Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Defense Threat Reduction Agency											Date: March 2019	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 1: *Basic Research*					R-1 Program Element (Number/Name) PE 0601000BR / *DTRA Basic Research*							
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
Total Program Element	288.938	36.369	37.023	26.000	-	26.000	25.500	24.500	24.000	24.481	Continuing	Continuing
RU: *Basic Research for Countering WMD*	288.938	36.369	37.023	26.000	-	26.000	25.500	24.500	24.000	24.481	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Basic Research for Countering WMD project, as the nation's primary basic research portfolio solely dedicated to countering weapons of mass destruction (CWMD), is a core strategic investor in future scientific progress across the spectrum of the Defense Threat Reduction Agency's (DTRA) CWMD mission areas. This project concentrates on high risk, high-payoff research, leveraging world-class expertise in academia, government, and industry to increase the foundational body of scientific knowledge supporting DTRA's Applied Research and Advanced Technology Development budget projects.

This project aligns with DTRA's strategic objectives that support policy and planning guidance from the Office of the President, the Department of Defense (DoD), and the broader WMD threat reduction and consequence management communities. The portfolio addresses this guidance through S&T investments that support CWMD and reduce global nuclear dangers. Program managers drive interdisciplinary portfolios primarily drawing from physics, chemistry, biology, mathematics, and information and network sciences. The portfolios themselves are broadly focused on fundamental, exploratory research to support the development of: standoff radiological/nuclear detection capabilities; countermeasures and defenses to non-traditional agents; nuclear detection in-depth understanding of the capabilities, values, intent, and decision making of potential adversaries, whether they are states, networks, or individuals; WMD agent defeat technologies; and biologically-based and -inspired materials for DoD applications.

This project maintains a robust, forward-looking portfolio targeting mission-focused research demonstrating scientific merit, technical quality, and the potential for breakthrough discoveries.

B. Program Change Summary ($ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	37.201	37.023	37.229	-	37.229
Current President's Budget	36.369	37.023	26.000	-	26.000
Total Adjustments	-0.832	0.000	-11.229	-	-11.229
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.832	-			
• Realignments	-	-	-11.229	-	-11.229

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Change Summary Explanation

The decrease in FY 2020 is due to reduced investment in basic research to fund increased investment in technical reachback and quick reaction capabilities in Project RA-CWMD Cross-Cutting Technical and Information Sciences in Program Element 0603160BR. The Basic Research portfolio was restructured to establish a University Partnership (UP) model with a new prioritization process. This process will focus novel UP research on high-priority CWMD gaps, to include energetics and reactives, nuclear data, weapons effects, materials science, machine learning, radiation biology, advanced analytics, and other critical areas. This model reduces administrative burdens and increases technical collaboration with partners focused on current and emerging areas of interest thereby allowing for reduced investment in FY 2020.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency			Date: March 2019
Appropriation/Budget Activity 0400 / 1	R-1 Program Element (Number/Name) PE 0601000BR / *DTRA Basic Research*	Project (Number/Name) RU / *Basic Research for Countering WMD*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
RU: *Basic Research for Countering WMD*	288.938	36.369	37.023	26.000	-	26.000	25.500	24.500	24.000	24.481	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Basic Research for Countering WMD project, as the nation's primary basic research portfolio dedicated to countering weapons of mass destruction (CWMD), is a core strategic investor in future scientific and technological progress across the full spectrum of the Defense Threat Reduction Agency's (DTRA's) mission areas. This project concentrates on high risk, high-payoff basic research, leveraging world-class expertise in academia, government, and industry, to increase the foundational body of scientific knowledge supporting DTRA's Applied Research and Advanced Technology Development projects.

This project aligns with DTRA's strategic objectives that support policy and planning guidance from the Office of the President, the Department of Defense (DoD), and the broader WMD threat reduction community. The portfolio addresses this guidance through capability enhancements, projects, and Science and Technology (S&T) investments that support CWMD and reduce global nuclear dangers. Specifically, they include: accelerating the development of standoff radiological/nuclear detection capabilities; researching countermeasures and defenses to non-traditional agents; securing vulnerable materials; developing an in-depth understanding of the capabilities, values, intent, and decision making of potential adversaries, whether they are states, networks, or individuals; defeating WMD agents; researching biologically-based and inspired materials for DoD applications; and leveraging science, technology, and innovation through domestic and international partnerships and agreements.

This project solicits, coordinates, and conducts research to build a robust, forward-looking fundamental research portfolio targeting strategic, mission-focused, basic research with high potential impact for CWMD. The research projects are selected for scientific merit, technical quality, and the potential for innovation. Each research project offers opportunities to expand the knowledge base to help the warfighter, to bring to bear new science solutions with a fresh approach, or to leverage revolutionary approaches to technical surprise, building a foundation for future CWMD solutions. This research will enable new capabilities to: better understand the environment, threats and vulnerabilities; control, defeat, disable, and/or dispose of WMD threats; and safeguard the force by managing consequences.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: Project RU: Basic Research for Countering WMD	36.369	37.023	26.000
Description: Project RU funds the exploration and discovery of fundamental scientific knowledge related to DTRA's CWMD mission by research performers from academia, government, and industry. ***FY 2019 Plans:*** - Manage and steer the CWMD Basic Research portfolio, comprised of approximately 150 active basic research awards on three- to five-year cycles. This portfolio continues to address DoD CWMD science and technology requirements, supporting specific priorities focused on current and emerging areas of interest. - Support collaborative relationships within the scientific community and ensure progress toward technical objectives through an annual technical review of each grant to assess scientific advancement.			

Exhibit R-2A, RDT&E Project Justification: PB 2020 Defense Threat Reduction Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 1	**R-1 Program Element (Number/Name)** PE 0601000BR / *DTRA Basic Research*	**Project (Number/Name)** RU / *Basic Research for Countering WMD*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
- Support the development of world-class talent in WMD research at universities and laboratories to foster the future Science, Technology, Engineering, and Mathematics (STEM) workforce. - Conduct an Internal Portfolio Review to assess the focus and scope of the portfolio related to CWMD challenges and assess the coordination of CWMD basic research across the DoD mission space and the broader basic research community to avoid duplication and ensure successful partnerships. ***FY 2020 Plans:*** - Continue transition toward a university partnership model consisting of consortia focused on select topics. This model reduces administrative burdens and increases technical collaboration with partners focused on current and emerging areas of interest. - Strengthen collaborative relationships within the scientific community and ensure progress toward technical objectives through annual independent technical reviews. - Continue to support the long-term development of a world-class STEM workforce focused on CWMD research. - Continue to conduct an Internal Portfolio Review to assess the focus and scope of basic research related to CWMD challenges. Assess DTRA's coordination of CWMD basic research across DoD and broader basic research community. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** The decrease from FY 2019 to FY 2020 is due to reduced investment in basic research to fund increased investment in reachback and quick reaction capabilities in Project RA-CWMD Cross-Cutting Technical and Information Sciences.			
Accomplishments/Planned Programs Subtotals	36.369	37.023	26.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Procurement methods include competitive selection awards through university partnerships, DTRA's Broad Agency Announcement, and collaborative funding through other organizations.

E. Performance Metrics

Project performance is measured by the number of publications from active research projects, the number of students trained in science and engineering research supporting DTRA's CWMD mission, the number of participating research organizations actively engaged in university partnerships, and the percentage of research projects transitioned to other programs for further development across DoD's research and engineering enterprise.