improvements. The improvements will be added into the specific systems' updated Technical Data Packages (TDPs) to be used in Engineering Change Proposals (ECPs) and provided to the item managers.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> C07 / Collective Protection (Op Sys Dev)
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<b>Product Development (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
JECP - HW C - FLTC, M98 Filter Sets, ECUs, Tent Liner Restraint Systems	Various	Various : Various	2.401	1.091	Nov 2019	0.000		0.000		0.000		0.000	0.000	3.492	0.000
MODPROT - HW C - Compatibility Engineering M93 GPFU/ASZM-TEDA Carbon Dtl Spec FAT Reqmt/M48A1 Filter Redesign/Corrosion Mitigation	MIPR	CCDC CBC : Aberdeen Proving Ground, MD	0.523	2.257	Nov 2019	0.000		0.000		0.000		0.000	0.000	2.780	0.000
MODPROT CP - HW C - Collective Protection Modernization for Ships	Various	TBD : N/A	0.000	0.000		2.273	Nov 2020	3.278	Dec 2021	0.000		3.278	0.000	5.551	0.000
MODPROT CP - HW C - Filter Redesign, Non-Destructive Leak Test, ColPro Training Dev	MIPR	Various : Various	0.000	0.000		2.523	Oct 2020	0.274	Dec 2021	0.000		0.274	0.000	2.797	0.000
<b>Subtotal</b>			2.924	3.348		4.796		3.552		0.000		3.552	0.000	14.620	N/A

<b>Support (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
MODPROT - ES C - Engineering Support	MIPR	Various : Various	0.494	0.422	Nov 2019	0.000		0.000		0.000		0.000	0.000	0.916	0.000
MODPROT CP - ES C - IPT, Technical, Engineering and Logistics Support	MIPR	Various : Various	0.000	0.000		1.021	Nov 2020	1.467	Dec 2021	0.000		1.467	0.000	2.488	0.000
<b>Subtotal</b>			0.494	0.422		1.021		1.467		0.000		1.467	0.000	3.404	N/A

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> C07 / Collective Protection (Op Sys Dev)
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<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
JECP - DTE C - Improved M98 Filter Set Developmental Testing	MIPR	Various : Various	0.638	0.487	Nov 2019	0.000		0.000		0.000		0.000	0.000	1.125	0.000
MODPROT - DTE C - M93 GPFU Environmental & EMI Testing/M98 Guard Bed Filter Life Extension/VFP Hose Refresh	MIPR	Various : Various	0.077	0.792	Nov 2019	0.000		0.000		0.000		0.000	0.000	0.869	0.000
MODPROT CP - DTE C - CP Modernization Testing	Various	Various : Various	0.000	0.000		0.869	Oct 2020	2.157	Dec 2021	0.000		2.157	0.000	3.026	0.000
<b>Subtotal</b>			0.715	1.279		0.869		2.157		0.000		2.157	0.000	5.020	N/A

<b>Management Services (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
JECP - PM/MS C - Program Management Support	MIPR	Various : Various	2.000	0.377	Nov 2019	0.000		0.000		0.000		0.000	0.000	2.377	0.000
MODPROT - PM/MS C - Program Management Support	Various	Various : Various	0.000	0.264	May 2020	0.000		0.000		0.000		0.000	0.000	0.264	0.000
MODPROT CP - PM/MS C - Program Management Support	MIPR	Various : Various	0.000	0.000		1.179	Mar 2021	1.266	Dec 2021	0.000		1.266	0.000	2.445	0.000
<b>Subtotal</b>			2.000	0.641		1.179		1.266		0.000		1.266	0.000	5.086	N/A

	<b>Prior Years</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	6.133	5.690	7.865	8.442	0.000	8.442	0.000	28.130	N/A

**Remarks**

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

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> C07 / Collective Protection (Op Sys Dev)
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	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	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

JCEP - Field Leakage Tester Limited User Prototype Test	█	█	█	█																								
JCEP - Improved M98 Filter Set - Build and test	█	█	█	█																								
JCEP - Field Leakage Tester Development and Prototype Testing	█	█	█	█																								
JCEP - Finalize Tech Data & Log Products - ECU	█	█	█	█																								
JCEP - Phase 2 Full Rate Production																												
JCEP - Liner Restraint Development	█	█	█	█																								
JCEP - Finalize Tech Data & Log Products - Liner Restraint	█	█	█	█																								
JCEP - Build and test final selected prototype - Improved M98 Filter Set		█	█	█																								
MODPROT - M93 GPFU Electro Magnetic Interference	█	█	█	█																								
MODPROT - Environmental M98 Guard Bed Testing	█	█	█	█																								
MODPROT - CP DEPMEDS Redesign	█	█	█	█																								
MODPROT - VFP Hose Refresh	█	█	█	█																								
MODPROT - Non Destructive (ND) Acceptance Leak Test CP Filters	█	█	█	█																								
MODPROT - ASZM-TEDA Carbon Dtl Spec FAT Reqmt	█	█	█	█																								
MODPROT - Next Generation ColPro System	█	█	█	█																								
MODPROT CP - M93 GPFU Electro Magnetic Interference									█	█	█	█																

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

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> C07 / Collective Protection (Op Sys Dev)
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	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	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
MODPROT CP - Environmental M98 Guard Bed Testing																												
MODPROT CP - Non Destructive (ND) Acceptance Leak Test CP Filters																												
MODPROT CP - Collective Protection Training Development																												
MODPROT CP - Collective Protection Modernization for Ships and Buildings																												
MODPROT CP - M48A1 Filter Redesign																												
MODPROT CP - M49 Filter Modernization																												
MODPROT CP - Filter Surveillance Testing																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> C07 / Collective Protection (Op Sys Dev)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
JECP - Field Leakage Tester Limited User Prototype Test	1	2020	1	2020
JECP - Improved M98 Filter Set - Build and test	1	2020	2	2020
JECP - Field Leakage Tester Development and Prototype Testing	1	2020	4	2020
JECP - Finalize Tech Data & Log Products - ECU	1	2020	4	2020
JECP - Phase 2 Full Rate Production	4	2021	4	2021
JECP - Liner Restraint Development	1	2020	4	2020
JECP - Finalize Tech Data & Log Products - Liner Restraint	1	2020	4	2020
JECP - Build and test final selected prototype - Improved M98 Filter Set	2	2020	4	2020
MODPROT - M93 GPFU Electro Magnetic Interference	1	2020	4	2020
MODPROT - Environmental M98 Guard Bed Testing	1	2020	4	2020
MODPROT - CP DEPMEDS Redesign	1	2020	4	2020
MODPROT - VFP Hose Refresh	1	2020	4	2020
MODPROT - Non Destructive (ND) Acceptance Leak Test CP Filters	1	2020	4	2020
MODPROT - ASZM-TEDA Carbon Dtl Spec FAT Reqmt	1	2020	4	2020
MODPROT - Next Generation ColPro System	1	2020	4	2020
MODPROT CP - M93 GPFU Electro Magnetic Interference	1	2021	4	2021
MODPROT CP - Environmental M98 Guard Bed Testing	1	2021	4	2021
MODPROT CP - Non Destructive (ND) Acceptance Leak Test CP Filters	1	2021	4	2022
MODPROT CP - Collective Protection Training Development	1	2021	4	2022
MODPROT CP - Collective Protection Modernization for Ships and Buildings	1	2021	4	2025
MODPROT CP - M48A1 Filter Redesign	1	2021	4	2026
MODPROT CP - M49 Filter Modernization	1	2021	4	2026

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Chemical and Biological Defense Program			<b>Date:</b> May 2021	
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> C07 / Collective Protection (Op Sys Dev)		

Events	Start		End	
	Quarter	Year	Quarter	Year
MODPROT CP - Filter Surveillance Testing	1	2022	4	2026

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

<b>Appropriation/Budget Activity</b> 0400 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				<b>Project (Number/Name)</b> DE7 / Decontamination (Op Sys Dev)			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
DE7: Decontamination (Op Sys Dev)	-	1.414	0.633	1.072	-	1.072	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

This project addresses obsolescence issues with decontamination equipment and the need to modernize the Joint Services fielded chemical and biological with capabilities meeting or exceeding the Services requirements.

The effort included in this project is:

- (1) Modernization Protection (MODPROT), and
- (2) Modernization Protection Decontamination (MODPROT DE)

MODPROT will be split into three programs in FY21 to fund three separate Modernization Efforts: Modernization Protection Collective Protection (MODPROT CP), Modernization Protection Decontamination (MODPROT DE), and Modernization Protection Individual Protection (MODPROT IP).

MODPROT DE addresses obsolescence and technical data concerns, beginning with the M26 Joint Services Transportable Decontamination System-Small Scale (JSTDS-SS) through validation and verification of Technical Manual (TM) changes as well as technical data for spare and repair parts; the M12A1 Power Driven Decontamination Apparatus (PDDA) by updating technical references and performing the necessary validation and verification before publishing an updated TM; Conduct biological efficacy at relevant environment (i.e. ambient, desert, cold) for Joint Service Equipment Wipe (JSEW) to expand wipe capabilities to include performance against biological agents; and Conduct efficacy of emerging sorbent technologies for M295/M100 to increase reactivity properties against nerve agents. In FY22 the MODPROT DE program will continue updates to technical data for M26 JSTDS-SS Technical Data Package (TDP) and conduct Health Hazard Assessments (HHA) on expired M295/M100.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2020	FY 2021	FY 2022
<b>Title:</b> 1) MODPROT	1.414	-	-
<b>Description:</b> Upgrades, improvements, and modernizations to fielded DE systems			
<b>Title:</b> 2) MODPROT DE	-	0.633	1.072
<b>Description:</b> Upgrades, improvements, and modernizations to fielded DE systems			
<b>FY 2021 Plans:</b>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program	<b>Date:</b> May 2021
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<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> DE7 / Decontamination (Op Sys Dev)
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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	FY 2020	FY 2021	FY 2022
<p>Complete biological efficacy effort at relevant environment (i.e. ambient, desert, cold) for Joint Service Equipment Wipe (JSEW) to expand wipe capabilities to include performance against biological agents. Continue updates to technical references and validation/verification efforts for M12A1 Power Driven Decontamination Apparatus (PDDA) Technical Manual (TM).</p> <p><b>FY 2022 Plans:</b> Complete updates to technical data for spares and repair parts for M26 JSTDS-SS Technical Data Package (TDP). Complete updates to technical references and validation/verification efforts for M12A1 Power Driven Decontamination Apparatus (PDDA) Technical Manual (TM). Complete efficacy of emerging sorbent technologies for the M295/M100 to increase reactivity properties against nerve agents. Complete Health Hazard Assessment (HHA) on expired M295/M100 for potential training use.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Minor change due to routine program adjustments.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	1.414	0.633	1.072

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

N/A

**Remarks**

**D. Acquisition Strategy**

MODERNIZATION PROTECTION (MODPROT)

In FY21, MODPROT will be split into three programs to fund three separate Modernization Efforts: Modernization Protection Collective Protection (MODPROT CP), Modernization Protection Decontamination (MODPROT DE), and Modernization Protection Individual Protection (MODPROT IP). The original MODPROT acquisition strategies will continue to be followed after the transition occurs in FY21.

MODERNIZATION DECONTAMINATION (MODPROT DE)

MODPROT DE leverages mature technology from contractor developed components to address and replace obsolete components of various fielded decontamination systems. Modernization efforts will also use items developed by the government that have transitioned from lower to higher technology readiness levels that can be inserted into fielded systems. A combination of competitive and sole source contracts to various industry vendors and project orders to various government activities will be used to adapt previously developed components to modernize systems. Robust component and system level testing will validate both government and contractor furnished improvements. The improvements will be added into the specific system's updated Technical Data Packages (TDPs) to be used in Engineering Change Proposals (ECPs) and provided to the item managers.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> DE7 / Decontamination (Op Sys Dev)
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<b>Product Development (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
MODPROT DE - HW C - M26/M295/M100/ Health Hazard Assessment (HHA)	MIPR	Various : Various	0.000	0.000		0.413	Nov 2020	0.837	Dec 2021	0.000		0.837	0.000	1.250	0.000
<b>Subtotal</b>			0.000	0.000		0.413		0.837		0.000		0.837	0.000	1.250	N/A

<b>Support (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
MODPROT - TD/D C - TDP & TM Updates/ Engineering Support	MIPR	Various : Various	0.115	0.474	Nov 2019	0.000		0.000		0.000		0.000	0.000	0.589	0.000
MODPROT DE - ES C - M26 Tech Data Package; Modernization Update / M12A1 TM Update	MIPR	Various : Various	0.000	0.000		0.220	Nov 2020	0.075	Dec 2021	0.000		0.075	0.000	0.295	0.000
<b>Subtotal</b>			0.115	0.474		0.220		0.075		0.000		0.075	0.000	0.884	N/A

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
MODPROT - OTE C - JSEW Bio Capability Testing	Various	Various : Various	0.000	0.448	Dec 2019	0.000		0.000		0.000		0.000	0.000	0.448	0.000
<b>Subtotal</b>			0.000	0.448		0.000		0.000		0.000		0.000	0.000	0.448	N/A





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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> DE7 / Decontamination (Op Sys Dev)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MODPROT - Technical Data Package (TDP)	1	2020	4	2020
MODPROT - M26 JSTDS-SS TM Update/Modernization Effort	1	2020	4	2020
MODPROT - M12A1 Tech Manual Update	1	2020	4	2020
MODPROT - JSEW Bio Capability Testing	1	2020	4	2020
MODPROT DE - JSEW Bio Capability Testing	1	2021	4	2021
MODPROT DE - M12A1 TM Update	1	2021	1	2022
MODPROT DE - M26 JSTDS-SS TDP	1	2021	1	2022
MODPROT DE - M26 JSTDS-SS Modernization	1	2021	4	2025
MODPROT DE - M295/M100 Efficacy Testing	1	2022	4	2022

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program										<b>Date:</b> May 2021		
<b>Appropriation/Budget Activity</b> 0400 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				<b>Project (Number/Name)</b> IP7 / Individual Protection (Op Sys Dev)			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
IP7: Individual Protection (Op Sys Dev)	-	6.364	6.463	11.724	-	11.724	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

The project supports technology refresh of fielded individual protective equipment which enable the warfighter to operate in a contaminated CBR environment with little or no degradation to his/her performance.

Efforts included in this project are:

- (1) Joint Service General Purpose Mask (JSGPM)
- (2) Modernization Protection (MODPROT)
- (3) Modernization Protection Individual Protection (MODPROT IP), and
- (4) Special Purpose Unit Rapid Capability Development and Deployment (SPU RCDD)

The JSGPM program provides for respiratory and ocular protection modernization and enhancements for Toxic Industrial Chemicals (TICs) and Toxic Industrial Materials (TIMs) protection and operational performance in air purifying, powered air purifying, and supplied air functional modes of the JSGPM family of systems. Mask and filter system upgrades will be provided for fielded Protection systems to enhance respiratory and ocular protection. Starting in FY21, JSGPM BA7 transitions to the MODPROT IP program.

MODPROT will be split into three programs in FY21 to fund three separate Modernization Efforts: Modernization Protection Collective Protection (MODPROT CP), Modernization Protection Decontamination (MODPROT DE), and Modernization Protection Individual Protection (MODPROT IP).

The MODPROT IP addresses obsolescence issues with Individual Protective (IP) equipment and the need to modernize fielded IP with capabilities to meet or exceed the Services requirements. MODPROT IP will also conduct modernization efforts and reverse engineering of maintenance and repair procedures for the Joint Services Mask Leakage Tester (JSMLT). MODPROT IP will also provide mask and filter system upgrades and modernization of fielded protection systems to enhance respiratory and ocular protection resulting in an increased lethality of fighter aircraft by mitigating risk due to operationally unsuitable aircrew CBRN masks. In FY22 the MODPROT IP program will conduct shelf life extension testing on Molded Lightweight Chemical/Biological Protective Overboot (MALO) and Joint Service Integrated Suit Technology (JSLIST) Block 2 Glove Upgrade non- Flame Resistant (JB2GU nFR), to determine if storage life may be extended to 20 years from the Date of Manufacture. Testing and analysis with aircraft will fully validate and refine new Tactics, Techniques and Procedures (TTPs) that allow aircrews to operate without restrictive CBRN protective equipment by determining time and techniques required to reduce cockpit hazards to acceptable levels by flushing with clean air.

The SPU RCDD will facilitate rapid response to near-term and emergent chemical and biological (CB) defensive capability requirements from elements of the Joint Special Operations Command (JSOC), select elements from across the Special Operations Forces (SOF) Enterprise and other Joint Force enabling units. SPU RCDD

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program	<b>Date:</b> May 2021
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<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> IP7 / Individual Protection (Op Sys Dev)
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mitigates risk across the Chemical Biological Defense Program (CBDP) by creating a portfolio of operationally-relevant CB capabilities that can quickly transition to needed elements and formations of the joint force, in part or in whole, in response to the emergent capability needs of the geographic combatant commanders. These objectives are met by the early transitioning of promising science and technologies (S&T), the focused conduct of combat evaluations and mission-oriented operational assessments to assess technological and mission suitability, and the active leveraging of existing Commercial-Off-The-Shelf (COTS) products along with novel redesign approaches to modernize and optimize existing solutions to new challenges supported by "buy-try-decide-acquire" acquisition strategies. SPU RCDD will provide enhanced CB detection and protection capabilities against new and emerging CB threats through modernized and technologically-mature component and system enhancements to currently fielded host platforms and legacy systems, thereby extending service life, off-setting costs to initiate a new acquisition program, and putting critical CB capabilities in the hands of warfighters by faster acceleration through the acquisition process. In FY22 SPU RCDD initiates efforts such as respiratory breathing systems, biological identification, and modernization of protective Chemical and Biological ensembles that have gone through requirements validation, and continues product enhancement development and technology upgrades on currently fielded SOF equipment to counter emerging threats, conduct limited user evaluations and operational assessment.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2020	FY 2021	FY 2022
<p><b>Title:</b> 1) JSGPM</p> <p><b>Description:</b> Prototype Development Testing</p>	1.562	-	-
<p><b>Title:</b> 2) MODPROT</p> <p><b>Description:</b> Upgrades, improvements, and modernizations to fielded IP systems.</p>	1.959	-	-
<p><b>Title:</b> 3) MODPROT IP</p> <p><b>Description:</b> Upgrades, improvements, and modernizations to fielded IP systems.</p> <p><b>FY 2021 Plans:</b> Continue modernization of the JSMLT. Initiate Second Generation Filter and NIOSH filter Prototype Developmental Testing (DT).</p> <p><b>FY 2022 Plans:</b> Initiate M53A1 Hard to Fit Testing. Initiate Overboots, Molded, Lightweight, Chemical/Biological Protective (MALO) shelf life extension testing. Continue modernization of the Joint Service Mask Leakage Tester (JSMLT) and Integrated Footwear System (IFS). Commence shelf life maximum age study for Joint Service Lightweight Integrated Suit Technology (JSLIST) Block 2 Glove Upgrade, Non-Flame Resistant (JB2GU nFR) Glove. Continue Third Generation Filter and National Institute for Occupational Safety and Health (NIOSH) filter Prototype Developmental Testing (DT) and builds. Initiate Fixed Wing Aircraft/Aircrew PPE optimization effort.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Increase due to accelerated development effort.</p>	-	3.001	8.327
<p><b>Title:</b> 4) SPU RCDD</p>	2.843	3.462	3.397

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> IP7 / Individual Protection (Op Sys Dev)

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<p><b>Description:</b> The SCBA-Modernization project will replace the three different SCBA systems currently being used by the customer with a modular system that can be configured to meet their 3 specific mission profiles. The current SCBA systems are made by three different manufactures which creates a logistical burden. The VR Trainer project will allow the Warfighter to interact with specific CBRN equipment through an actual device or with a created 3D version of that device to perform maintenance as well as to load and analyze CB samples using pre-positioned training scenarios.</p> <p><b>FY 2021 Plans:</b> Initiate product enhancement development and technology upgrades on currently fielded equipment to counter emerging threats, conduct limited user evaluations and operational assessment, and provide program management support.</p> <p><b>FY 2022 Plans:</b> Initiate efforts such as respiratory breathing systems, biological identification, and modernization of protective Chemical and Biological ensembles that have gone through requirements validation and continue product enhancement development and technology upgrades on currently fielded SOF equipment to counter emerging threats, conduct limited user evaluations and operational assessment.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Minor change due to routine program adjustments.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	6.364	6.463	11.724

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• JI0003: JOINT SERVICE GENERAL PURPOSE MASK (JSGPM)	13.209	19.802	15.128	-	15.128	-	-	-	-	-	-

**Remarks**

**D. Acquisition Strategy**  
JS GENERAL PURPOSE MASK (JSGPM)

The JSGPM Advanced Respiratory Protection Initiative (ARPI) allows for continual technology refreshment and development of an improved single mask filter that would be certified for use in both domestic and military operations. Existing Federal Acquisition Regulation (FAR) based contracts and Other Transaction Authority (OTA) contracts will be used to mature technologies transitioned from the Defense Threat Reduction Agency (DTRA) to obtain higher Technology Readiness Level (TRL) that

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program	<b>Date:</b> May 2021
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<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> IP7 / Individual Protection (Op Sys Dev)
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can be inserted into fielded systems. The complexity of maturing these different items requires an evolutionary approach with one prototype iteration governing the approach on the next iteration.

**MODERNIZATION PROTECTION (MODPROT)**

In FY21, MODPROT will be split into three programs to fund three separate Modernization Efforts: Modernization Protection Collective Protection (MODPROT CP), Modernization Protection Decontamination (MODPROT DE), and Modernization Protection Individual Protection (MODPROT IP). The original MODPROT acquisition strategies will continue to be followed after the transition occurs in FY21.

**MODERNIZATION PROTECTION INDIVIDUAL PROTECTION (MODPROT IP)**

MODPROT IP leverages mature technology from contractor developed components to address and replace obsolete components of various fielded individual protection systems. Modernization efforts will also use items developed by the government that have transitioned from lower to higher technology readiness levels that can be inserted into fielded systems. A combination of competitive and sole source contracts to various industry vendors and project orders to various government activities will be used to adapt previously developed components to modernize systems. Robust component and system level testing will validate both government and contractor furnished improvements. The improvements will be added into the specific system's updated technical data packages to be used in engineering change proposals and provided to the item managers.

**SPU RAPID CAPABILITY DEVELOPMENT AND DEPLOYMENT (SPU RCDD)**

Non-traditional projects will be executed for capabilities identified by Joint Special Operations Command (JSOC), select elements from across the Special Operations Forces (SOF) Enterprise, and other Joint Force enabling units. The SPU RCDD BA5 acquisition strategy for developmental efforts will allow rapid prototyping and testing of mission critical capabilities needed to enhance mission success. The SPU RCDD BA7 modernization effort will use technical and functional evaluations of currently-fielded items to introduce and incorporate operationally-relevant system developments. Both efforts will be accomplished by awarding an agreement through the Countering Weapons of Mass Destruction Other Transaction Authority (CWMD OTA) for the procurement of test assets. An OTA contracting approach will be used to procure test prototypes and test articles of possible solutions. The OTA consists of a consortium of all potential industry, research institutions, and non-traditional government that could be potential solvers for the program. Procurement will be through either the OTAs, a Small Business Innovative Research contract, or a more traditional contracting vehicle.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> IP7 / Individual Protection (Op Sys Dev)
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<b>Product Development (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
JSGPM - HW C - Filter Prototypes 3M & Avon/NIOSH Filter procurement	Various	Various : Various	2.197	0.830	Nov 2019	0.000		0.000		0.000		0.000	0.000	3.027	0.000
MODPROT IP - HW C - Filter Prototypes & JSMLT Modernization	Various	Various : Various	0.000	0.000		1.185	Nov 2020	2.378	Dec 2021	0.000		2.378	0.000	3.563	0.000
SPU RCDD - HW C - VR Trainer Product Development	Various	MRIGlobal : Kansas City, MO	0.000	0.000		1.993	Dec 2020	1.963	Dec 2021	0.000		1.963	0.000	3.956	0.000
SPU RCDD - HW C - AP-PPE Product Development	C/CPFF	Battelle Memorial Institute : Columbus, OH	0.000	0.261	Apr 2020	0.000		0.000		0.000		0.000	0.000	0.261	0.000
<b>Subtotal</b>			2.197	1.091		3.178		4.341		0.000		4.341	0.000	10.807	N/A

<b>Support (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
JSGPM - ES C - IPT, Engineering, and Technical Support	MIPR	Various : Various	0.342	0.018	Nov 2019	0.000		0.000		0.000		0.000	0.000	0.360	0.000
MODPROT - ILS C - Logistics Support	Various	Various : Various	0.000	0.435	Dec 2019	0.000		0.000		0.000		0.000	0.000	0.435	0.000
MODPROT IP - ES C - IPT, Engineering, Technical, Logistics Support	MIPR	Various : Various	0.000	0.000		0.301	Nov 2020	0.816	Nov 2021	0.000		0.816	0.000	1.117	0.000
SPU RCDD - ES C - Technical Support	MIPR	Various : Various	0.000	0.250	Nov 2020	0.466	Dec 2020	0.347	Dec 2021	0.000		0.347	0.000	1.063	0.000
SPU RCDD - ES C - AP-PPE Technical Support	MIPR	Combat Capabilities Development Command (CCDC)	0.000	0.363	May 2020	0.000		0.000		0.000		0.000	0.000	0.363	0.000

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> IP7 / Individual Protection (Op Sys Dev)
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<b>Support (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
		Soldier Center : Natick, MA													
SPU RCDD - ES C - Engineering Support	Various	Various : Various	0.000	0.000		0.145	Feb 2021	0.000		0.000		0.000	0.000	0.145	0.000
<b>Subtotal</b>			0.342	1.066		0.912		1.163		0.000		1.163	0.000	3.483	N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
JSGPM - DTE C - System Filters (CoZZAT)	MIPR	CCDC CBC : Aberdeen Proving Ground, MD	2.639	0.462	Jan 2020	0.000		0.000		0.000		0.000	0.700	3.801	0.000
MODPROT - OTE S - JB2GU Glove Study/ IFS Modernization/Apron Modernization Testing	C/FFP	Various : Various	0.100	0.101	Dec 2019	0.000		0.000		0.000		0.000	0.000	0.201	0.000
MODPROT - OTE S - JSMLT Modernization	C/FFP	Hamilton Associates : DBA Air Techniques Intl., Owings Mills, MD	1.430	1.132	Jan 2020	0.000		0.000		0.000		0.000	0.000	2.562	0.000
MODPROT IP - DTE C - Filter Prototype Testing	MIPR	CCDC CBC : Aberdeen Proving Ground, MD	0.000	0.000		1.005	Nov 2020	0.000		0.000		0.000	0.000	1.005	0.000
MODPROT IP - DTE C - Fixed Wing Aircraft/Aircrew PPE Optimization Effort	MIPR	Various : Various	0.000	0.000		0.000		2.567	Dec 2021	0.000		2.567	0.000	2.567	0.000
MODPROT IP - DTE C - LJPACE Demo, System Filters	Various	Various : Various	0.000	0.000		0.112	Apr 2021	1.317	Dec 2021	0.000		1.317	0.000	1.429	0.000
SPU RCDD - DTE C - Project Wintergreen Test and Evaluation	MIPR	U.S. Army Combat Capabilities Development Command	0.000	0.342	Jun 2020	0.267	Dec 2020	0.555	Dec 2021	0.000		0.555	0.000	1.164	0.000

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> IP7 / Individual Protection (Op Sys Dev)
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<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
		(DEVCOM) Chemical Biological Center (CBC) : Aberdeen Proving Ground, MD													
SPU RCDD - DTE C - AP-PPE Test and Evaluation	C/FFP	Battelle Memorial Institute : Columbus, OH	0.000	0.680	Apr 2020	0.000		0.000		0.000		0.000	0.000	0.680	0.000
SPU RCDD - DTE C - Test and Evaluation	Various	Various : Various	0.000	0.000		0.150	Mar 2021	0.000		0.000		0.000	0.000	0.150	0.000
SPU RCDD - OTE S - NAG	MIPR	National Assessment Group : Kirkland, NM	0.000	0.000		0.075	Apr 2021	0.000		0.000		0.000	0.000	0.075	0.000
<b>Subtotal</b>			4.169	2.717		1.609		4.439		0.000		4.439	0.700	13.634	N/A

<b>Management Services (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
JSGPM - PM/MS C - Program Management Support	MIPR	Various : Various	2.107	0.252	Nov 2019	0.000		0.000		0.000		0.000	0.000	2.359	0.000
MODPROT - PM/MS C - Program Management Support	MIPR	Various : Various	0.000	0.291	Nov 2019	0.000		0.000		0.000		0.000	0.000	0.291	0.000
MODPROT IP - PM/MS C - Program Management Support	MIPR	Various : Various	0.000	0.000		0.398	Mar 2021	1.249	Nov 2021	0.000		1.249	0.000	1.647	0.000
SPU RCDD - PM/MS C - Program Management Support	Various	Various : Various	0.000	0.947	Feb 2020	0.366	Nov 2020	0.532	Nov 2021	0.000		0.532	0.000	1.845	0.000
<b>Subtotal</b>			2.107	1.490		0.764		1.781		0.000		1.781	0.000	6.142	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program</b>								<b>Date: May 2021</b>			
<b>Appropriation/Budget Activity</b> 0400 / 7			<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				<b>Project (Number/Name)</b> IP7 / Individual Protection (Op Sys Dev)				
	<b>Prior Years</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>		
<b>Project Cost Totals</b>	8.815	6.364	6.463	11.724	0.000	11.724	0.700	34.066	N/A		

**Remarks**

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

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> IP7 / Individual Protection (Op Sys Dev)
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	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	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
JSGPM - Prototype Development (M61 Second Generation and NIOSH)	██████████																											
JSGPM - Prototype Testing (M61 Second Generations and NIOSH)	██████████																											
JSGPM - MOF Integration into M61	██████████																											
MODPROT - JSMLT Modernization	██████████																											
MODPROT - JB2GU Glove Study/ IFS Modernization	██████████																											
MODPROT IP - Second Generation Filter & NIOSH DT					████████████████████																							
MODPROT IP - JSMLT Modernization					██																							
MODPROT IP - MALO Shelf Life Extension Testing									████████																			
MODPROT IP - M53A1 Hard to Fit Testing									████████																			
MODPROT IP - Fixed Wing Aircraft/Aircrew PPE Optimization Effort									██																			
MODPROT IP - Maximum Age Study for JB2GU nFR Glove									████████████████																			
MODPROT IP - Second Generation Filter ECP													████████															
MODPROT IP - Third Generation Filter Prototype DT													██															
MODPROT IP - Third Generation Filter Technology ECP																					████████							
SPU RCDD - Modernization Efforts	██																											
SPU RCDD - AP-PPE Modernization	██																											
SPU RCDD - VR Trainer					██																							

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2022 Chemical and Biological Defense Program							<b>Date:</b> May 2021				
<b>Appropriation/Budget Activity</b> 0400 / 7				<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				<b>Project (Number/Name)</b> IP7 / Individual Protection (Op Sys Dev)			

	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026							
	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				
SPU RCDD - SCBA Modernization																																

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> IP7 / Individual Protection (Op Sys Dev)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
JSGPM - Prototype Development (M61 Second Generation and NIOSH)	1	2020	4	2020
JSGPM - Prototype Testing (M61 Second Generations and NIOSH)	1	2020	4	2020
JSGPM - MOF Integration into M61	1	2020	4	2020
MODPROT - JSMLT Modernization	1	2020	4	2020
MODPROT - JB2GU Glove Study/ IFS Modernization	1	2020	4	2020
MODPROT IP - Second Generation Filter & NIOSH DT	1	2021	4	2022
MODPROT IP - JSMLT Modernization	1	2021	4	2026
MODPROT IP - MALO Shelf Life Extension Testing	1	2022	2	2022
MODPROT IP - M53A1 Hard to Fit Testing	1	2022	2	2022
MODPROT IP - Fixed Wing Aircraft/Aircrew PPE Optimization Effort	1	2022	4	2026
MODPROT IP - Maximum Age Study for JB2GU nFR Glove	2	2022	4	2022
MODPROT IP - Second Generation Filter ECP	1	2023	2	2023
MODPROT IP - Third Generation Filter Prototype DT	3	2023	4	2025
MODPROT IP - Third Generation Filter Technology ECP	1	2026	2	2026
SPU RCDD - Modernization Efforts	1	2020	4	2026
SPU RCDD - AP-PPE Modernization	2	2020	4	2021
SPU RCDD - VR Trainer	1	2021	2	2022
SPU RCDD - SCBA Modernization	2	2021	1	2022

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program										<b>Date:</b> May 2021		
<b>Appropriation/Budget Activity</b> 0400 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				<b>Project (Number/Name)</b> IS7 / Information Systems (Op Sys Dev)			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
IS7: Information Systems (Op Sys Dev)	-	15.773	3.234	15.281	-	15.281	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

This Project provides for the upgrade and modernization of fielded Information Systems. During this phase efforts will execute modernization, bug fixes, provide support at fielded locations, and maintain training and logistics support.

Efforts included in this project are:

- (1) Global Biosurveillance Portal (G-BSP)
- (2) Joint Effects Model 2 (JEM 2),
- (3) Joint Warning and Reporting Network 2 (JWARN 2)
- (4) Software Support Activity (SSA)
- (5) Chemical Biological Radiological Nuclear Information Systems (CBRN IS)
- (6) Modernization Chemical Biological Radiological Nuclear Information Systems (MOD CBRN IS)

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

The JEM 2 program 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 that is approved for use by operational warfighters. JEM 2 applies advanced physics using weather, terrain, and agent characteristics to predict the time-phased impact of CBRN and Toxic Industrial Chemical/Material (TIC/TIM). JEM 2 displays hazard information on the Common Operational Picture (COP) and allows commanders to assess risk and take steps to mitigate the effects of Weapons of Mass Destruction (WMD) on operational forces. The BA7 JEM 2 program will be moved into the BA7 MOD CBRN IS program starting in FY22.

The JWARN 2 Program 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

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> IS7 / Information Systems (Op Sys Dev)

warfighter battle management and continuity of operations in a contaminated environment. The BA7 JWARN 2 program will be moved into the BA7 MOD CBRN IS program starting in FY22.

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

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

The MOD CBRN IS program allows for the management of the separate lines of effort which were CBRN IS, Joint Effects Model (JEM), Joint Warning and Reporting Network (JWARN) and the Software Support Activity (SSA) under one family of systems. MOD CBRN IS will provide for the continuous engineering and developmental efforts to modernize and conduct post production and deployment support to fielded CBRN software information systems and capabilities. This project supports software applications and information systems that help shape and inform the battlespace against CBRN threats. MOD CBRN IS encompasses the processes, procedures, people, material and information required to support and modernize fielded CBRN information systems and applications. Activities include: software code updates and modernization to correct deficiencies, comply with Joint and Service C2 system architectural changes, cybersecurity, test and evaluation, configuration management, software redistribution, documentation, and training.

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<b>Title:</b> 1) Global-BSP <b>Description:</b> Modernization Efforts and Support	4.374	-	-
<b>Title:</b> 2) JEM 2 <b>Description:</b> Modernization Efforts	4.686	-	-
<b>Title:</b> 3) JWARN 2 <b>Description:</b> Modernization Effort	4.598	-	-
<b>Title:</b> 4) SSA	0.077	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021			
<b>Appropriation/Budget Activity</b> 0400 / 7		<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> IS7 / Information Systems (Op Sys Dev)		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>	
<b>Description:</b> SSA Policies, Standards and Guidelines					
<b>Title:</b> 5) SSA		0.092	-	-	
<b>Description:</b> Integrated Architecture					
<b>Title:</b> 6) SSA		0.144	-	-	
<b>Description:</b> Chemical, Biological, Radiological, Nuclear Data Model					
<b>Title:</b> 7) SSA		-	1.177	-	
<b>Description:</b> Enterprise Services					
<b>FY 2021 Plans:</b> Support the Chemical Biological Radiological and Nuclear Defense (CBRND) enterprise through continuous engagement to assist with acquisition products for the modernization and sustainment of fielded products to ensure system compatibility, interoperability, and integration. Provide subject matter expertise in the areas of software development, network architecture, cybersecurity, information assurance, and standards and policies.					
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Program/project funding transferred to another funding line. Program funding transferred to BA7 in the MOD CBRN IS portfolio beginning in FY22.					
<b>Title:</b> 8) CBRN IS		1.802	2.057	-	
<b>Description:</b> Modernization Efforts					
<b>FY 2021 Plans:</b> Continue to modernize fielded capabilities throughout the lifecycle of the program to ensure compatibility with Service architectures, cloud-hosted environments, and system security requirements. Continue to update system with new technology and capability sets ensuring compliance with cyber security and net centric policies.					
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Program/project funding transferred to another funding line. Program funding transferred to MOD CBRN IS portfolio beginning in FY22.					
<b>Title:</b> 9) MOD CBRN IS		-	-	15.281	

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> IS7 / Information Systems (Op Sys Dev)

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<p><b>Description:</b> CBRN Information Systems Modernization</p> <p><b>FY 2022 Plans:</b> Perform management, preplanned product improvements and continuous engineering efforts to modernize currently fielded capabilities of JEM, JWARN and CBRN IS hosted on cloud and Joint Service Command and Control (C2) systems. Update host architectures, operating systems, cyber security requirements and NATO standards in order to maintain interoperability, efficiency and functionality and compliance. Continue Government developmental and operational testing on software updates and modernization efforts. Provide program/financial management, costing, contracting, scheduling and acquisition oversight. Provide product support for software redeployment and training to operational forces.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Program/project funding transferred from another funding line. MOD CBRN IS combines CBRN IS, JEM, JWARN, and SSA under one program beginning FY22.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	15.773	3.234	15.281

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

N/A

**Remarks**

**D. Acquisition Strategy**

BIOSURVEILLANCE PORTAL (BSP)

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

JOINT EFFECTS MODEL (JEM)

JEM 2 acquisition utilizes Agile software development practices, employing the incrementally fielded software program model in the DODI 5000.02 to conduct multiple, more frequent fieldings in lieu of a single fielding event. As part of the strategy, an over-arching MS B was approved by the MDA. JEM Requirements Definition packages have been approved along with Capability Drops (CD) that define capability sets to be developed, tested, and fielded operationally. These CDs are additive in

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program	<b>Date:</b> May 2021
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<b>Appropriation/Budget Activity</b>	<b>R-1 Program Element (Number/Name)</b>	<b>Project (Number/Name)</b>
0400 / 7	PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	IS7 / <i>Information Systems (Op Sys Dev)</i>

nature, increasing the total capability of JEM 2 that was originally scheduled to be completed in FY22. However, funding in FY21 and beyond was reduced through the Defense-Wide Review (DWR) and the program will be moved to sustainment in FY21 and managed through MOD CBRN IS beginning 1QFY22.

#### JOINT WARNING & REPORTING NETWORK (JWARN)

JWARN 2 acquisition utilizes Agile software development practices, employing the incrementally fielded software program model in the DODI 5000.02 to conduct multiple, more frequent fieldings in lieu of a single fielding event. As part of the strategy, an over-arching MS B and Build Decision for Requirements Definition Package 1 (RDP-1) were approved by the MDA in Q4 FY14. Subsequent RDPs have been approved along with Capability Drops (CD) that define capability sets to be developed, tested, and fielded operationally. These CDs are additive in nature, increasing the total capability of JWARN that was originally scheduled to be completed in FY22. However, funding in FY21 and beyond was reduced through the Defense-Wide Review (DWR) and the program will be moved to sustainment in FY21 and managed through SSA and MOD CBRN-IS beginning Q1FY22.

#### SOFTWARE SUPPORT ACTIVITY (SSA)

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

#### CBRN INFORMATION SYSTEMS

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

#### MODERNIZATION CBRN INFORMATION SYSTEMS (MOD CBRN IS)

MOD CBRN IS combines CBRN IS, Joint CBRN Hazard Effects Modeling and Warning and reporting (JEM and JWARN) and the Software Support Activity under one portfolio. The acquisition strategy utilizes a managed portfolio approach to align multiple capabilities in support of modernization of CBRN Information Systems. MOD CBRN IS leverages the concepts of CBRN Hazard Awareness and Understanding and the DISA milCloud Enterprise Services to integrate current CBRN capabilities and intelligence services, applications, and systems to provide increased situational awareness and decision support to commanders for CBRN defense. This strategy

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> IS7 / <i>Information Systems (Op Sys Dev)</i>
<p>provides an integration platform and supports the implementation of Integrated Early Warning (IEW) and other emerging technologies from advanced technology demonstrations (ATD) and experimental capability demonstrations (ECD). MOD CBRN IS provides for the continuous engineering and modernization of fielded information systems for Joint CBRN Hazard Effects Modeling and Warning and Reporting. MOD CBRN IS utilizes the Agile software development, IT Box and DOD Software Acquisition Pathway to provide for the continuous spiral development, and fielding of modular capability packages.</p>		

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> IS7 / Information Systems (Op Sys Dev)
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<b>Product Development (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
BSP - SW S - Global-BSP Modernization	MIPR	Various : Various	4.091	2.904	Dec 2019	0.000		0.000		0.000		0.000	0.000	6.995	0.000
JEM - SW S - Increment 2 - Modernization	C/CPAF	General Dynamics Information Technologies : Fairfax, VA	11.127	2.532	Jan 2020	0.000		0.000		0.000		0.000	0.000	13.659	0.000
JWARN - 1-SW S- Modernization	C/CPAF	DCS Corps : Alexandria, VA	0.000	0.601	Dec 2019	0.000		0.000		0.000		0.000	0.000	0.601	0.000
JWARN - 2- SW S - Modernization Follow-On	C/CPAF	DCS Corps : Alexandria, VA	2.361	2.589	Dec 2019	0.000		0.000		0.000		0.000	0.000	4.950	0.000
SSA - SW S - Development Services	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	4.091	0.144	Feb 2020	0.529	Feb 2021	0.000		0.000		0.000	0.000	4.764	0.000
MOD CBRN IS - SW S - MOD CBRN IS- Modernization	Various	Various : Various	0.000	0.000		0.000		10.868	Oct 2021	0.000		10.868	0.000	10.868	0.000
<b>Subtotal</b>			21.670	8.770		0.529		10.868		0.000		10.868	0.000	41.837	N/A

<b>Support (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
BSP - ILS C - Training and Logistics Support	Various	Various : Various	0.234	1.162	Dec 2019	0.000		0.000		0.000		0.000	0.000	1.396	0.000
JEM - ILS C - Training and Logistics Support	Various	Various : Various	1.009	1.675	Dec 2019	0.000		0.000		0.000		0.000	0.000	2.684	0.000
JWARN - 1&2 - ES S - Modernization	MIPR	Various : Various	1.211	0.704	Oct 2019	0.000		0.000		0.000		0.000	0.000	1.915	0.000
SSA - TD/D C - Information Assurance Activities	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	3.875	0.134	Feb 2020	0.494	Feb 2021	0.000		0.000		0.000	0.000	4.503	0.000

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> IS7 / Information Systems (Op Sys Dev)
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<b>Support (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
CBRN IS - ES S - milCloud support	MIPR	Various : Various	2.543	1.802	Dec 2019	2.057	Dec 2020	0.000		0.000		0.000	0.000	6.402	0.000
MOD CBRN IS - ES S - MOD CBRN IS- milCloud Support	MIPR	Various : Various	0.000	0.000		0.000		1.977	Oct 2021	0.000		1.977	0.000	1.977	0.000
<b>Subtotal</b>			8.872	5.477		2.551		1.977		0.000		1.977	0.000	18.877	N/A

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
JWARN - 1- OTE S - FOT&E	MIPR	Various : Various	4.581	0.050	Nov 2019	0.000		0.000		0.000		0.000	0.000	4.631	0.000
JWARN - 2- OTE S	MIPR	Various : Various	1.019	0.185	Dec 2019	0.000		0.000		0.000		0.000	0.000	1.204	0.000
MOD CBRN IS - OTH S - MOD CBRN IS - System Testing	MIPR	Various : Various	0.000	0.000		0.000		0.803	Oct 2021	0.000		0.803	0.000	0.803	0.000
<b>Subtotal</b>			5.600	0.235		0.000		0.803		0.000		0.803	0.000	6.638	N/A

<b>Management Services (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
BSP - PM/MS C - Program Management Support	Various	Various : Various	0.000	0.308	Dec 2019	0.000		0.000		0.000		0.000	0.000	0.308	0.000
JEM - PM/MS C - Program Management Support	Various	Various : Various	0.415	0.479	Dec 2019	0.000		0.000		0.000		0.000	0.000	0.894	0.000
JWARN - PM/MS S - Program management	MIPR	Various : Various	2.565	0.469	Dec 2019	0.000		0.000		0.000		0.000	0.000	3.034	0.000
SSA - PM/MS C - Program Management Support	Various	Various : Various	0.133	0.035	Feb 2020	0.154	Feb 2021	0.000		0.000		0.000	0.000	0.322	0.000



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

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> IS7 / Information Systems (Op Sys Dev)
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	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	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
JEM Increment 2 - RDP 4 Approval					■																							
JEM Increment 2 - FD 4 USMC			■																									
JEM Increment 2 - Govt DT / OT / V&V	■	■	■	■																								
JWARN Increment 2 - Govt DT / OT / UFEs / OAs / FOTs	■	■	■	■																								
JWARN Increment 2 - Modernization and Update	■	■	■	■																								
JWARN Increment 2 - Product Development	■	■	■	■																								
SSA - Provide Information Assurance Site Compliance Testing	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
SSA - Provide Integration and Test, M&S, VV&A Certification and Accreditation	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
SSA - Provide Enterprise Architecture Products and Services	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
SSA - Provide Information Assurance Certification/Acceptance products/services, including compliance testing	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
SSA - Provide Modeling, Simulation, VV&A, Integration/Test support and interoperability demonstrations.	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
SSA - Sustain Common Components products, process and services	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
SSA - Develop and provide CBRN Data Model implementation guidance, including reference implementations	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
SSA - Provide CBRN Interface Standards, including reference implementations, e.g. Common CBRN Sensor Interface	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> IS7 / Information Systems (Op Sys Dev)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
JEM Increment 2 - RDP 4 Approval	1	2021	1	2021
JEM Increment 2 - FD 4 USMC	3	2020	3	2020
JEM Increment 2 - Govt DT / OT / V&V	1	2020	4	2020
JWARN Increment 2 - Govt DT / OT / UFEs / OAs / FOTs	1	2020	4	2020
JWARN Increment 2 - Modernization and Update	1	2020	4	2020
JWARN Increment 2 - Product Development	1	2020	3	2020
SSA - Provide Information Assurance Site Compliance Testing	1	2020	4	2021
SSA - Provide Integration and Test, M&S, VV&A Certification and Accreditation	1	2020	4	2021
SSA - Provide Enterprise Architecture Products and Services	1	2020	4	2021
SSA - Provide Information Assurance Certification/Acceptance products/services, including compliance testing	1	2020	4	2021
SSA - Provide Modeling, Simulation, VV&A, Integration/Test support and interoperability demonstrations.	1	2020	4	2021
SSA - Sustain Common Components products, process and services	1	2020	4	2021
SSA - Develop and provide CBRN Data Model implementation guidance, including reference implementations	1	2020	4	2021
SSA - Provide CBRN Interface Standards, including reference implementations, e.g. Common CBRN Sensor Interface	1	2020	4	2021
CBRN IS - Product Development	1	2020	4	2021
CBRN IS - Operational Assessments	1	2020	4	2021
CBRN IS - Total Package Fielding	1	2020	4	2021
MOD CBRN IS - Modernization	1	2022	4	2026
MOD CBRN IS - MOD CBIRN IS- Continuous Engineering/SW Codes Updates	1	2022	4	2026

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

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> IS7 / Information Systems (Op Sys Dev)
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Events	Start		End	
	Quarter	Year	Quarter	Year
MOD CBRN IS - Cyber Security Compliance	1	2022	4	2026
MOD CBRN IS - Operating system architecture updates	1	2022	4	2026
MOD CBRN IS - Configuration Management and Test and Evaluation	1	2022	4	2026
MOD CBRN IS - Validation, Verification and Accreditation	1	2022	4	2026

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

<b>Appropriation/Budget Activity</b> 0400 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				<b>Project (Number/Name)</b> MB7 / Medical Biological Defense (Op Sys Dev)			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
MB7: Medical Biological Defense (Op Sys Dev)	-	2.663	2.308	3.833	-	3.833	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

The project supports technology refresh of fielded medical diagnostic systems and associated capabilities (e.g., assays) that contribute to the layered medical defenses against biological warfare agent threats facing U.S. Forces in the field. As well as, the upgrade and modernization of fielded medical nerve agent treatment system that contribute to the layered medical defenses against chemical warfare agent threats facing U.S. Forces in the field.

Efforts in this project include:

- (1) Modernization Medical (MOD MED)
- (2) Next Generation Diagnostic System (NGDS)

The MOD MED program supports improvements to fielded systems and supports post-fielding FDA requirements for devices and combination products. In FY22 two programs transition to MOD MED; (1) Alternative Autoinjector Manufacturer Capability (AUTOINJ) and (2) Next Generation Diagnostic System (NGDS). In FY22, program efforts include FDA required post-marketing commitments and requirements for combination products (AUTOINJ) and system hardware and software upgrades for fielded NGDS that are required to maintain the capability for CBR threat and infectious disease identification and FDA-cleared diagnostics in order to inform individual patient treatment and CBR situational awareness and disease surveillance.

The NGDS program is a family of systems providing increments of diagnostic capabilities over time that address varied chemical, biological, and radiological (CBR) threats across the different echelons of the Combat Health Support System. The mission of the NGDS is to provide CBR threat and infectious disease identification and Food and Drug Administration (FDA) cleared diagnostics to inform individual patient treatment and CBR situational awareness and disease surveillance. NGDS 1 provides deployable and laboratory-based combat health support units with 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. In FY22, NGDS program efforts will be moved to the MOD MED (Project MB7) program.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2020	FY 2021	FY 2022
<b>Title:</b> 1) NGDS 1	2.663	2.308	-
<b>Description:</b> System Upgrades & Support			
<b>FY 2021 Plans:</b>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021		
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> MB7 / Medical Biological Defense (Op Sys Dev)		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
Continue development of additional assays and sample validation protocols. Continue annual cyber security updates and management of hardware and software configurations. <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Program/project funding transferred to another funding line.				
<b>Title:</b> 2) MOD MED (NGDS 1) - System Upgrades & Support <b>Description:</b> System Upgrades & Support <b>FY 2022 Plans:</b> Continue development of additional assays and sample validation protocols. Continue annual cyber security updates and management of hardware and software configurations. <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Program/project funding transferred from another funding line. NGDS 1 (MB7) will transition to MOD MED (MB7) starting in FY22.		-	-	2.204
<b>Title:</b> 3) MOD MED (AUTOINJ) - Post Marketing Commitments <b>Description:</b> Initiate Food and Drug Administration (FDA) Post-Marketing Commitments <b>FY 2022 Plans:</b> Initiate Food and Drug Administration (FDA) Post-Marketing Commitments. <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Program/project funding transferred from another funding line. AUTOINJ (MC7) will transition to MOD MED (MB7) starting in FY22.		-	-	1.279
<b>Title:</b> 4) MOD MED (AUTOINJ) - Regulatory <b>Description:</b> Regulatory Activities <b>FY 2022 Plans:</b> Initiate Regulatory Support for Army Office of the Surgeon General (OTSG)-sponsored fielded products. <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Program/project funding transferred from another funding line. AUTOINJ (MC7) will transition to MOD MED (MB7) starting in FY22.		-	-	0.350
<b>Accomplishments/Planned Programs Subtotals</b>		2.663	2.308	3.833

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program	<b>Date:</b> May 2021
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<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> MB7 / Medical Biological Defense (Op Sys Dev)
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**C. Other Program Funding Summary (\$ in Millions)**

N/A

**Remarks**

**D. Acquisition Strategy**

NEXT GENERATION DIAGNOSTICS SYSTEM (NGDS)

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

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

MODERNIZATION MEDICAL (MOD MED)

Next Generation Diagnostic System (NGDS)

For the Next Generation Diagnostic Systems (NGDS), MOD MED will continue to ensure system upgrades for both hardware and software track to latest updates for commercial systems from original equipment manufacturer. MOD MED will also fund development of new assays (i.e. tests) for fielded systems, to address emerging biological threats and diseases.

Alternative Autoinjector Manufacturer Capability (AUTOINJ)

The Alternative Autoinjector Manufacturer Capability (AUTOINJ) will identify an alternative source(s) to develop and provide required Food and Drug Administration (FDA) approved autoinjector delivered nerve agent antidote and treatment capabilities to the Department of Defense (DoD). Currently, a single DoD source provides all of these capabilities. The AUTOINJ effort leverages novel technologies and industrial base expansion in order to develop the autoinjector products. AUTOINJ uses contracts and Other Transactional Agreements (OTAs) in which the performer shall be responsible for conducting development and testing activities consistent with current FDA regulations. The contractor shall sponsor the drug to the FDA and hold all approvals and/or licenses. Upon FDA approval, purchases for product sustainment will be made by the Defense Logistics Agency. AUTOINJ (MC7) Post marketing commitments and requirements are anticipated as a result of the FDA approval and will be the responsibility of the contractor and the government. AUTOINJ (MC7) will transition to Modern Medicine (MOD MED) MB7 in FY22. Currently fielded Office of the Surgeon General (OTSG) sponsored nerve agent antidote treatment systems require OTSG involvement for maintaining regulatory files and FDA reporting activities.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> MB7 / Medical Biological Defense (Op Sys Dev)
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<b>Product Development (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
NGDS - NGDS 1 - HW C - Assay Development	C/CPFF	BioFire Dx : Salt Lake City, UT	16.835	0.698	Dec 2019	0.400	Dec 2020	0.000		0.000		0.000	0.000	17.933	0.000
NGDS - HW C - Assay Development	MIPR	Battelle Memorial Institute : Aberdeen, MD	0.952	0.000		0.127	Dec 2020	0.000		0.000		0.000	0.000	1.079	0.000
NGDS - HW C - Assay Development #2	MIPR	Various : Various	1.022	0.000		0.150	Dec 2020	0.000		0.000		0.000	0.000	1.172	0.000
MOD MED - Autoinjector - Regulatory	MIPR	USAMRMC - Office of Regulated Activities (ORA) : Ft. Detrick, MD	0.000	0.000		0.000		0.319	Dec 2021	0.000		0.319	0.000	0.319	0.000
MOD MED - HW C - Assay Development	C/CPFF	BioFire Dx : Salt Lake City, UT	0.000	0.000		0.000		0.628	Dec 2021	0.000		0.628	0.000	0.628	0.000
MOD MED - Autoinjector - Post Marketing Commitments	C/CPFF	Emergent Biosolutions : Gaithersburg/ Rockville, MD	0.000	0.000		0.000		1.025	Dec 2021	0.000		1.025	0.000	1.025	0.000
<b>Subtotal</b>			18.809	0.698		0.677		1.972		0.000		1.972	0.000	22.156	N/A

<b>Support (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
NGDS - ES S - Engineering Support	MIPR	Various : Various	2.226	0.000		0.058	Mar 2021	0.000		0.000		0.000	0.000	2.284	0.000
NGDS - ES S - Engineering Support #2	C/CPFF	BioFire Dx : Salt Lake City, UT	0.727	0.215	Jun 2020	0.192	Dec 2020	0.000		0.000		0.000	0.000	1.134	0.000
<b>Subtotal</b>			2.953	0.215		0.250		0.000		0.000		0.000	0.000	3.418	N/A

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> MB7 / Medical Biological Defense (Op Sys Dev)
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<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
NGDS - DTE S - Test & Evaluation Support	MIPR	Various : Various	5.699	0.415	Jun 2020	0.000		0.000		0.000		0.000	0.000	6.114	0.000
<b>Subtotal</b>			5.699	0.415		0.000		0.000		0.000		0.000	0.000	6.114	N/A

<b>Management Services (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
NGDS - PM/MS S - Program Management (JPM) Support	Various	JPM CBRN Medical : Ft. Detrick, MD	6.938	0.239	Dec 2019	0.236	Dec 2020	0.000		0.000		0.000	0.000	7.413	0.000
NGDS - PM/MS C - Program Management (Dx) Support	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.780	0.000		0.240	Dec 2020	0.000		0.000		0.000	0.000	1.020	0.000
NGDS - PM/MS S - Program Management (Dx)	Various	JPM CBRN Medical : Ft. Detrick, MD	5.854	0.861	Dec 2019	0.597	Dec 2020	0.000		0.000		0.000	0.000	7.312	0.000
NGDS - PM/MS C - PM/MS - Program Management (JPEO) Support	Various	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	1.147	0.235	Dec 2019	0.308	Dec 2020	0.000		0.000		0.000	0.000	1.690	0.000
MOD MED - PM/MS C - Program Management (JPEO)	Various	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	0.000	0.000		0.000		0.402	Dec 2021	0.000		0.402	0.000	0.402	0.000
MOD MED - PM/MS C - Program Management (JPM) Support	Various	JPM CBRN Medical : Ft. Detrick, MD	0.000	0.000		0.000		0.268	Dec 2021	0.000		0.268	0.000	0.268	0.000
MOD MED - PM/MS C - Product Management	Various	JPM CBRN Medical : Ft. Detrick, MD	0.000	0.000		0.000		1.191	Dec 2021	0.000		1.191	0.000	1.191	0.000
<b>Subtotal</b>			14.719	1.335		1.381		1.861		0.000		1.861	0.000	19.296	N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2022 Chemical and Biological Defense Program								<b>Date:</b> May 2021			
<b>Appropriation/Budget Activity</b> 0400 / 7			<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				<b>Project (Number/Name)</b> MB7 / Medical Biological Defense (Op Sys Dev)				
	<b>Prior Years</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>		
<b>Project Cost Totals</b>	42.180	2.663	2.308	3.833	0.000	3.833	0.000	50.984	N/A		

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> MB7 / Medical Biological Defense (Op Sys Dev)

	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	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
NGDS - System Upgrades & Support	[REDACTED]																											
MOD MED - Autoinjector Regulatory Activities	[REDACTED]																											
MOD MED - Autoinjector Post Marketing Commitments	[REDACTED]																											
MOD MED - NGDS System Upgrades & Support	[REDACTED]																											

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> MB7 / Medical Biological Defense (Op Sys Dev)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
NGDS - System Upgrades & Support	1	2020	4	2021
MOD MED - Autoinjector Regulatory Activities	1	2022	4	2026
MOD MED - Autoinjector Post Marketing Commitments	4	2022	4	2025
MOD MED - NGDS System Upgrades & Support	1	2022	4	2026

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

<b>Appropriation/Budget Activity</b> 0400 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)				<b>Project (Number/Name)</b> MC7 / Medical Chemical Defense (Op Sys Dev)			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
MC7: Medical Chemical Defense (Op Sys Dev)	-	1.222	1.817	1.336	-	1.336	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

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

This project provides for the upgrade and modernization of fielded medical nerve agent treatment system that contribute to the layered medical defenses against chemical warfare agent threats facing U.S. Forces in the field.

The effort included in this project are:

- (1) Alternative Autoinjector Manufacturer Capability (AUTOINJ)
- (2) Improved Nerve Agent Treatment System (INATS), and
- (3) Improved Nerve Agent Treatment System Centrally Acting (INATS CA)

The AUTOINJ program provides for FDA approved alternative source(s) for autoinjectors that deliver DoD nerve agent antidote and treatment capabilities to the warfighter; thereby mitigating capability fielding and operational readiness risks. This program augments legacy autoinjectors, ATNAA, 2-PAM, and Convulsant Antidote for Nerve Agents (CANAA) by providing alternative commercial sources which include Dual Drug Delivery Device (D4), the Atropine Auto-Injector, and an anti-convulsant autoinjector. This program also provides enduring regulatory support for fielded nerve agent antidote treatment systems sponsored by Army Office of the Surgeon General (OTSG). AUTOINJ (MC7) will transition to Modernization Medical (MOD MED) MB7 starting in FY22.

The INATS - Soman Nerve Agent Pre-Treatment Pyridostigmine (SNAPP) program is a modernization effort for pyridostigmine bromide (PB) tablet requirements from the joint service users for the Food and Drug Administration (FDA) approved SNAPP product. Funding ends in FY20. Effort will continue in FY21 as INATS CA.

The INATS CA program provides a Centrally Acting anticholinergic agent to increase survivability and decrease morbidity after exposure to toxic nerve agent threats. Scopolamine was selected for development after an extensive analysis of alternatives and review of data by the Science and Technology community. Added to the currently fielded system, the INATS-CA program will improve overall medical outcomes and will be utilized as both a vial for use at definitive care and a stand-alone auto-injector for use in the field. In FY22 INATS CA continues studies on the FDA-approved Soman Nerve Agent Pretreatment Pyridostigmine (SNAPP), a medical pre-treatment against nerve agent poisoning to upgrade its joint service utility and ensure its continued safety and efficacy.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2020	FY 2021	FY 2022
<b>Title:</b> 1) Alternative Autoinjector Manufacturer Capability (AUTOINJ)	-	0.200	-
<b>Description:</b> Food and Drug Administration (FDA) Post-Marketing Commitments			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021		
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> MC7 / Medical Chemical Defense (Op Sys Dev)		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<b>FY 2021 Plans:</b> Initiate Post-Marketing Commitments				
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Program/project funding transferred to another funding line. Post-Marketing Commitments and Regulatory Activities are moving to the MOD MED (MB7) line.				
<b>Title:</b> 2) INATS <b>Description:</b> SNAPP - Shelf Life Modernization - Studies required by the FDA and/or users to modernize or upgrade medical chemical defense countermeasures.		1.222	-	-
<b>Title:</b> 3) INATS - CA <b>Description:</b> Studies required by the FDA and/or users to modernize or upgrade medical chemical defense countermeasures. <b>FY 2021 Plans:</b> Continue studies (from INATS FY20) on the FDA-approved Soman Nerve agent Pretreatment Pyridostigmine (SNAPP), a Pyridostigmine Bromide (PB) medical pre-treatment against nerve agent poisoning to upgrade its joint service utility and ensure its continued safety and efficacy. <b>FY 2022 Plans:</b> Continue studies on the FDA-approved Soman Nerve Agent Pretreatment Pyridostigmine (SNAPP), a Pyridostigmine Bromide (PB) medical pre-treatment against nerve agent poisoning to upgrade its joint service utility and ensure its continued safety and efficacy. <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Minor change due to routine program adjustments. Due to OTA agreement, number of samples required decreased.		-	1.617	1.336
<b>Accomplishments/Planned Programs Subtotals</b>		1.222	1.817	1.336
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>D. Acquisition Strategy</b> ALTERNATE AUTOINJECTOR MANUFACTURER CAPABILITY (AUTOINJ)				

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program	<b>Date:</b> May 2021
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<b>Appropriation/Budget Activity</b>	<b>R-1 Program Element (Number/Name)</b>	<b>Project (Number/Name)</b>
0400 / 7	PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	MC7 / <i>Medical Chemical Defense (Op Sys Dev)</i>

The Alternative Autoinjector Manufacturer Capability (AUTOINJ) post marketing commitments and requirements are anticipated as a result of the FDA approval and will be the responsibility of the contractor and the government. However, currently fielded Office of the Surgeon General (OTSG) sponsored nerve agent antidote treatment systems require Office of the Surgeon General (OTSG) involvement for maintaining regulatory files and FDA reporting activities. AUTOINJ will transition to the Modern Medical (MOD MED) program in Project MB7 in FY22.

**IMPROVED NERVE AGENT TREATMENT SYSTEM (INATS)**

The INATS (MC7) line initiates in FY20 and transitions to INATS Centrally Acting (CA) (MC7) in FY21. Oxime advanced development ceases in FY20 due to Defense Wide Review (DWR) and Limitation of Funds referenced in ADM 24 March 2020.

**IMPROVED NERVE AGENT TREATMENT CENTRALLY ACTING (INATS CA)**

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 development and manufacture is in accordance with Food and Drug Administration (FDA) regulations.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Chemical and Biological Defense Program** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> MC7 / Medical Chemical Defense (Op Sys Dev)
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<b>Product Development (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
AUTOINJ - Regulatory Support	MIPR	USAMRMC - Office of Regulated Activities (ORA) : Ft. Detrick, MD	0.000	0.000		0.200	Dec 2020	0.000		0.000		0.000	0.000	0.200	0.000
INATS - HW C - Shelf Life Modernization	Various	CMC Pharma : Cleveland, OH	0.000	0.940	Aug 2020	0.000		0.000		0.000		0.000	0.000	0.940	0.000
INATS CA - HW C - Shelf Life Modernization	C/CPFF	CMC Pharma : Cleveland, OH	0.000	0.000		1.322	Aug 2020	1.148	Oct 2021	0.000		1.148	0.000	2.470	0.000
<b>Subtotal</b>			0.000	0.940		1.522		1.148		0.000		1.148	0.000	3.610	N/A

<b>Support (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
INATS - ES C - Office of Regulated Activities Support - (ORA)	MIPR	USAMRMC - Office of Regulated Activities (ORA) : Ft. Detrick, MD	0.000	0.156	Feb 2020	0.000		0.000		0.000		0.000	0.000	0.156	0.000
<b>Subtotal</b>			0.000	0.156		0.000		0.000		0.000		0.000	0.000	0.156	N/A

<b>Management Services (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
INATS - Program Management (JPEO) Support	Various	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	0.000	0.091	Dec 2019	0.000		0.000		0.000		0.000	0.000	0.091	0.000
INATS - Program Management - (JPM) Support	MIPR	JPM CBRN Medical : JPEO-CBRND, Fort Detrick, MD	0.000	0.035	May 2020	0.000		0.000		0.000		0.000	0.000	0.035	0.000



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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> MC7 / Medical Chemical Defense (Op Sys Dev)

	FY 2020				FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026			
	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
AUTOINJ - Regulatory Activities					██████████																							
INATS - SNAPP Shelf-Life Modernization	██████████																											
INATS CA - SNAPP Shelf Life Modernization					██████████																							

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / <i>CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)</i>	<b>Project (Number/Name)</b> MC7 / <i>Medical Chemical Defense (Op Sys Dev)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
AUTOINJ - Regulatory Activities	1	2021	4	2021
INATS - SNAPP Shelf-Life Modernization	2	2020	4	2020
INATS CA - SNAPP Shelf Life Modernization	1	2021	4	2026

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

<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> TE7 / Test & Evaluation (Op Sys Dev)
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
TE7: Test & Evaluation (Op Sys Dev)	-	5.280	0.000	0.000	-	0.000	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

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

This Project supports the revitalization of existing instrumentation and technology upgrades to equipment in support of their Chemical and Biological (CB) test mission. Included in this Project is the BioTesting Division (BTD) Chemical Biological Center (CBC) at Dugway Proving Ground (DPG), a Major Range and Test Facility Base (MRTFB) and the West Desert Test Center (WDTC).

Efforts included in the project are:

- (1) BioTesting Division T&E Upgrade (BTD UPGRADE), and
- (2) T&E Upgrades (T&E UPGRADE)

The BTD UPGRADE program supported the MRTFB test mission of the BioTesting Division (BTD) Chemical Biological Center (CBC) at DPG through instrumentation revitalization and technology upgrades to aging and obsolete equipment. These efforts maintained readiness at BTD, which is the MRTFB's only laboratory equipped to test with biological select agent and toxins (BSAT) and microorganisms up to Risk Group 3 under operationally relevant conditions. BTD test mission requires cutting-edge biological laboratory and field testing capabilities to ensure the ability of the Department of Defense to test state-of-the-art materiel under development against emerging and unknown biological threats. Essential instrumentation requires periodic revitalization and modernization due to technological obsolescence.

The T&E Upgrade program supported upgrades to equipment for field testing, the major test chambers Materiel Test Facility (MTF), and the Combined Chemical Test Facility (CCTF). Field test equipment includes all dissemination and field referee equipment and will include all upgraded test grid equipment transitioned from advanced development. The MTF houses chambers and fixtures for chemical agent and non-traditional agent (NTA) testing, including the secondary containment modules (SCMs) and chemical agent vapor (CAVs) chambers. The Combined Chemical Test Facility (CCTF) is a laboratory campus that houses labs and chambers for chemical agent and non-traditional agent testing. Laboratories are equipped with chemical analytical equipment, including a nuclear magnetic resonance (NMR) spectrometer, gas chromatographs (GC), GC-mass spectrometers (GC-MS), MS triple quads, Miniature Chemical Agent Monitoring System (MINICAMS), and liquid chromatographs MS (LCMS). The majority of the laboratory hood space at WDTC is in the CCTF. The CCTF houses test fixtures such as the small item decontamination (SID) fixture, mask, boot and glove, filter and swatch test fixtures.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2020	FY 2021	FY 2022
<b>Title:</b> 1) BTD UPGRADE	0.731	-	-
<b>Title:</b> 2) WDTC - MRTFB	0.977	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Chemical and Biological Defense Program	<b>Date:</b> May 2021
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<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> TE7 / Test & Evaluation (Op Sys Dev)
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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	FY 2020	FY 2021	FY 2022
<b>Description:</b> Major Test Chambers (MTF and Building 4165)			
<b>Title:</b> 3) WDTC - MRTFB <b>Description:</b> CB Test Grid	1.108	-	-
<b>Title:</b> 4) WDTC - MRTFB <b>Description:</b> Combined Chemical Test Facility (CCTF)	2.464	-	-
<b>Accomplishments/Planned Programs Subtotals</b>	5.280	-	-

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

N/A

**Remarks**

**D. Acquisition Strategy**

BIO TEST BRANCH T&E UPGRADE (BTB UPGRADE)

The BioTesting Division Test and Evaluation Range Instrumentation/Technology Upgrades program provided for technical upgrades to BioTesting Division (Chemical Biological Center) capabilities for Biological testing of DoD CB materiel, and biological detection systems from concept through production. Technical and Facility upgrades utilized full and open competition as appropriate through Mission Installation Contracting Command, Army Contracting Command, Military Interdepartmental Purchase Requests, and other procurement resources. In FY21 and beyond, the Defense-Wide Review (DWR) reduced this program, within the Chemical Biological Defense Program (CBDP), for higher priorities.

T&E RANGE INSTRUMENT/TECH UPGRADE (T&E UPGRADE)

The Test and Evaluation Range Instrumentation/Technology Upgrades program provides for technical upgrades to WDTC capabilities for Chemical and Biological testing of DoD CB materiel, weapons, and weapons systems from concept through production. Upgrades will utilize Military Interdepartmental Purchase Requests (MIPR) and contracts. In FY21 and beyond, the Defense-Wide Review (DWR) reduced this program, within the Chemical Biological Defense Program (CBDP), for higher priorities.





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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Chemical and Biological Defense Program		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0607384BP / CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)	<b>Project (Number/Name)</b> TE7 / Test & Evaluation (Op Sys Dev)

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
BTB UPGRADE - LSTF Instrumentation & Equip Upgrades, CBC	1	2020	4	2020
T&E UPGRAD - Modernization of Major Test Chambers, WDTC	1	2020	4	2020
T&E UPGRAD - Revitalize & Upgrade Instrumentation & Equipment at Combined Chemical Test Facility, WDTC	1	2020	4	2020
T&E UPGRAD - Enhance Instrumentation & Equipment at Chemical Biological (CB) Test Grids, WDTC	1	2020	4	2020