Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Chemical and Biological Defense Program	Date: February 2020
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
Total Program Element	-	41.813	51.834	39.530	-	39.530	42.982	55.883	60.755	72.791	Continuing	Continuing
CA7: *Contamination Avoidance (Op Sys Dev)*	-	6.115	10.278	15.789	-	15.789	16.921	11.204	11.857	26.209	Continuing	Continuing
CM7: *Homeland Defense (Op Sys Dev)*	-	1.214	2.286	1.421	-	1.421	1.420	3.335	3.337	1.506	Continuing	Continuing
C07: *Collective Protection (Op Sys Dev)*	-	3.270	5.755	7.865	-	7.865	8.316	9.563	4.682	2.988	Continuing	Continuing
DE7: *Decontamination (Op Sys Dev)*	-	0.307	1.442	0.633	-	0.633	0.634	0.634	0.634	0.635	Continuing	Continuing
IP7: *Individual Protection (Op Sys Dev)*	-	2.087	6.080	6.463	-	6.463	8.447	8.429	8.431	7.533	Continuing	Continuing
IS7: *Information Systems (Op Sys Dev)*	-	14.039	16.111	3.234	-	3.234	3.554	15.381	15.383	16.154	Continuing	Continuing
MB7: *Medical Biological Defense (Op Sys Dev)*	-	8.602	3.231	2.308	-	2.308	2.012	2.305	5.975	9.188	Continuing	Continuing
MC7: *Medical Chemical Defense (Op Sys Dev)*	-	0.000	1.248	1.817	-	1.817	1.678	5.032	10.456	8.578	Continuing	Continuing
TE7: *Test & Evaluation (Op Sys Dev)*	-	6.179	5.403	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	11.582

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Chemical and Biological Defense Program	Date: February 2020
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*

- 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.

- 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.

- 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.

- 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.

- Information Systems (IS7): technology refresh of fielded information systems that shape the battlespace against CBR threats.

- 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 threats facing U.S. Forces in the field.

- 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.

- 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.

The projects in this PE support operational systems development necessary to maintain operational effectiveness and are therefore correctly placed in Budget Activity 7.

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Chemical and Biological Defense Program	Date: February 2020
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 7: *Operational Systems Development*	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*

B. Program Change Summary ($ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	43.741	54.023	45.999	-	45.999
Current President's Budget	41.813	51.834	39.530	-	39.530
Total Adjustments	-1.928	-2.189	-6.469	-	-6.469
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	0.000	-2.189			
• Congressional Rescissions	-	-			
• Congressional Adds	0.000	-			
• Congressional Directed Transfers	0.000	-			
• Reprogrammings	-0.023	-			
• SBIR/STTR Transfer	-1.904	-			
• Other Adjustments	-0.001	-	-6.469	-	-6.469

Change Summary Explanation

Funding: FY19 (-$0.023 Million): Reprogramming adjustments to balance overall portfolio efforts.
FY19 (-$1.904 Million) Transfer of funding to support Small Business Innovative Research/Small Business Technology Transfer efforts.

FY20 (-$2.189 Million): Congressional Directed Reductions to the Analytical Laboratory System Modification, Modernization Protection Collective Protection, the Joint Biological Agent Identification and Diagnostic System and the Software Support Activity programs.

FY21 (-$6.469 Million): The FY21 funding request was reduced during the Defense-Wide Review (DWR) to account for programs being terminated or restructured (-$23.794 Million); Departmental economic adjustments (-$0.035 Million); and program increases to mitigate obsolescence on fielded systems and upgrade test and evaluation facilities (+$17.360 Million).

Schedule: N/A

Technical: N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program			Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	Project (Number/Name) CA7 / *Contamination Avoidance (Op Sys Dev)*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
CA7: *Contamination Avoidance (Op Sys Dev)*	-	6.115	10.278	15.789	-	15.789	16.921	11.204	11.857	26.209	Continuing	Continuing
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.

Efforts included in this project are:
(1) Expeditionary Analytic Modernization (EXANA MOD)
(2) Chemical Biological Radiological Nuclear (CBRN) Dismounted Reconnaissance Systems (CBRN DRS)
(3) Joint Chemical Agent Detector (JCAD) Solid Liquid Adapter (SLA)

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 (ALS) Modification (MOD) users to maintain their operational capability and operational effectiveness.

The CBRN DRS provides the technology upgrade and refresh effort 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. Warfighters will use the portable, commercial and Government off-the-shelf equipment provided to detect, identify, sample, decontaminate, mark, and report CBRN hazards and emerging threats. This technology upgrade and refresh effort for the CBRN DRS addresses and mitigates technology/equipment obsolescence and technology insertion. Experimentation and demonstration will be used in this phase to reduce risk and inform supporting materiel solutions, CONOPS and TTPs. Starting in FY21, the System Enhancement Package (SEP) effort will identify and test capability to meet updated and new user requirements to support threats and capability gaps in sensitive site exploitation. System enhancement packages will be identified and incorporated into the CBRN DRS as engineering change proposals to the base kit. SEP v1 will provide an Improved Biological Detection Set (IBDS). SEP v2 will provide an Improved Protection and Power Set (IPPS). SEP v3 will provide an Improved Chemical Detection Kit. SEP v4 will provide a kit of situational awareness/decision support enhancements called the CBRN Dismounted Tactical Awareness Kit (CBRN DTAK). CBRN DRS will be produced at government production facilities. The SEP packages will be configured, produced, and fielded in accordance with priorities and needs of the Services.

The JCAD is a miniaturized, rugged, and portable point chemical agent detector that automatically and simultaneously detects, identifies, & alerts the presence of nerve, blister, & blood chemical warfare agents. M4 achieved Full Rate Production (FRP) in Sep 08 and finished in FY10. Milestone Decision Authority (MDA) authorized production cut-in of the M4A1 in FY11. Solid Liquid Adapter (SLA) development kit is an interim capability using M4A1 as base detector. The JCAD-SLA funding in FY20 will provide test support costs to Other Government Agencies (OGA's) (Combat Capabilities Development Command (CCDC), Naval Surface Warfare Center

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CA7 / *Contamination Avoidance (Op Sys Dev)*

(NSWC), Marine Corps Operational Test and Evaluation Agency (MCOTEA), Army Test and Evaluation Command (ATEC)), operational testing, first article testing, Pressure Breathing for Altitude (PBA) testing with Chemical Biological Center (CBC), logistics demonstration, and completion of testing from FY19.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: 1) EXANA MOD	-	-	2.378
Description: Expeditionary Analytics ***FY 2021 Plans:*** 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. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Program/project funding transferred from another funding line. Project CM7 ALS MOD funding was transferred in FY21 to Project CA7 - Expeditionary Analytics (EXANA) funding line.			
Title: 2) CBRN Dismounted Reconnaissance System (CBRN DRS) - Obsolescence	6.115	6.386	4.107
Description: 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. ***FY 2020 Plans:*** Continue and complete market analyses on emerging technologies for potential upgrades to the system. Continue obsolescence management activities for existing field components. Continue purchasing components for testing. Continue testing of potential candidates. Initiate and complete changes to product baseline. ***FY 2021 Plans:*** 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. ***FY 2020 to FY 2021 Increase/Decrease Statement:***			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CA7 / *Contamination Avoidance (Op Sys Dev)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being restructured. Decrease in obsolescence management activities to focus on system enhancements packages to meet updated requirements.			
Title: 3) CBRN DRS - Development of System Enhancement Packages ***Description:*** Identify and test solutions to meet evolving demands of the National Defense Strategy (NDS) to Counter Weapons of Mass Destruction via a System Enhancement Package to support dismounted reconnaissance, sensitive site assessment and exploitation, and render safe operations. Efforts will be focused on system enhancement packages for improved biological detection, improved protective equipment, improve chemical detection, and improved battlespace awareness. ***FY 2021 Plans:*** Initiate and conduct market analyses on emerging technologies for system enhancement packages to meet required changes to the system. Identify, procure and test technologies to support specific improved capability. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Increase due to change in validated JCIDS requirement document. FY21 Increase due to updated requirements to meet emerging operational needs above prior baseline.	-	-	9.304
Title: 4) Joint Chemical Agent Detector (JCAD) Solid Liquid Adapter (SLA) ***Description:*** Product Development, Verification Testing and Program Management ***FY 2020 Plans:*** Initiated and completed JCAD SLA Contract to verify production readiness with First Article Testing, complete production verification testing and program management support. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Program/project transitioned to Production and Deployment Phase. JCAD-SLA doesn't have any RDT&E funding after FY20.	-	3.892	-
Accomplishments/Planned Programs Subtotals	6.115	10.278	15.789

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

EXPEDITIONARY ANALYTIC MODERNIZATION (EXANA MOD)

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CA7 / *Contamination Avoidance (Op Sys Dev)*

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 FY20. As such, this program will follow continue to follow the most up-to-date requirement documentation for CALS and ALS MOD.

CBRN DISMOUNTED RECONNAISSANCE SYSTEMS

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 Enhancement Package (SEP) to the baseline CBRN DRS. In FY21 and beyond, the Defense-Wide Review reduced this program for higher priorities.

JOINT CHEMICAL AGENT DETECTOR (JCAD)

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 fentanyls), 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 fourth quarter FY20 to SOCOM.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CA7 / *Contamination Avoidance (Op Sys Dev)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
CBRN DRS - HW C - HW - Product Development	MIPR	Defense Logistics Agency : Philadelphia, PA	2.277	0.580	Jan 2019	0.974	Nov 2019	0.000		-		0.000	Continuing	Continuing	0.000
CBRN DRS - HW C - ECBC - Matrix	MIPR	CCDC CBC : Aberdeen Proving Ground, MD	0.475	0.000		0.000		0.653	Nov 2020	-		0.653	Continuing	Continuing	0.000
CBRN DRS - HW - Product Development	MIPR	Various : Various	1.466	1.683	Nov 2018	0.750	Nov 2019	2.270	Nov 2020	-		2.270	Continuing	Continuing	0.000
JCAD - HW C - Contract	SS/FFP	Smiths Detection : Edgewood, MD	0.000	0.000		1.350	Nov 2019	0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	4.218	2.263		3.074		2.923		-		2.923	Continuing	Continuing	N/A

Remarks

CBRN DRS FY21 changes due to updated requirements and acquisition strategy to meet those requirements.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EXANA MOD - ES C - Science & Engineering Support	MIPR	CCDC CBC : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.412	Nov 2020	-		0.412	Continuing	Continuing	0.000
CBRN DRS - ES - Market Analysis	MIPR	Various : Various	1.878	0.000		0.500	Nov 2019	0.000		-		0.000	Continuing	Continuing	0.000
CBRN DRS - ES C - Product Analysis	C/CPFF	Johns Hopkins University - Applied Physics Lab : Laurel, MD	1.271	1.013	Feb 2019	0.000		2.395	Nov 2020	-		2.395	Continuing	Continuing	0.000
CBRN DRS - ES - Obsolescence Management	MIPR	Various : Various	2.076	0.793	Feb 2019	1.000	Nov 2019	2.969	Nov 2020	-		2.969	Continuing	Continuing	0.000
		Subtotal	5.225	1.806		1.500		5.776		-		5.776	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program			Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	Project (Number/Name) CA7 / *Contamination Avoidance (Op Sys Dev)*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

CBRN DRS FY21 changes due to updated requirements and acquisition strategy to meet those requirements.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EXANA MOD - DTE C - Component Testing & Evaluation	MIPR	CCDC CBC : Aberdeen Proving Ground, MD	0.000	0.000		0.000		1.668	Nov 2020	-		1.668	Continuing	Continuing	0.000
CBRN DRS - OTE - Candidate Testing	Various	Various : Various	4.806	0.294	Feb 2019	1.780	Mar 2020	1.961	Nov 2020	-		1.961	Continuing	Continuing	0.000
CBRN DRS - DTE - OTE - Candidate Testing	C/CPFF	Defense Technical Information Center (DTIC) : Fort Belvoir, VA	0.942	1.022	Jun 2019	0.000		0.978	Nov 2020	-		0.978	Continuing	Continuing	0.000
JCAD - DTE C - Test and Evaluation	MIPR	Various : Various	0.000	0.000		2.100	Mar 2020	0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	5.748	1.316		3.880		4.607		-		4.607	Continuing	Continuing	N/A

Remarks

CBRN DRS FY21 changes due to updated requirements and acquisition strategy to meet those requirements.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
EXANA MOD - PM/MS S - Program and Engineering Support	MIPR	CCDC CBC : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.298	Jan 2021	-		0.298	Continuing	Continuing	0.000
CBRN DRS - PM - Program Management	MIPR	JPM NBC Contamination Avoidance (JPM	1.892	0.730	Dec 2018	1.382	Nov 2019	2.185	Nov 2020	-		2.185	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CA7 / *Contamination Avoidance (Op Sys Dev)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
and Systems Engineering Support		NBC CA) : JPEO, Aberdeen Proving Ground, MD													
JCAD - PM/MS C - Program Management	MIPR	JPM NBC Contamination Avoidance (JPM NBC CA) : JPEO, Aberdeen Proving Ground, MD	0.000	0.000		0.442	Oct 2019	0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	1.892	0.730		1.824		2.483		-		2.483	Continuing	Continuing	N/A

Remarks

CBRN DRS FY21 changes due to updated requirements and acquisition strategy to meet those requirements.

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	17.083	6.115		10.278		15.789		-		15.789	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CA7 / *Contamination Avoidance (Op Sys Dev)*

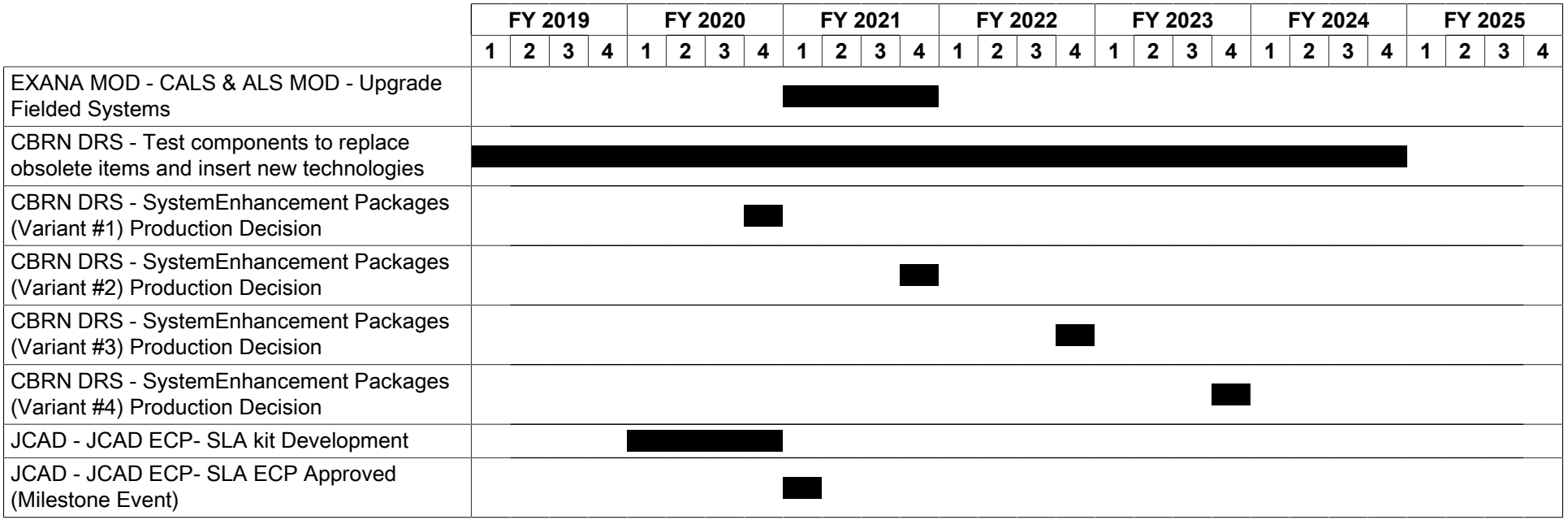

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CA7 / *Contamination Avoidance (Op Sys Dev)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
EXANA MOD - CALS & ALS MOD - Upgrade Fielded Systems	1	2021	4	2021
CBRN DRS - Test components to replace obsolete items and insert new technologies	1	2019	4	2024
CBRN DRS - SystemEnhancement Packages (Variant #1) Production Decision	4	2020	4	2020
CBRN DRS - SystemEnhancement Packages (Variant #2) Production Decision	4	2021	4	2021
CBRN DRS - SystemEnhancement Packages (Variant #3) Production Decision	4	2022	4	2022
CBRN DRS - SystemEnhancement Packages (Variant #4) Production Decision	4	2023	4	2023
JCAD - JCAD ECP- SLA kit Development	1	2020	4	2020
JCAD - JCAD ECP- SLA ECP Approved (Milestone Event)	1	2021	1	2021

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program			Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	Project (Number/Name) CM7 / *Homeland Defense (Op Sys Dev)*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
CM7: *Homeland Defense (Op Sys Dev)*	-	1.214	2.286	1.421	-	1.421	1.420	3.335	3.337	1.506	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project supports technology refresh of fielded analytical laboratory system capabilities to 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)
(2) Weapons of Mass Destruction Civil Support Team (WMD CST)

The CALS / ALS MOD funding 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. Note, CALS / ALS MOD funding for FY21 and beyond has transitioned to the Project CA7 line.

WMD-CST 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. Efforts in the program element support upgrades of key components of the WMD CST Program that have become obsolete, or are no longer being supported by the manufacturer.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: 1) ALS MOD	-	0.847	-
Description: This program element supports the evaluation of analytical components for technical refreshment of the ALS MOD. Efforts in the program element support upgrades of key components of the ALS MOD systems that have become obsolete, or are no longer being supported by the manufacturer. This allows the ALS MOD users to maintain their operational capability and operational effectiveness.			
FY 2020 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CM7 / *Homeland Defense (Op Sys Dev)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Conduct component and system level logistics evaluations to assess viability of candidate analytical upgrade components. Conduct system related test activities including costs of test candidate selection, testing hardware, engineering data to assess the performance of the system, test planning, execution of testing, data interpretation and reporting. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Program/project funding transferred to another funding line. ALS MOD funding transferred in FY21 to Project CA7 - Expeditionary Analytics (EXANA) funding line.			
Title: 2) WMD CST ***Description:*** The WMD CST Program supports the fielded system upgrade and ongoing assessment and acquisition of COTS and GOTS analytical detection, protection, decontamination and sampling equipment for survey in order to expand/enhance the operational capabilities of the (57) WMD CST Teams. Efforts in the program element support upgrades of key components of the WMD CST Program that have become obsolete, or are no longer being supported by the manufacturer. ***FY 2020 Plans:*** 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, 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). ***FY 2021 Plans:*** 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, 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). ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	1.214	1.439	1.421
Accomplishments/Planned Programs Subtotals	1.214	2.286	1.421

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CM7 / *Homeland Defense (Op Sys Dev)*

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 follow 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CM7 / *Homeland Defense (Op Sys Dev)*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ALS MOD - ILS S - ALS MOD	Various	TBD : N/A	0.000	0.000		0.255	Mar 2020	0.000		-		0.000	Continuing	Continuing	0.000
WMD CST - ES C - Science & Engineering Support	MIPR	CCDC CBC : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.150	Nov 2020	-		0.150	Continuing	Continuing	0.000
		Subtotal	0.000	0.000		0.255		0.150		-		0.150	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ALS MOD - OTE C	Various	TBD : N/A	0.000	0.000		0.325	Mar 2020	0.000		-		0.000	Continuing	Continuing	0.000
WMD CST - OTHT C - CBRN COTS Component	MIPR	CCDC CBC : Aberdeen Proving Ground, MD	4.904	0.820	Mar 2019	0.889	Feb 2020	0.923	Feb 2021	-		0.923	Continuing	Continuing	0.000
		Subtotal	4.904	0.820		1.214		0.923		-		0.923	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ALS MOD - PM/MS SB - ALS MOD	MIPR	CCDC CBC : Aberdeen Proving Ground, MD	0.000	0.000		0.267	Nov 2019	0.000		-		0.000	Continuing	Continuing	0.000
WMD CST - PM/MS SB - CBRN COTS	MIPR	CCDC CBC : Aberdeen Proving Ground, MD	1.761	0.394	Jan 2019	0.550	Jan 2020	0.348	Dec 2020	-		0.348	Continuing	Continuing	0.000
		Subtotal	1.761	0.394		0.817		0.348		-		0.348	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program			Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	Project (Number/Name) CM7 / *Homeland Defense (Op Sys Dev)*	

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	6.665	1.214		2.286		1.421		-		1.421	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CM7 / *Homeland Defense (Op Sys Dev)*

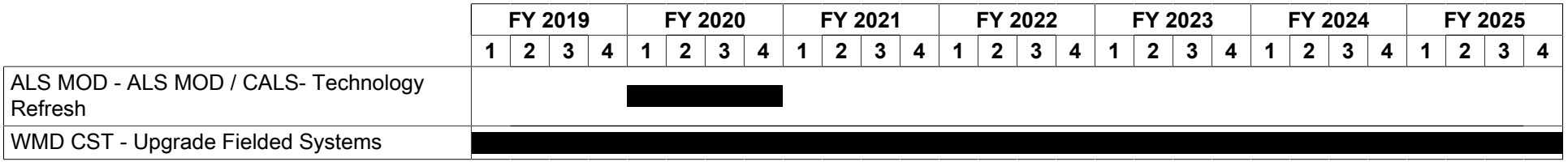

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** CM7 / *Homeland Defense (Op Sys Dev)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ALS MOD - ALS MOD / CALS- Technology Refresh	1	2020	4	2020
WMD CST - Upgrade Fielded Systems	1	2019	4	2025

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program			Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	Project (Number/Name) C07 / *Collective Protection (Op Sys Dev)*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
C07: *Collective Protection (Op Sys Dev)*	-	3.270	5.755	7.865	-	7.865	8.316	9.563	4.682	2.988	Continuing	Continuing
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 (JECP)
(2) Modernization Protection Collective Protection (MODPROT CP)

JECP 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 JECP 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.

Starting in FY21, JECP BA7 funding and efforts are transitioning under the MODPROT CP budget line.

MODPROT CP provides upgrades, improvements and modernizations to fielded Collective Protection Systems such as Mobile ColPro Systems, Fixed Site ColPro Systems, Transportable ColPro Systems, Modular CP Equipment Systems, and Collectively Protected Field Hospitals (CPFH). Efforts addressed include the M98 filter set life extension, modernization of the shipboard and fixed facility obsolete collective protection M98 filter housings and system controls, identification and testing of replacements for obsolete M93 and M59 Gas Particulate Filter Unit (GPFU) components used in numerous hard shelter systems. MODPROT CP also addresses obsolescence issues in test quality standards for gas filters, modernizes shipboard & fixed facility collective protection, M48 filters, and collective protection training, and evaluates reduced airflow on Chem Bio Radiological (CBR) filters.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: 1) JECP	2.718	1.997	-
Description: Phase 1 & 2 - 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			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** C07 / *Collective Protection (Op Sys Dev)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
FY 2020 Plans: Conduct Limited User Evaluation. Finalize logistic products and TDP in preparation for production decision and fielding. Optimize selected solution and conduct final developmental and operational testing and finalize logistic products and TDP in preparation for production decision and fielding. Design and develop improvements to the JECP liner to address the restraint system, hanging mechanisms and floor saver and improve the design of the single and multiple personnel entrance liner interfaces. Identify impacts to JECP tech data and logistics products. Finalize logistics products and TDP. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Program/project funding transferred to another funding line. (JECP to MODPROT CP)			
Title: 2) MODPROT ***Description:*** Upgrades, improvements, and modernizations to fielded CP systems ***FY 2020 Plans:*** Begin Electromagnetic Interference (EMI) testing on the M93 Gas Particulate Filter Unit (GPFU), continue evaluating CPDEPMEDS CP equipment, and complete environmental M98 guard bed testing. Conduct Non-Destructive Production Acceptance Leak Test with candidate tracer gases on CP Gas Filters. Complete market research/material replacement for Ventilated Face Piece Hose refresh. Initiate characterization on the raw material substrates of ASZM-TEDA (Copper-Silver-Zinc-Molybdenum-Trietheylenediamine) carbon detail specification First Article Test (FAT) requirement. Initiate design of shipboard/ fixed site filter housing modernization. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Program/project funding transferred to another funding line. (MODPROT to MODPROT CP)	0.552	3.758	-
Title: 3) MODPROT CP ***Description:*** Upgrades, improvements, and modernizations to fielded CP systems ***FY 2021 Plans:*** Complete Electromagnetic Interference (EMI) testing on the M93/M59 Gas Particulate Filter Unit (GPFU), complete environmental M98 guard bed testing, complete Non-Destructive Production Acceptance Leak Test improvements. Complete characterization on the raw material substrates of ASZM-TEDA (Copper-Silver-Zinc-Molybdenum-Trietheylenediamine) carbon detail specification First Article Test (FAT) requirement. Complete testing for the seals of the M48A1 Filter Redesign. Begin evaluation of reduced airflow effects on CBR filters. Begin Collective Protection Modernization for Ships and Buildings redesign and acquire component prototypes of modernized M98 filter housing. Begin development of updated training	-	-	7.865

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** C07 / *Collective Protection (Op Sys Dev)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
materials for Collective Protection systems.			
FY 2020 to FY 2021 Increase/Decrease Statement: Program/project funding transferred from another funding line. (MODPROT and JECP to MODPROT CP)			
Accomplishments/Planned Programs Subtotals	3.270	5.755	7.865

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

JOINT EXPEDITIONARY COLLECTIVE PROTECTION (JECP)

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 Collective Protection (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

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** C07 / *Collective Protection (Op Sys Dev)*

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.

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** C07 / *Collective Protection (Op Sys Dev)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JECP - HW C - FLTC, M98 Filter Sets, ECUs, Tent Liner Restraint Systems	Various	Various : Various	0.328	2.073	Nov 2018	1.316	Nov 2019	0.000		-		0.000	Continuing	Continuing	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	0.378	0.145	Nov 2018	1.359	Nov 2019	0.000		-		0.000	Continuing	Continuing	0.000
MODPROT CP - HW C - Collective Protection Modernization for Ships	Various	TBD : N/A	0.000	0.000		0.000		2.500	Dec 2020	-		2.500	Continuing	Continuing	0.000
MODPROT CP - HW C - Reduced Airflow M98 Filters, Filter Redesign, Non-Destructive Leak Test, ASZM Spec, CPS Training	MIPR	Various : Various	0.000	0.000		0.000		0.640	Dec 2020	-		0.640	Continuing	Continuing	0.000
		Subtotal	0.706	2.218		2.675		3.140		-		3.140	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MODPROT - ES C - Engineering Support	MIPR	Various : Various	0.164	0.330	Nov 2018	1.187	Nov 2019	0.000		-		0.000	Continuing	Continuing	0.000
MODPROT CP - ES C - IPT, Technical, Engineering and Logistics Support	MIPR	Various : Various	0.000	0.000		0.000		1.105	Dec 2020	-		1.105	Continuing	Continuing	0.000
		Subtotal	0.164	0.330		1.187		1.105		-		1.105	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** C07 / *Collective Protection (Op Sys Dev)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JECP - DTE C - Improved M98 Filter Set Developmental Testing	MIPR	CCDC CBC : Aberdeen Proving Ground, MD	0.460	0.178	Nov 2018	0.350	Nov 2019	0.000		-		0.000	Continuing	Continuing	0.000
MODPROT - DTE C - M93 GPFU Environmental & EMI Testing/M98 Guard Bed Filter Life Extension/ VFP Hose Refresh	MIPR	Various : Various	0.000	0.077	Nov 2018	0.423	Nov 2019	0.000		-		0.000	Continuing	Continuing	0.000
MODPROT CP - DTE C - CP Modernization Testing	Various	Various : Various	0.000	0.000		0.000		1.967	Dec 2020	-		1.967	Continuing	Continuing	0.000
		Subtotal	0.460	0.255		0.773		1.967		-		1.967	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JECP - PM/MS C - Program Management Support	MIPR	Various : Various	1.533	0.467	Dec 2018	0.331	Nov 2019	0.000		-		0.000	Continuing	Continuing	0.000
MODPROT - PM/MS C - Program Management Support	Various	Various : Various	0.000	0.000	Dec 2018	0.789	Nov 2019	0.000		-		0.000	Continuing	Continuing	0.000
MODPROT CP - PM/MS C - Program Management Support	MIPR	Various : Various	0.000	0.000		0.000		1.653	Dec 2020	-		1.653	Continuing	Continuing	0.000
		Subtotal	1.533	0.467		1.120		1.653		-		1.653	Continuing	Continuing	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2.863	3.270		5.755		7.865		-		7.865	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** C07 / *Collective Protection (Op Sys Dev)*

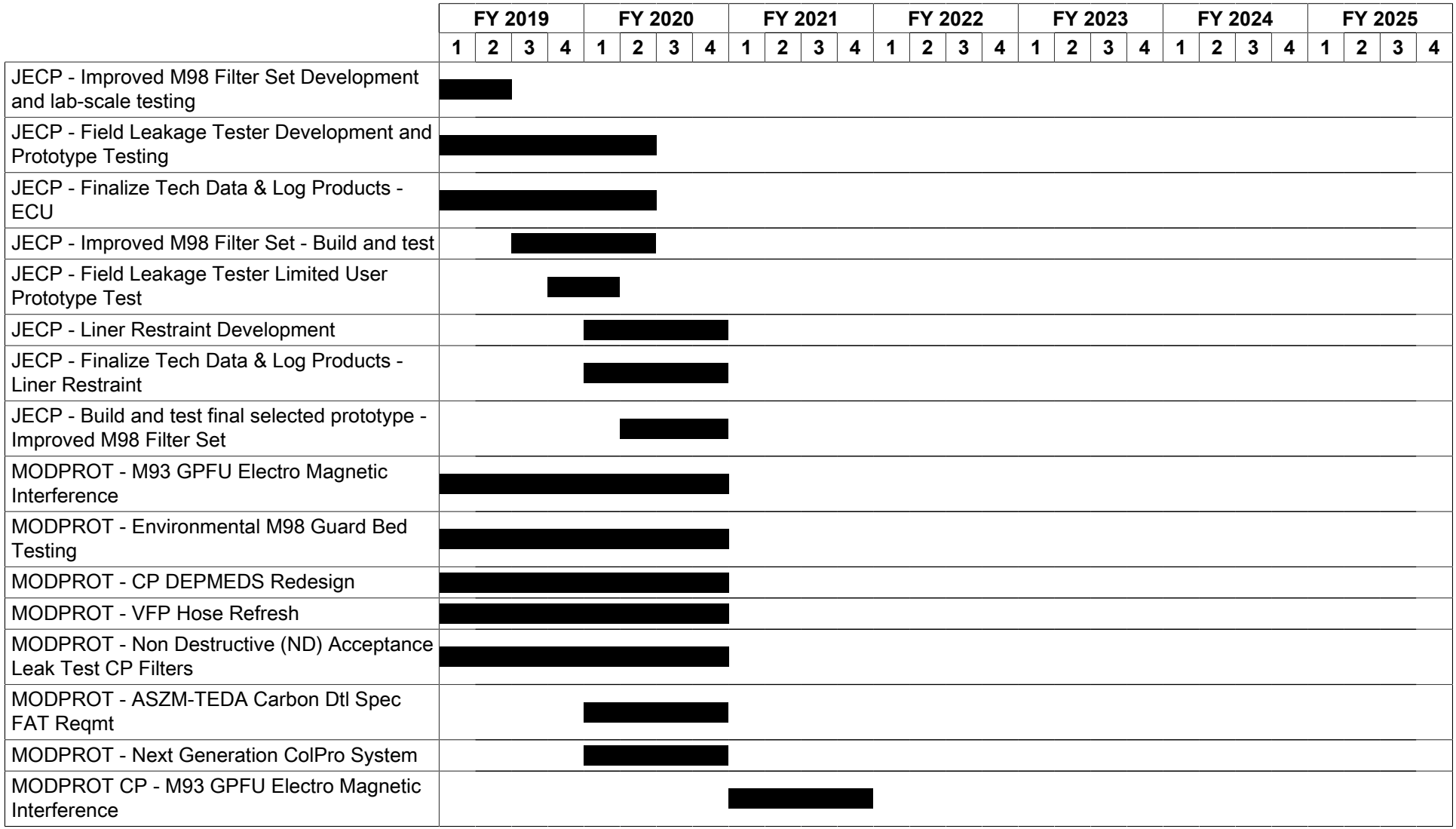

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** C07 / *Collective Protection (Op Sys Dev)*

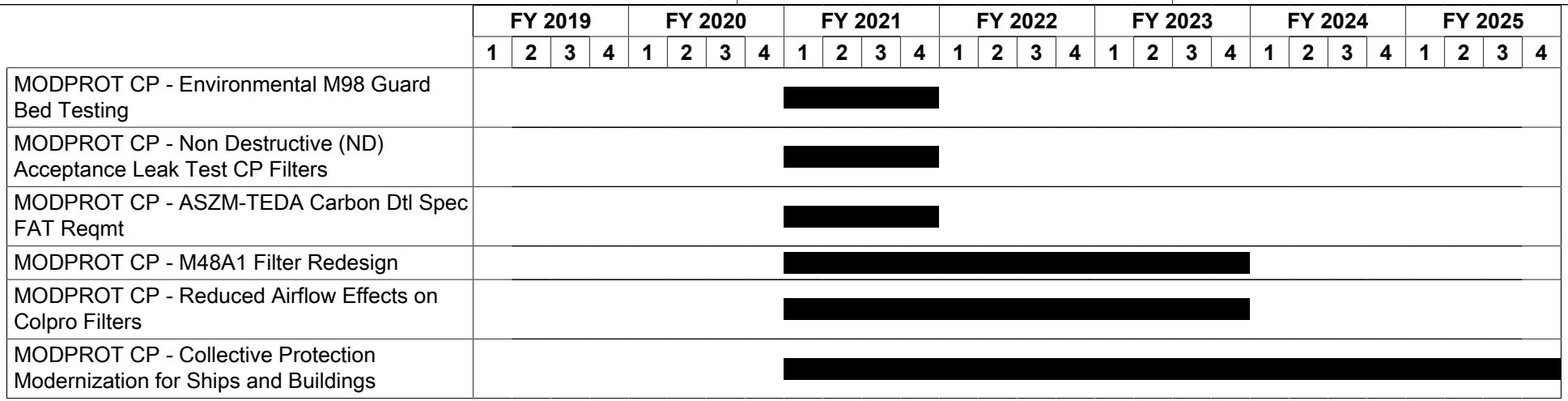

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** C07 / *Collective Protection (Op Sys Dev)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JECP - Improved M98 Filter Set Development and lab-scale testing	1	2019	2	2019
JECP - Field Leakage Tester Development and Prototype Testing	1	2019	2	2020
JECP - Finalize Tech Data & Log Products - ECU	1	2019	2	2020
JECP - Improved M98 Filter Set - Build and test	3	2019	2	2020
JECP - Field Leakage Tester Limited User Prototype Test	4	2019	1	2020
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	2019	4	2020
MODPROT - Environmental M98 Guard Bed Testing	1	2019	4	2020
MODPROT - CP DEPMEDS Redesign	1	2019	4	2020
MODPROT - VFP Hose Refresh	1	2019	4	2020
MODPROT - Non Destructive (ND) Acceptance Leak Test CP Filters	1	2019	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	2021
MODPROT CP - ASZM-TEDA Carbon Dtl Spec FAT Reqmt	1	2021	4	2021
MODPROT CP - M48A1 Filter Redesign	1	2021	4	2023
MODPROT CP - Reduced Airflow Effects on Colpro Filters	1	2021	4	2023
MODPROT CP - Collective Protection Modernization for Ships and Buildings	1	2021	4	2025

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program			Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	Project (Number/Name) DE7 / *Decontamination (Op Sys Dev)*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
DE7: *Decontamination (Op Sys Dev)*	-	0.307	1.442	0.633	-	0.633	0.634	0.634	0.634	0.635	Continuing	Continuing
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 Decontamination (MODPROT DE)

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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: 1) MODPROT	0.307	1.442	-
Description: Upgrades, improvements, and modernizations to fielded DE systems			
FY 2020 Plans: Initiate biological efficacy testing at relevant environment (i.e. ambient, desert, cold) for Joint Service Equipment Wipe (JSEW) to expand wipe capabilities to include performance against biological agents. Update inaccuracies and conduct validation/ verification for the M26 JSTDS-SS TM. Initiate update for technical data for spares and repair parts for M26 JSTDS-SS TDP. Begin update of technical references and conduct validation/verification for the M12A1 PDDA TM.			
FY 2020 to FY 2021 Increase/Decrease Statement: Program/project funding transferred to another funding line. (MODPROT to MODPROT DE)			
Title: 2) MODPROT DE	-	-	0.633
Description: Upgrades, improvements, and modernizations to fielded DE systems			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** DE7 / *Decontamination (Op Sys Dev)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
FY 2021 Plans: Continue 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 data for spares and repair parts for M26 JSTDS-SS Technical Data Package (TDP). Continue updates to technical references and validation/ verification efforts for M12A1 Power Driven Decontamination Apparatus (PDDA) Technical Manual (TM). Initiate efficacy of emerging sorbent technologies for the M295/M100 to increase reactivity properties against nerve agents. Conduct Health Hazard Assessment (HHA) on expired M295/M100 for potential training use. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Program/project funding transferred from another funding line. (MODPROT to MODPROT DE)			
Accomplishments/Planned Programs Subtotals	0.307	1.442	0.633

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 Collective Protection (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 system's updated technical data packages to be used in engineering change proposals and provided to the item managers.

MODERNIZATION DECONTAMINATION (MODPROT DE)

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** DE7 / *Decontamination (Op Sys Dev)*

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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** DE7 / *Decontamination (Op Sys Dev)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MODPROT - HW C - Market Research	MIPR	Edgewood Chemical Biological Center (ECBC) : Rock Island, IL	0.000	0.192	Mar 2019	0.000		0.000		-		0.000	Continuing	Continuing	0.000
MODPROT DE - HW C - M26/M295/M100/JSEW Modernization / Health Hazard Assessment (HHA)	MIPR	Various : Various	0.000	0.000		0.000		0.334	Dec 2020	-		0.334	Continuing	Continuing	0.000
		Subtotal	0.000	0.192		0.000		0.334		-		0.334	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MODPROT - TD/D C - TDP & TM Updates/ Engineering Support	MIPR	Various : Various	0.000	0.115	Mar 2019	0.590	Nov 2019	0.000		-		0.000	Continuing	Continuing	0.000
MODPROT DE - ES C - M26 Tech Data Package; Modernization Update / M12A1 TM Update	MIPR	Various : Various	0.000	0.000		0.000		0.166	Dec 2020	-		0.166	Continuing	Continuing	0.000
		Subtotal	0.000	0.115		0.590		0.166		-		0.166	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MODPROT - OTE C - JSEW Bio Capability Testing	Various	Various : Various	0.000	0.000		0.444	Dec 2019	0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	0.000	0.000		0.444		0.000		-		0.000	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** DE7 / *Decontamination (Op Sys Dev)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MODPROT - PM/MS C - Program Management Support	Various	Various : Various	0.000	0.000	Dec 2018	0.408	Nov 2019	0.000		-		0.000	Continuing	Continuing	0.000
MODPROT DE - PM/MS C - Program Management Support	Various	Various : Various	0.000	0.000		0.000		0.133	Dec 2020	-		0.133	Continuing	Continuing	0.000
		Subtotal	0.000	0.000		0.408		0.133		-		0.133	Continuing	Continuing	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.307		1.442		0.633		-		0.633	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** DE7 / *Decontamination (Op Sys Dev)*

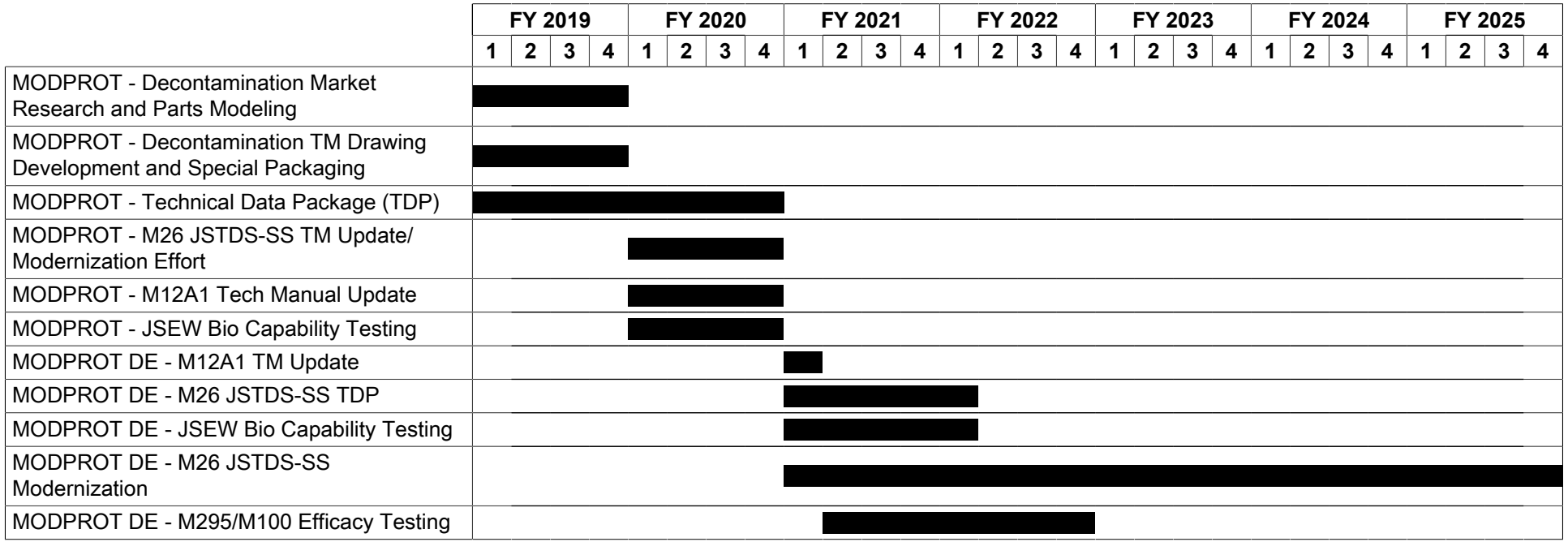

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** DE7 / *Decontamination (Op Sys Dev)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MODPROT - Decontamination Market Research and Parts Modeling	1	2019	4	2019
MODPROT - Decontamination TM Drawing Development and Special Packaging	1	2019	4	2019
MODPROT - Technical Data Package (TDP)	1	2019	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 - M12A1 TM Update	1	2021	1	2021
MODPROT DE - M26 JSTDS-SS TDP	1	2021	1	2022
MODPROT DE - JSEW Bio Capability Testing	1	2021	1	2022
MODPROT DE - M26 JSTDS-SS Modernization	1	2021	4	2025
MODPROT DE - M295/M100 Efficacy Testing	2	2021	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program											Date: February 2020	
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*				Project (Number/Name) IP7 / *Individual Protection (Op Sys Dev)*			
COST ($ in Millions)	**Prior Years**	**FY 2019**	**FY 2020**	**FY 2021 Base**	**FY 2021 OCO**	**FY 2021 Total**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Cost To Complete**	**Total Cost**
IP7: *Individual Protection (Op Sys Dev)*	-	2.087	6.080	6.463	-	6.463	8.447	8.429	8.431	7.533	Continuing	Continuing
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) Modernization Protection Individual Protection (MODPROT IP)
(2) Special Purpose Unit Rapid Capability Development and Deployment (SPU RCDD)
(3) Joint Service General Purpose Mask (JSGPM)

MODPROT IP addresses obsolescence issues with Individual Protective equipment and the need to modernize the Joint Services fielded chemical and biological protection with capabilities meeting or exceeding the Services requirements. MODPROT IP will conduct qualification testing on the protective glove, 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. 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 field protection systems to enhance respiratory and ocular protection.

The SPU RCDD will facilitate rapid response to near-term and emergent chemical-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 mitigates risk across the Chemical Biological Defense Program (CBDP) by creating a portfolio of operationally-relevant chemical and biological (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 chemical, biological, radiological, and, nuclear (CBRN) detect and protect capabilities against new and emerging CBRN 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 CBRN capabilities in the hands of warfighters by faster acceleration through the acquisition process.

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IP7 / *Individual Protection (Op Sys Dev)*

JSGPM 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 Joint Service General Purpose Mask (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 funding and efforts are transitioning under the MODPROT IP budget line.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: 1) MODPROT ***Description:*** Upgrades, improvements, and modernizations to fielded IP systems. ***FY 2020 Plans:*** Continue modernization of the Joint Service Mask Leakage Tester (JSMLT). Continue to modernize protective equipment equal to or exceeding requirements. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Program/project funding transferred to another funding line. (MODPROT to MODPROT IP)	0.402	1.490	-
Title: 2) MODPROT IP ***Description:*** Upgrades, improvements, and modernizations to fielded IP systems. ***FY 2021 Plans:*** Continue modernization of the JSMLT. Initiate and complete Next Generation Filter Engineering Change Proposal (ECP). Begin Third Generation Filter Prototype Developmental Testing (DT). ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Program/project funding transferred from another funding line. (MODPROT and JSGPM BA7 to MODPROT IP)	-	-	3.001
Title: 3) SPU RCDD ***Description:*** Modernization of Integrated Footwear System (IFS) & Chemical Biological (CB) Protective Glove. The IFS is a CB protective sock/liner system that is worn over the combat sock and inside combat footwear. The IFS is made from selectively permeable membrane materials and incorporates an Aramid cuff. The CB protective gloves will provide hand protection from CB agents as well as Petroleum, Oil, & Lubricants (POL) and flame protection. ***FY 2020 Plans:***	-	2.994	3.462

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IP7 / *Individual Protection (Op Sys Dev)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Initiate and solicit industry for the most updated material solution to meet the current requirements for below-the-wrist and below-the-ankle enhanced protection. Perform design and functionality analysis to determine capability gap, and procure initial test articles to conduct baseline testing. ***FY 2021 Plans:*** 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. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Increase due to change in program/project technical parameters.			
Title: 4) JSGPM ***Description:*** Product Qualification and Integration Testing ***FY 2020 Plans:*** Complete Product Qualification Testing (PQT) of the Cobalt-Zinc, zirconium hydroxide, Argentum (Silver), TEDA (triethylene diamine)(CoZZAT) technology and Metal Organic Framework (MOF) into the M61 filter. Complete MOF Filter Prototype Testing. Continue Next Generation Filter Developmental Testing (DT). Evaluate JSGPM suit interface and communication improvements. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Program/project funding transferred to another funding line. (MODPROT IP)	1.685	1.596	-
Accomplishments/Planned Programs Subtotals	2.087	6.080	6.463

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
• JI0003: *JOINT SERVICE GENERAL PURPOSE MASK (JSGPM)*	18.359	13.209	22.402	-	22.402	15.128	3.875	0.000	0.000	0.000	72.973

Remarks

D. Acquisition Strategy

MODERNIZATION PROTECTION (MODPROT)

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IP7 / *Individual Protection (Op Sys Dev)*

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 Collective Protection (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 system's updated technical data packages to be used in engineering change proposals and provided to the item managers.

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.

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)

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IP7 / *Individual Protection (Op Sys Dev)*

contracts will be used to mature technologies transitioned from the Defense Threat Reduction Agency (DTRA) to obtain higher Technology Readiness Level (TRL) that 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IP7 / *Individual Protection (Op Sys Dev)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MODPROT - SW C - Modernization Support Tool	MIPR	Edgewood Chemical Biological Center (ECBC) : Rock Island, IL	0.000	0.039	Nov 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
MODPROT IP - HW C - Filter Prototypes & JSMLT Modernization	Various	Various : Various	0.000	0.000		0.000		1.460	Dec 2020	-		1.460	Continuing	Continuing	0.000
SPU RCDD - HW C - Product Development	Various	Various : Various	0.000	0.000		1.713	Dec 2019	1.983	Dec 2020	-		1.983	Continuing	Continuing	0.000
JSGPM - HW C - Filter Prototypes 3M & Avon/ NIOSH Filter procurement	Various	Various : Various	1.561	0.636	Dec 2018	0.760	Nov 2019	0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	1.561	0.675		2.473		3.443		-		3.443	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MODPROT IP - ES C - IPT, Engineering, Techincal, Logistics Support	MIPR	Various : Various	0.000	0.000		0.000		0.357	Dec 2020	-		0.357	Continuing	Continuing	0.000
SPU RCDD - ES C - Technical Support	Various	Various : Various	0.000	0.000		0.299	Nov 2019	0.347	Dec 2020	-		0.347	Continuing	Continuing	0.000
JSGPM - ES C - IPT, Engineering, and Technical Support	MIPR	Various : Various	0.302	0.040	Nov 2018	0.072	Nov 2019	0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	0.302	0.040		0.371		0.704		-		0.704	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IP7 / *Individual Protection (Op Sys Dev)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MODPROT - OTE S - JSMLT Modernization	C/FFP	Hamilton Associates : DBA Air Techniques Intl., Owings Mills, MD	1.141	0.289	Sep 2019	1.172	Nov 2019	0.000		-		0.000	Continuing	Continuing	0.000
MODPROT - OTE S - JB2GU Glove Study/ IFS Modernization/JSMLT Modernization	C/FFP	Various : Various	0.026	0.074	Dec 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
MODPROT IP - DTE C - System Filters	MIPR	CCDC CBC : Aberdeen Proving Ground, MD	0.000	0.000		0.000		0.553	Dec 2020	-		0.553	Continuing	Continuing	0.000
SPU RCDD - DTE C - Test and Evaluation	MIPR	Combat Capabilities Development Command (CCDC) Chemical Biological Center : Aberdeen Proving Ground, MD	0.000	0.000		0.500	Dec 2019	0.580	Jan 2021	-		0.580	Continuing	Continuing	0.000
JSGPM - DTE C - System Filters (CoZZAT)	MIPR	CCDC CBC : Aberdeen Proving Ground, MD	1.778	0.861	Jan 2019	0.423	Nov 2019	0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	2.945	1.224		2.095		1.133		-		1.133	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
MODPROT - PM/MS C - Program Management Support	MIPR	Various : Various	0.000	0.000		0.318	Nov 2019	0.000		-		0.000	Continuing	Continuing	0.000
MODPROT IP - PM/MS C - Program Management Support	MIPR	Various : Various	0.000	0.000		0.000		0.631	Dec 2020	-		0.631	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IP7 / *Individual Protection (Op Sys Dev)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SPU RCDD - PM/MS C - Program Management Support	Various	Various : Various	0.000	0.000		0.482	Nov 2019	0.552	Nov 2020	-		0.552	Continuing	Continuing	0.000
JSGPM - PM/MS C - Program Management Support	MIPR	Various : Various	1.959	0.148	Nov 2018	0.341	Nov 2019	0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	1.959	0.148		1.141		1.183		-		1.183	Continuing	Continuing	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	6.767	2.087		6.080		6.463		-		6.463	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IP7 / *Individual Protection (Op Sys Dev)*

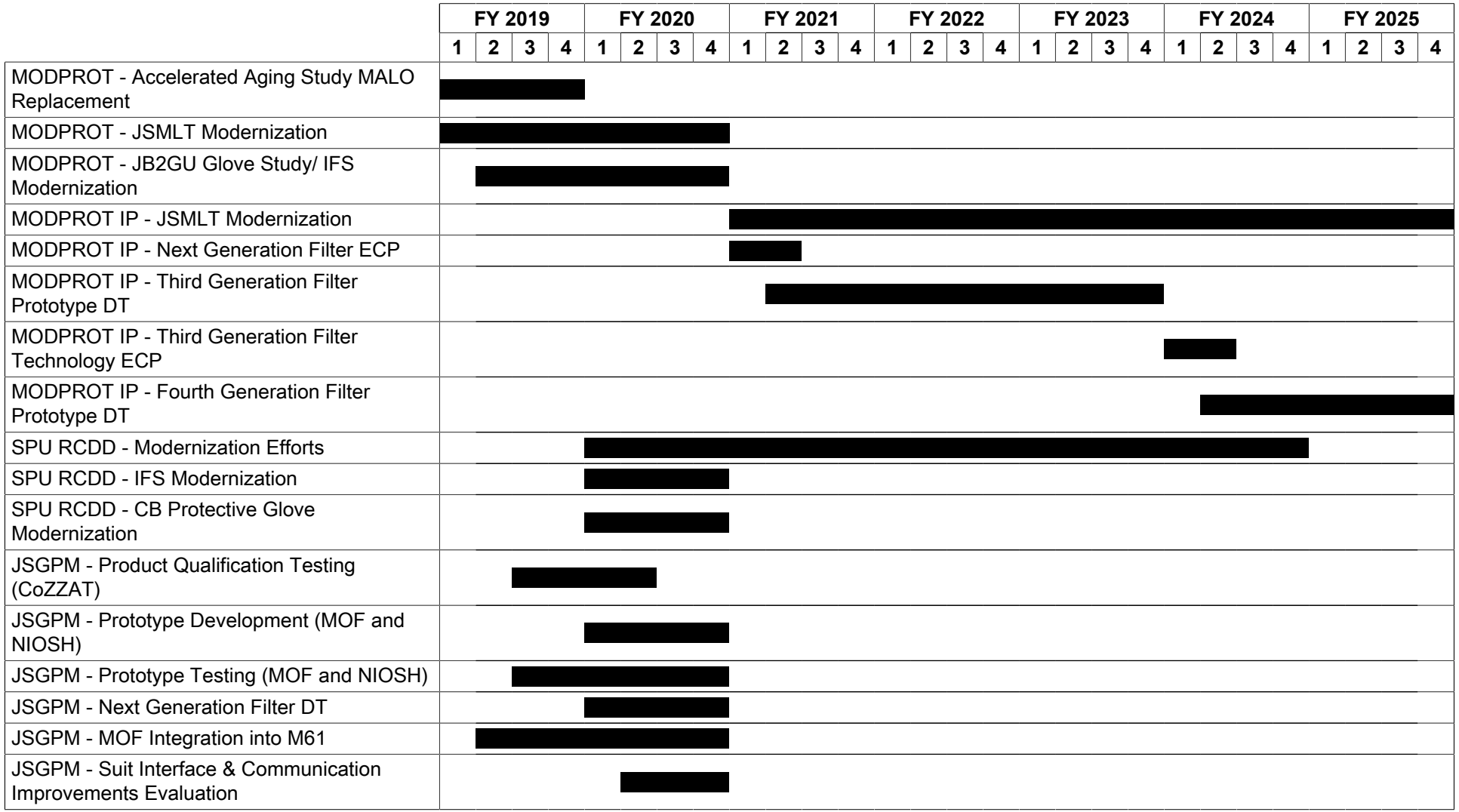

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IP7 / *Individual Protection (Op Sys Dev)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MODPROT - Accelerated Aging Study MALO Replacement	1	2019	4	2019
MODPROT - JSMLT Modernization	1	2019	4	2020
MODPROT - JB2GU Glove Study/ IFS Modernization	2	2019	4	2020
MODPROT IP - JSMLT Modernization	1	2021	4	2025
MODPROT IP - Next Generation Filter ECP	1	2021	2	2021
MODPROT IP - Third Generation Filter Prototype DT	2	2021	4	2023
MODPROT IP - Third Generation Filter Technology ECP	1	2024	2	2024
MODPROT IP - Fourth Generation Filter Prototype DT	2	2024	4	2025
SPU RCDD - Modernization Efforts	1	2020	4	2024
SPU RCDD - IFS Modernization	1	2020	4	2020
SPU RCDD - CB Protective Glove Modernization	1	2020	4	2020
JSGPM - Product Qualification Testing (CoZZAT)	3	2019	2	2020
JSGPM - Prototype Development (MOF and NIOSH)	1	2020	4	2020
JSGPM - Prototype Testing (MOF and NIOSH)	3	2019	4	2020
JSGPM - Next Generation Filter DT	1	2020	4	2020
JSGPM - MOF Integration into M61	2	2019	4	2020
JSGPM - Suit Interface & Communication Improvements Evaluation	2	2020	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program											Date: February 2020	
Appropriation/Budget Activity 0400 / 7					R-1 Program Element (Number/Name) PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*				Project (Number/Name) IS7 / *Information Systems (Op Sys Dev)*			
COST ($ in Millions)	**Prior Years**	**FY 2019**	**FY 2020**	**FY 2021 Base**	**FY 2021 OCO**	**FY 2021 Total**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Cost To Complete**	**Total Cost**
IS7: *Information Systems (Op Sys Dev)*	-	14.039	16.111	3.234	-	3.234	3.554	15.381	15.383	16.154	Continuing	Continuing
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, and provide support at fielded locations and maintain training and logistics support.

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

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

CBRN IS provides the Joint warfighter, CBRN community of interest, and international partners a collaborative Cloud hosted environment. This cloud environment 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 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 computer through a web browser simplifying interoperability, reducing integration and deployment costs, and increasing cybersecurity protection.

The JEM 1 and JEM 2 are software applications that provide the Department of Defense (DoD) with the only operationally tested and accredited tools to model and simulate the effects of Chemical, Biological, Radiological and Nuclear (CBRN) weapon strikes and incidents. JEM 1 and JEM 2 apply advanced physics using weather, terrain, and agent characteristics to predict the time-phased impact of CBRN and Toxic Industrial Chemical/Material (TIC/TIM). JEM 1 and JEM 2 display hazard information on the Common Operational Picture (COP) and allow commanders to assess risk and take steps mitigate the effects of Weapons of Mass Destruction (WMD) on operational forces. The JEM 1 program sunsets and has been replaced by JEM 2. JEM 1 program support will be terminated upon full expenditure of FY19 funding.

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *Information Systems (Op Sys Dev)*

The Joint Warning and Reporting Network (JWARN) 1 and 2 are software applications that provide the Department of Defense warning and reporting systems that enable an immediate and integrated response to threats of contamination by WMD, CBRN and TIM incidents. JWARN 1 and 2 provide a digital display of CBRN reports on the COP, presented through Service provided Command and Control systems resident at all echelons of command. Enhanced situational battlespace awareness provides Commanders the ability to support warfighter battle management and continuity of operations in a contaminated environment. The JWARN 1 program sunsets and has been replaced by JWARN 2 program and will no longer be supported at the end of FY20.

The SSA provides for enterprise services in the areas of software development, network architecture, cybersecurity, technology transition, and information assurance standards and policies to support programs with modernization and upgrade efforts to fielded systems to ensure network, cybersecurity, and standards compliance throughout the Chemical Biological Radiological and Nuclear Defense (CBRND) portfolio.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: 1) Global-BSP ***Description:*** Modernization Efforts ***FY 2020 Plans:*** Begin moving Map servers to AWS (Amazon Web Services) GovCloud to improve performance; add FVEY (Five Eyes - US/UK/ Canada/Australia/New Zealand)/NATO role-based access capability. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being terminated.	2.572	2.904	-
Title: 2) Global-BSP ***Description:*** Training and Logistics Support ***FY 2020 Plans:*** Continue to perform Training Development, Integrated Logistic Support, and Configuration Management. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being terminated.	-	1.162	-
Title: 3) Global-BSP ***Description:*** Management Support ***FY 2020 Plans:***	-	0.402	-

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *Information Systems (Op Sys Dev)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Provide program/financial management, costing, contracting, scheduling, and acquisition oversight support. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being terminated.			
Title: 4) CBRN IS ***Description:*** Modernization Efforts ***FY 2020 Plans:*** 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. ***FY 2021 Plans:*** 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. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Minor change due to routine program adjustments.	2.259	1.841	2.057
Title: 5) JEM 1 and 2 ***Description:*** Command and Control (C2) Modernization Efforts ***FY 2020 Plans:*** Continue to update fielded JEM 1 and 2 software due to changing Army, Navy, Air Force, SOCOM, and National Guard C2 host architectures, systems, and standards in order to maintain interoperability and avert cyber threats and vulnerabilities to host C2 systems. Perform test and evaluation of updated JEM 1 and JEM 2 baselines. Increased funding planned for the emerging cyber security threats. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being terminated.	1.129	0.895	-
Title: 6) JEM 1 and 2 ***Description:*** Pre-Planned Product Improvement (P3I)	2.573	1.737	-

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *Information Systems (Op Sys Dev)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
FY 2020 Plans: Continue to test and integrate fielded JEM software with science and technology upgrades and model enhancements to improve JEM 1 and 2 accuracy and precision. Improve architecture and overall performance of all JEM 1 and 2 versions through software updates and deficiency resolution. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being terminated.			
Title: 7) JEM 1 and 2 ***Description:*** Training and Logistics Support ***FY 2020 Plans:*** Perform Training Development, Integrated Logistics Support and Configuration Management for upgraded fielded capabilities. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being terminated.	1.009	1.675	-
Title: 8) JEM 1 and 2 ***Description:*** Management Support ***FY 2020 Plans:*** Provide program/financial management, costing, contracting, scheduling, and acquisition oversight support to the fielded product baseline. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being terminated.	0.415	0.479	-
Title: 9) JWARN 1 and 2 ***Description:*** System Modernization/Update Development ***FY 2020 Plans:*** Continue engineering and development efforts to upgrade existing operational JWARN capabilities hosted on Service C2 systems in order to maintain interoperability, efficiency, and functionality. Provide any required patches or fixes to address potential	2.361	3.287	-

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *Information Systems (Op Sys Dev)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
issues discovered in the course of recurring system interoperability testing with Service C2 environments. Performance test and evaluation of updated JWARN 2 baselines. Increased funding planned for the emerging cyber security threats. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being terminated.			
Title: 10) JWARN 1 and 2 ***Description:*** Program Management Support ***FY 2020 Plans:*** Continue JWARN 1 and 2 strategic, tactical, planning, program/financial management/ costing, contracting, and acquisition oversight for JWARN software Service Command and Control (C2) systems. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being terminated.	0.387	0.470	-
Title: 11) JWARN 1 and 2 ***Description:*** Test and Evaluation (T&E) ***FY 2020 Plans:*** Continue Government developmental and operational testing on software updates and modernization efforts on deployed JWARN 1 and 2 capabilities on Service C2 systems. Conduct DT on developer delivery of JWARN 1 and 2 software intended for fielding with Army and US Marine Corps C2 systems. Develop training guides and courseware to reflect major upgrades to JWARN 2 in support of Army and US Marine Corps C2 systems. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being terminated.	0.313	0.235	-
Title: 12) JWARN 1 and 2 ***Description:*** Training and Logistics Support ***FY 2020 Plans:***	-	0.704	-

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *Information Systems (Op Sys Dev)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Provide helpdesk and training support for fielded versions of JWARN 1 and 2 in all host environments, including DISA milCloud, Army BCCS command post servers, Navy CANES and MOCs, and Marine Corps JTCW systems. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being terminated.			
Title: 13) SSA ***Description:*** SSA Policies, Standards and Guidelines ***FY 2020 Plans:*** Support programs in the Interoperability and Supportability (I&S) certification, Information Support Plan (ISP), and Data and Service Exposure Verification and Registration. Update existing programs and register new programs in the Army Portfolio Management Solution/Army Information Technology Registry (APMS/AITR). ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Minor change due to routine program adjustments. Bullets with similar activities spanning multiple fiscal years were consolidated.	0.212	0.077	-
Title: 14) SSA ***Description:*** Integrated Architecture ***FY 2020 Plans:*** Provide and update programs of record integrated architectures and provide Net-Centric Policy implementation assistance. Continue to support CCSI updates. Continue to provide CCSI reference implementation. Support the enterprise tools and common capabilities to ensure relevance across CBRN programs. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Minor change due to routine program adjustments. Bullets with similar activities spanning multiple fiscal years were consolidated.	0.219	0.099	-
Title: 15) SSA ***Description:*** Chemical, Biological, Radiological, Nuclear Data Model ***FY 2020 Plans:***	0.202	0.144	-

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *Information Systems (Op Sys Dev)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Continue updating a mandated net-centric environment by providing enabling tools which include the CBRN Data Model and Data Dictionary, which define Common CBRN semantics and syntax and the CBRN Extensible Markup Language (XML) schemas that define reusable XML types for information exchange throughout the enterprise. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Minor change due to routine program adjustments. Bullets with similar activities spanning multiple fiscal years were consolidated.			
Title: 16) SSA ***Description:*** Cybersecurity/Information Assurance	0.388	-	-
Title: 17) SSA ***Description:*** Enterprise Services ***FY 2021 Plans:*** 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. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Minor change due to routine program adjustments. Bullets with similar activities spanning multiple fiscal years were consolidated.	-	-	1.177
Accomplishments/Planned Programs Subtotals	14.039	16.111	3.234

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

BIOSURVEILLANCE PORTAL (BSP)

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

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *Information Systems (Op Sys Dev)*

CBRN INFORMATION SYSTEMS

CBRN IS acquisition strategy 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.

JOINT EFFECTS MODEL (JEM)

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

JOINT WARNING & REPORTING NETWORK (JWARN)

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

SOFTWARE SUPPORT ACTIVITY (SSA)

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *Information Systems (Op Sys Dev)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BSP - SW S - Global-BSP Modernization	MIPR	Various : Various	1.753	2.338	Dec 2018	2.904	Dec 2019	0.000		-		0.000	Continuing	Continuing	0.000
JEM - SW S - Increment 2 - Modernization	C/CPAF	General Dynamics Information Technologies : Fairfax, VA	7.425	3.702	Jan 2019	2.632	Jan 2020	0.000		-		0.000	Continuing	Continuing	0.000
JWARN - 1-SW S-Modernization	C/CPAF	DCS Corps : Alexandria, VA	0.000	0.000		0.699	Dec 2019	0.000		-		0.000	Continuing	Continuing	0.000
JWARN - 2- SW S - Modernization Follow-On	C/CPAF	DCS Corps : Alexandria, VA	0.000	2.361	Dec 2018	2.589	Dec 2019	0.000		-		0.000	Continuing	Continuing	0.000
SSA - SW S - Development Services	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	3.631	0.460	Feb 2019	0.144	Feb 2020	0.529	Feb 2021	-		0.529	Continuing	Continuing	0.000
		Subtotal	12.809	8.861		8.968		0.529		-		0.529	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BSP - ILS C - Training and Logistics Support	Various	Various : Various	0.000	0.234	Dec 2018	1.162	Dec 2019	0.000		-		0.000	Continuing	Continuing	0.000
CBRN IS - ES S - milCloud support	MIPR	Various : Various	0.284	2.259	Dec 2018	1.841	Dec 2019	2.057	Dec 2020	-		2.057	Continuing	Continuing	0.000
JEM - ILS C - Training and Logistics Support	Various	Various : Various	0.000	1.009	Dec 2018	1.675	Dec 2019	0.000		-		0.000	Continuing	Continuing	0.000
JWARN - 1&2 - ES S - Modernization	MIPR	Various : Various	1.211	0.000		0.704	Oct 2019	0.000		-		0.000	Continuing	Continuing	0.000
SSA - TD/D C - Information Assurance Activities	MIPR	Space and Naval Warfare (SPAWAR) Systems Center : San Diego, CA	3.447	0.428	Feb 2019	0.134	Feb 2020	0.494	Feb 2021	-		0.494	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program			Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	Project (Number/Name) IS7 / *Information Systems (Op Sys Dev)*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	4.942	3.930		5.516		2.551		-		2.551	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
JWARN - 1- OTE S - FOT&E	MIPR	Various : Various	4.581	0.000		0.050	Nov 2019	0.000		-		0.000	Continuing	Continuing	0.000
JWARN - 2- OTE S	MIPR	Various : Various	0.706	0.313	Dec 2018	0.185	Dec 2019	0.000		-		0.000	Continuing	Continuing	0.000
		Subtotal	5.287	0.313		0.235		0.000		-		0.000	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BSP - PM/MS C - Program Management Support	Various	Various : Various	0.000	0.000		0.402	Dec 2019	0.000		-		0.000	Continuing	Continuing	0.000
JEM - PM/MS C - Program Management Support	Various	Various : Various	0.000	0.415	Dec 2018	0.479	Dec 2019	0.000		-		0.000	Continuing	Continuing	0.000
JWARN - PM/MS S - Program management	MIPR	Various : Various	2.178	0.387	Dec 2018	0.469	Dec 2019	0.000		-		0.000	Continuing	Continuing	0.000
SSA - PM/MS C - Program Management Support	Various	Various : Various	0.000	0.133	Feb 2019	0.042	Feb 2020	0.154	Feb 2021	-		0.154	Continuing	Continuing	0.000
		Subtotal	2.178	0.935		1.392		0.154		-		0.154	Continuing	Continuing	N/A

	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	25.216	14.039		16.111		3.234		-		3.234	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *Information Systems (Op Sys Dev)*

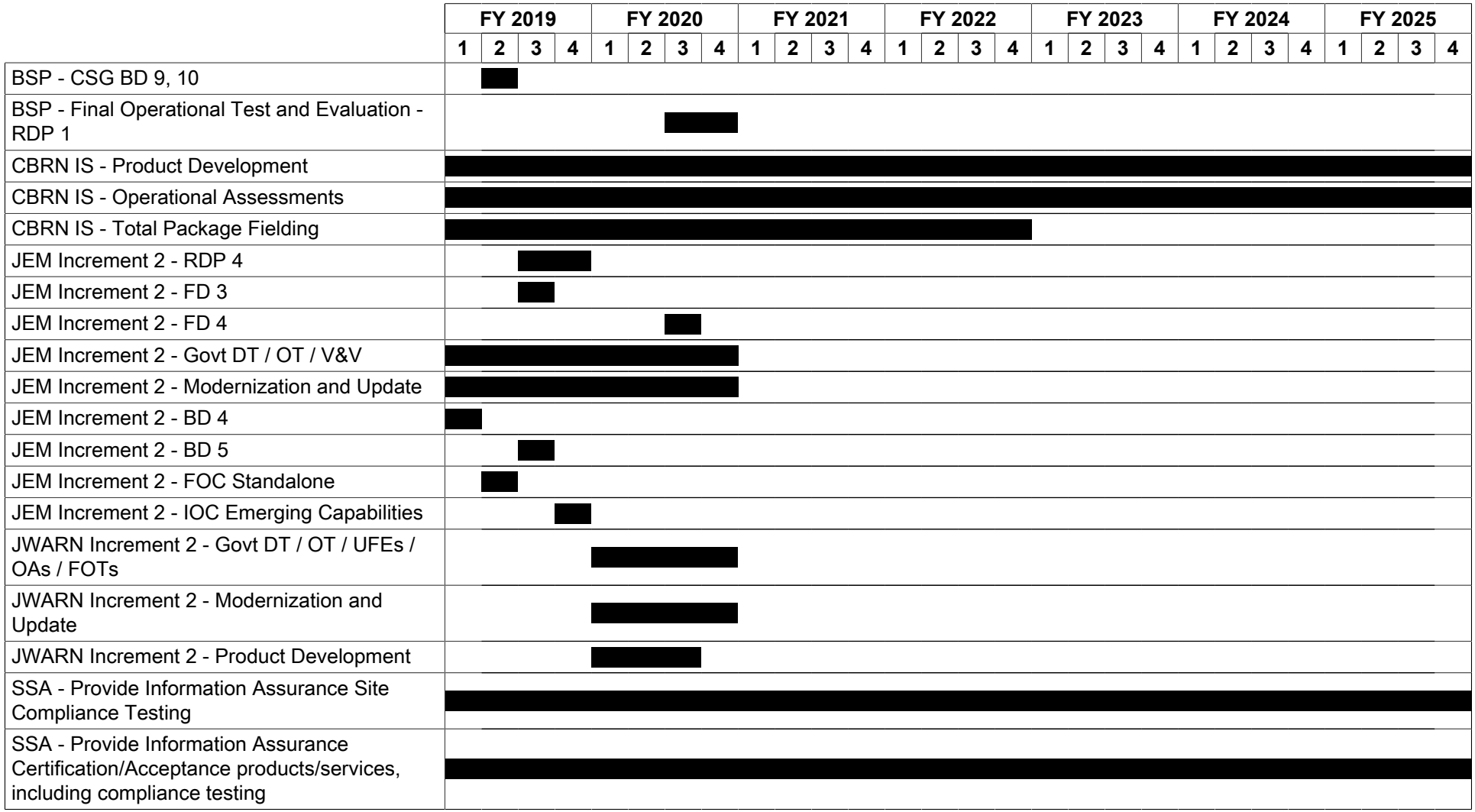

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *Information Systems (Op Sys Dev)*

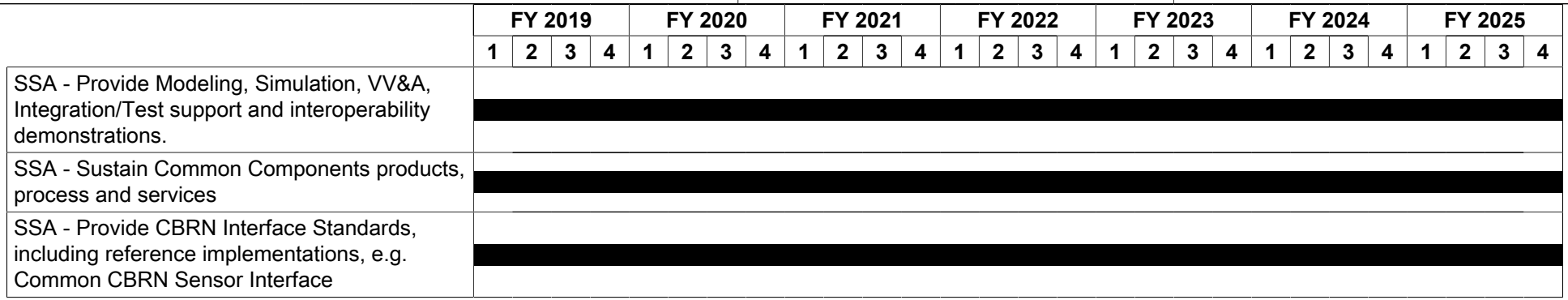

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *Information Systems (Op Sys Dev)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
BSP - CSG BD 9, 10	2	2019	2	2019
BSP - Final Operational Test and Evaluation - RDP 1	3	2020	4	2020
CBRN IS - Product Development	1	2019	4	2025
CBRN IS - Operational Assessments	1	2019	4	2025
CBRN IS - Total Package Fielding	1	2019	4	2022
JEM Increment 2 - RDP 4	3	2019	4	2019
JEM Increment 2 - FD 3	3	2019	3	2019
JEM Increment 2 - FD 4	3	2020	3	2020
JEM Increment 2 - Govt DT / OT / V&V	1	2019	4	2020
JEM Increment 2 - Modernization and Update	1	2019	4	2020
JEM Increment 2 - BD 4	1	2019	1	2019
JEM Increment 2 - BD 5	3	2019	3	2019
JEM Increment 2 - FOC Standalone	2	2019	2	2019
JEM Increment 2 - IOC Emerging Capabilities	4	2019	4	2019
JWARN Increment 2 - Govt DT / OT / UFEs / OAs / FOTs	1	2020	4	2020
JWARN Increment 2 - Modernization and Update	1	2020	4	2020
JWARN Increment 2 - Product Development	1	2020	3	2020
SSA - Provide Information Assurance Site Compliance Testing	1	2019	4	2025
SSA - Provide Information Assurance Certification/Acceptance products/services, including compliance testing	1	2019	4	2025
SSA - Provide Modeling, Simulation, VV&A, Integration/Test support and interoperability demonstrations.	1	2019	4	2025
SSA - Sustain Common Components products, process and services	1	2019	4	2025

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** IS7 / *Information Systems (Op Sys Dev)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
SSA - Provide CBRN Interface Standards, including reference implementations, e.g. Common CBRN Sensor Interface	1	2019	4	2025

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program			Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	Project (Number/Name) MB7 / *Medical Biological Defense (Op Sys Dev)*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
MB7: *Medical Biological Defense (Op Sys Dev)*	-	8.602	3.231	2.308	-	2.308	2.012	2.305	5.975	9.188	Continuing	Continuing
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.

Efforts in this project include:
(1) Next Generation Diagnostic System (NGDS)

The NGDS is a family of systems providing increments of diagnostic capabilities over time that address varied 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 improves diagnostic capabilities in deployable and laboratory-based combat health support units. NGDS 1 offers improved operational suitability and affordability over legacy systems by developing FDA cleared biological warfare agent (BWA) and infectious disease in vitro diagnostic (IVD) assays on an existing commercial diagnostic device with a well-established FDA regulatory history and pipeline of commercial non-BWA infectious disease diagnostic tests.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: 1) NGDS 1	8.602	3.231	2.308
Description: System Upgrades & Support			
FY 2020 Plans: Continue development and upgrade of additional objective FDA cleared medical diagnostic assays. Complete development of additional assays and sample validation protocols to meet JBAIDS equivalence. Continue annual cyber security updates and management of hardware and software configurations.			
FY 2021 Plans: Continue development of additional assays and sample validation protocols. Continue annual cyber security updates and management of hardware and software configurations.			
FY 2020 to FY 2021 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** MB7 / *Medical Biological Defense (Op Sys Dev)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Minor change due to routine program adjustments.			
Accomplishments/Planned Programs Subtotals	8.602	3.231	2.308

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 for limited production and fielding. NGDS 1 is replacing the legacy Joint Biological Agent Identification and Diagnostic System (JBAIDS) beginning in FY17. NGDS 1 Full Rate Production was approved in Aug 2018.

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** MB7 / *Medical Biological Defense (Op Sys Dev)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NGDS - NGDS 1 - HW C - Assay Development	C/CPFF	BioFire Dx : Salt Lake City, UT	14.159	2.676	Nov 2018	2.123	Dec 2019	0.458	Dec 2020	-		0.458	Continuing	Continuing	0.000
NGDS - HW C - Assay Development	MIPR	Battelle Memorial Institute : Aberdeen, MD	0.441	0.511	Nov 2018	0.000		0.127	Dec 2020	-		0.127	Continuing	Continuing	0.000
NGDS - HW C - Assay Development #2	MIPR	Various : Various	0.641	0.381	Jan 2019	0.000		0.150	Dec 2020	-		0.150	Continuing	Continuing	0.000
		Subtotal	15.241	3.568		2.123		0.735		-		0.735	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NGDS - ES S - Engineering Support	C/CPFF	BioFire Dx : Salt Lake City, UT	0.682	0.045	Jun 2019	0.150	Jun 2020	0.192	Dec 2020	-		0.192	Continuing	Continuing	0.000
		Subtotal	0.682	0.045		0.150		0.192		-		0.192	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NGDS - PM/MS C - ADMc Support	C/CPFF	Ology : Alachua, FL	1.126	1.117	Nov 2018	0.000		0.000		-		0.000	Continuing	Continuing	0.000
NGDS - PM/MS S - Program Management (JPM) Support	Various	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	5.293	1.645	Jan 2019	0.213	Dec 2019	0.236	Dec 2020	-		0.236	Continuing	Continuing	0.000
NGDS - PM/MS C - Program Management (Dx) Support	MIPR	Edgewood Chemical Biological Center (ECBC) : Aberdeen Proving Ground, MD	0.554	0.226	Nov 2018	0.162	Dec 2019	0.240	Dec 2020	-		0.240	Continuing	Continuing	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** MB7 / *Medical Biological Defense (Op Sys Dev)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
NGDS - PM/MS S - Program Management (Dx)	Various	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	4.606	1.248	Jan 2019	0.349	Dec 2019	0.597	Dec 2020	-		0.597	Continuing	Continuing	0.000
NGDS - PM/MS C - PM/MS - Program Management (JPEO) Support	Various	JPEO Chem/Bio Defense (JPEO-CBD) : Aberdeen Proving Ground, MD	0.394	0.753	Jan 2019	0.234	Dec 2019	0.308	Dec 2020	-		0.308	Continuing	Continuing	0.000
		Subtotal	11.973	4.989		0.958		1.381		-		1.381	Continuing	Continuing	N/A

	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	27.896	8.602		3.231		2.308		-		2.308	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** MB7 / *Medical Biological Defense (Op Sys Dev)*

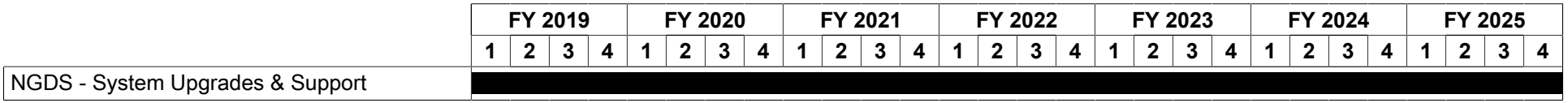

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** MB7 / *Medical Biological Defense (Op Sys Dev)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
NGDS - System Upgrades & Support	1	2019	4	2025

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program			Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	Project (Number/Name) MC7 / *Medical Chemical Defense (Op Sys Dev)*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
MC7: *Medical Chemical Defense (Op Sys Dev)*	-	0.000	1.248	1.817	-	1.817	1.678	5.032	10.456	8.578	Continuing	Continuing
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) Improved Nerve Agent Treatment System (INATS)
(2) Improved Nerve Agent Treatment System Centrally Acting (INATS CA)
(3) Alternative Autoinjector Manufacturer Capability (AUTOINJ)

(1) INATS - Soman Nerve Agent Pre-Treatment Pyridostigmine (SNAPP) is a modernization effort for Pyridostigmine Bromide (PB) requirements from the joint service users for the Food and Drug Administration (FDA) approved SNAPP product.

(2) INATS-CA advanced development 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.

(3) AUTOINJ consists of investigating an FDA approved alternative source(s), beyond the single current Department of Defense (DoD) source, for autoinjectors that deliver DoD nerve agent antidote and treatment capabilities to the warfighter; mitigates capability fielding and operational readiness risks. This resulted from the manufacturing and quality issues for the fielded Antidote Treatment Nerve Agent Auto-injector (ATNAA) product, the oxime (2-PAM) and atropine in a dual chambered autoinjector. This program augments legacy autoinjectors, ATNAA, 2-PAM, and CANA by providing alternative commercial sources which include Dual Drug Delivery Device (D4), the atropine autoinjector, and anti-convulsant autoinjector.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: 1) Alternative Autoinjector Manufacturer Capability (AUTOINJ)	-	-	0.200
Description: Food and Drug Administration (FDA) Post-Marketing Commitments			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** MC7 / *Medical Chemical Defense (Op Sys Dev)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
FY 2021 Plans: Initiate Post-Marketing Commitments ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Minor change due to routine program adjustments. Atropine autoinjector is transitioning to pre-planned product improvement per FDA requirements.			
Title: 2) INATS ***Description:*** SNAPP - Shelf Life Modernization - Studies required by the FDA and/or users to modernize or upgrade medical chemical defense countermeasures. ***FY 2020 Plans:*** Initiate 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. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Program/project funding transferred to another funding line. Effort transitions to INATS CA in FY21.	-	1.248	-
Title: 3) INATS - CA ***Description:*** Studies required by the FDA and/or users to modernize or upgrade medical chemical defense countermeasures. ***FY 2021 Plans:*** 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 ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Program/project funding transferred from another funding line. Effort transitioned from INATS. Expecting an increase in costs due to higher number of samples that will be tested.	-	-	1.617
Accomplishments/Planned Programs Subtotals	-	1.248	1.817

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** MC7 / *Medical Chemical Defense (Op Sys Dev)*

D. Acquisition Strategy

ALTERNATE AUTOINJECTOR MANUFACTURER CAPABILITY (AUTOINJ)

The Alternative Autoinjector Manufacturer Capability (AUTOINJ) will identify an alternative source(s) to develop and provide required FDA-approved autoinjector-delivered nerve agent antidote and treatment capabilities to the DoD. 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 Food and Drug Administration (FDA) regulations. The contractor shall sponsor the drug to the FDA and hold all approvals and/or licenses. Upon FDA approval, purchases for product sustainment will be made by the Defense Logistics Agency.

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.

IMPROVED NERVE AGENT TREATMENT SYSTEM (INATS)

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

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

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

IMPROVED NERVE AGENT TREATMENT CENTRALLY ACTING (INATS CA)

(MC5) 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** MC7 / *Medical Chemical Defense (Op Sys Dev)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AUTOINJ - HW C - Post-Marketing Committments	C/CPFF	TBD : N/A	0.000	0.000		0.000		0.200	Dec 2020	-		0.200	Continuing	Continuing	0.000
INATS - HW C - Non Clinical Studies PB	Various	TBD : N/A	0.000	0.000		1.248	Feb 2020	0.000		-		0.000	Continuing	Continuing	0.000
INATS CA - HW C - Shelf Life Modernization	C/CPFF	TBD : N/A	0.000	0.000		0.000		1.389	Dec 2020	-		1.389	Continuing	Continuing	0.000
		Subtotal	0.000	0.000		1.248		1.589		-		1.589	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
INATS CA - Program Management (JPEO)	Various	JPEO Chem : Bio, Rad, and Nuc Defense (JPEO-CBRND)	0.000	0.000		0.000		0.141	Dec 2020	-		0.141	Continuing	Continuing	0.000
INATS CA - Program Management (MCS) Support	Various	JPM Medical Countermeasure Systems (JPM MCS) : Fort Detrick, MD	0.000	0.000		0.000		0.087	Dec 2020	-		0.087	Continuing	Continuing	0.000
		Subtotal	0.000	0.000		0.000		0.228		-		0.228	Continuing	Continuing	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		1.248		1.817		-		1.817	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** MC7 / *Medical Chemical Defense (Op Sys Dev)*

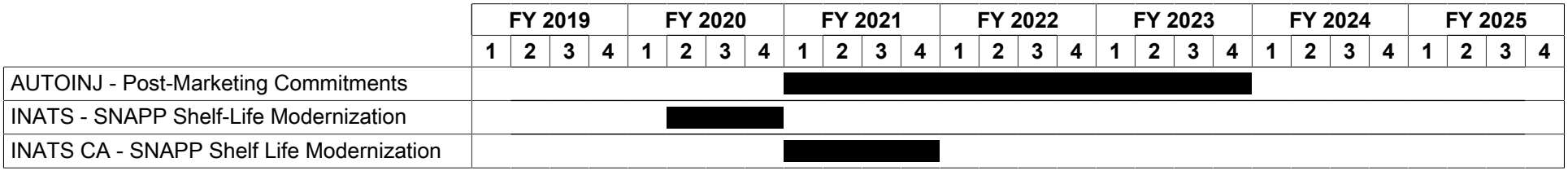

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** MC7 / *Medical Chemical Defense (Op Sys Dev)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
AUTOINJ - Post-Marketing Commitments	1	2021	4	2023
INATS - SNAPP Shelf-Life Modernization	2	2020	4	2020
INATS CA - SNAPP Shelf Life Modernization	1	2021	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program			Date: February 2020
Appropriation/Budget Activity 0400 / 7	R-1 Program Element (Number/Name) PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	Project (Number/Name) TE7 / *Test & Evaluation (Op Sys Dev)*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
TE7: *Test & Evaluation (Op Sys Dev)*	-	6.179	5.403	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	11.582
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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

Efforts included in the project are:
(1) BioTesting Division T&E Upgrade (BTD UPGRADE)
(2) T&E Upgrades (T&E UPGRADE)

BTD UPGRADE supports 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 maintain readiness at the BTD, which is the MRTFB's only laboratory equipped to test with aerosolized biosafety level-3 (BSL-3) agents. The 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 known and emergent biological threats. Essential instrumentation requiring periodic revitalization and modernization due to technological obsolescence includes dissemination, referee, analytical, and lab and field instrumentation/equipment (e.g. field fluorescence aerosol particle sizing, next generation genomic sequencing, time of flight mass spectrometer, and lab entry control system upgrades).

The T&E Upgrade effort supports 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 2019	FY 2020	FY 2021
Title: 1) BTD UPGRADE	0.885	0.757	-
FY 2020 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** TE7 / *Test & Evaluation (Op Sys Dev)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Continues to provide instrumentation and equipment to BTD-CBC, in support of the CB Defense mission. Continues to provide for BSL-3 biological laboratory equipment for the Lothar Salomon Test Facility (LSTF) and Baker Lab. Provides for enhancement of the aerosol biological capability challenging detection systems under test. Provides BSL-3 suite access control system, enhances field and laboratory aerosol referee capability, Containment Aerosol Chamber (BSL-3) chamber steam sterilizer procurement, and other technology upgrades to laboratory and field instrumentation. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being restructured.			
Title: 2) WDTC - MRTFB ***Description:*** Major Test Chambers (MTF and Building 4165) ***FY 2020 Plans:*** Continue modernization in the chambers to include: (a) Enhancements of an aerosol generation and sampling capability; (b) Additional upgrades to agent surety monitor and analytical instrumentation; (c) Enhancement of TIC detection; and (d) Expanded NTA test and detection capability. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being restructured.	1.059	0.998	-
Title: 3) WDTC - MRTFB ***Description:*** CB Test Grid ***FY 2020 Plans:*** Continue modernization efforts to include: (1) Enhancement of point and standoff field referee systems; (2) Upgrade of grid communications and data analysis capabilities; (3) Additional upgrades to enhance optic data collection. Enhancements to Test Grid provide near real time data analysis and rapid test adaptation to minimize costs and increase the effectiveness of field testing. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being restructured.	1.324	1.132	-
Title: 4) WDTC - MRTFB	2.911	2.516	-

Exhibit R-2A, RDT&E Project Justification: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** TE7 / *Test & Evaluation (Op Sys Dev)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Description: Combined Chemical Test Facility (CCTF) ***FY 2020 Plans:*** Provide continued revitalization and upgrade of existing instrumentation and equipment at the CCTF at WDTC in support of their chemical test mission. Modernization will result in improved test fixtures which will reduce risk to personnel and provides improved test capabilities. Continue efforts to enhance NTA test capability in these fixtures. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Defense-Wide Review (DWR): The Chemical Biological Defense Program FY 2021 funding request was reduced to account for program being restructured.			
Accomplishments/Planned Programs Subtotals	6.179	5.403	-

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 provides 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 will utilize 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.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** TE7 / *Test & Evaluation (Op Sys Dev)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BTB UPGRADE - OTHT S - T&E Upgrade	C/FFP	Various : Various	0.925	0.885	Jun 2019	0.757	May 2020	0.000		-		0.000	0.000	2.567	0.000
T&E UPGRAD - OTHT C - Technology Upgrade - WDTC Major Test Chambers (MTF and Building 4165)	MIPR	Various : Various	3.743	1.058	Feb 2019	0.998	Feb 2020	0.000		-		0.000	0.000	5.799	0.000
T&E UPGRAD - OTHT C - Technology Upgrade - WDTC CB Test Grid	MIPR	Various : Various	1.352	1.324	Feb 2019	1.132	Feb 2020	0.000		-		0.000	0.000	3.808	0.000
T&E UPGRAD - OTHT C - Technology Upgrade - WDTC CCTF	MIPR	Various : Various	0.490	1.076	Feb 2019	2.516	Feb 2020	0.000		-		0.000	0.000	4.082	0.000
T&E UPGRAD - OTHT C - Technology Upgrade - CCTF Chemical Laboratory Fume Hoods	MIPR	Various : Various	2.516	1.836	Feb 2019	0.000		0.000		-		0.000	0.000	4.352	0.000
		Subtotal	9.026	6.179		5.403		0.000		-		0.000	0.000	20.608	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	9.026	6.179		5.403		0.000		-		0.000	0.000	20.608	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** TE7 / *Test & Evaluation (Op Sys Dev)*

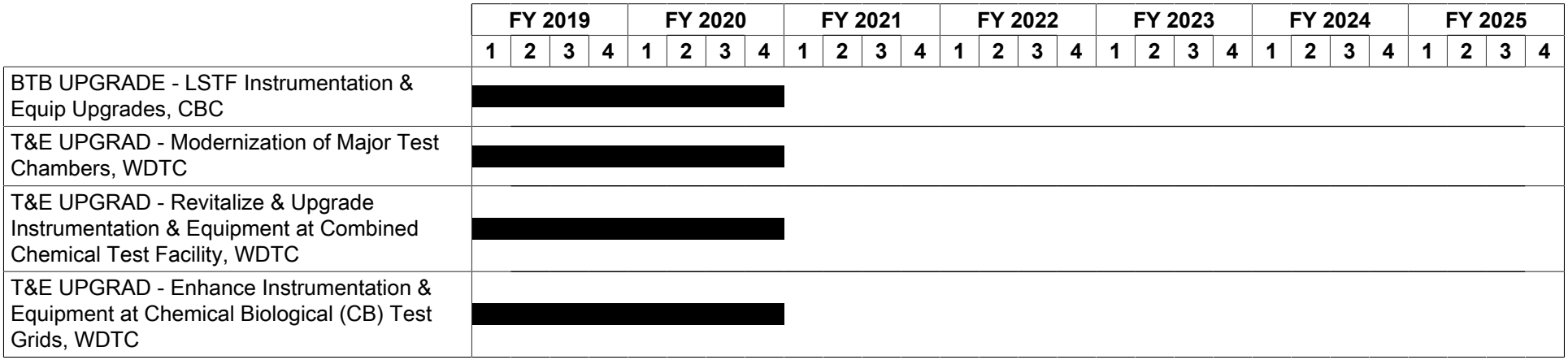

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Chemical and Biological Defense Program		Date: February 2020
Appropriation/Budget Activity 0400 / 7	**R-1 Program Element (Number/Name)** PE 0607384BP / *CHEMICAL/BIOLOGICAL DEFENSE (OP SYS DEV)*	**Project (Number/Name)** TE7 / *Test & Evaluation (Op Sys Dev)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
BTB UPGRADE - LSTF Instrumentation & Equip Upgrades, CBC	1	2019	4	2020
T&E UPGRAD - Modernization of Major Test Chambers, WDTC	1	2019	4	2020
T&E UPGRAD - Revitalize & Upgrade Instrumentation & Equipment at Combined Chemical Test Facility, WDTC	1	2019	4	2020
T&E UPGRAD - Enhance Instrumentation & Equipment at Chemical Biological (CB) Test Grids, WDTC	1	2019	4	2020