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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Office of the Secretary Of Defense **Date:** February 2016

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0303310D8Z / <i>Countering Weapons of Mass Destruction (CWMD) Systems: Advanced Technology Development (ATD)</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	86.953	44.690	42.404	44.836	-	44.836	42.436	45.874	46.503	47.411	Continuing	Continuing
P*004: <i>Countering Weapons of Mass Destruction Systems</i>	86.953	44.690	42.404	44.836	-	44.836	42.436	45.874	46.503	47.411	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Countering Weapons of Mass Destruction (CWMD) Systems program is researching, developing, integrating, testing, and deploying, a CWMD situational awareness system. This system will enable a comprehensive, global capability for situational awareness of threats from Weapons of Mass Destruction (WMD) as well as global efforts to counter those threats. This system will enable a shared understanding of the CWMD operating environment and will support planning and decision-making by the U.S. government and its partners. The CWMD mission space is characterized by immense amounts of information, such as the characteristics and location of WMD related facilities and materials, personnel and expertise, and dual-use technologies. The CWMD Systems program comprises next-generation advanced information technologies, coupled with affiliated fusion cells, to locate, gather, access, share, and visualize this WMD-relevant information to facilitate collaboration and decision-making. These solutions will revolutionize CWMD knowledge management, providing decision makers and operational personnel a dynamic, tailorable, and holistic view of the global CWMD operating environment.

The diversity and complexity of the CWMD mission requires an integrated approach toward capability development, based on a systems perspective that links strategic objectives with interrelated tasks and associated capabilities. The CWMD mission is intertwined with counter-terrorism and homeland defense and hence system development must leverage and integrate complementary technologies developed to support other mission areas. The CWMD Systems program also will enable international collaboration in countering WMD by breaking down unnecessary data stove-pipes and by enabling the U.S. Government and its partners to access and share knowledge.

This program also responds to the strategic needs outlined in the 2014 Quadrennial Defense Review (QDR), the Department of Defense (DoD) Strategy for Countering WMD, the FY2016-2020 Defense Planning Guidance (DPG), and capability requirements approved by the Joint Requirements Oversight Council (JROC). The CWMD Systems program will develop and field a global CWMD situational awareness capability to meet the needs of Combatant Commands, the Office of the Secretary of Defense (OSD), the Joint Staff, the Services, and Defense Agencies. Other U.S. Government Departments and Agencies will be able to utilize this capability to support their mission needs and collaborate with the DoD. This program is designed to leverage existing DoD resources and proven approaches to achieve its goals and rapidly deliver an operational capability.

The CWMD Systems portfolio is supported by two Research, Development, Test & Evaluation (RDT&E) program elements (0303310D8Z for RDT&E of advanced materiel and non-materiel solutions, and 0607310D8Z for upgrades or improvements to fielded systems), as well as an Operations and Maintenance (O&M) "CWMD Sustainment" line (ORC-2531) for program sustainment and administrative costs associated with analyses, oversight, and portfolio management.

This Program Element (PE) will fund travel to support the requirements of this program.

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This appropriation will finance work, including manpower, performed by a government agency or by private individuals or organizations under a contractual or grant arrangement with the government who conduct research, development and test and evaluation efforts.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	46.001	42.488	45.335	-	45.335
Current President's Budget	44.690	42.404	44.836	-	44.836
Total Adjustments	-1.311	-0.084	-0.499	-	-0.499
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.018	-			
• SBIR/STTR Transfer	-1.293	-			
• FFRDC	-	-0.084	-	-	-
• Economic Adjustments	-	-	-0.347	-	-0.347
• Fiscal Guidance Adjustment	-	-	-0.152	-	-0.152

Change Summary Explanation

Increase necessary to transfer emerging capabilities from the Build 1 Developmental Prototype (DP1) to the Build 0 Operational Testing of New Technologies in FY17.

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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
<i>P*004: Countering Weapons of Mass Destruction Systems</i>	86.953	44.690	42.404	44.836	-	44.836	42.436	45.874	46.503	47.411	Continuing	Continuing

A. Mission Description and Budget Item Justification

The CWMD Systems program is researching, developing, integrating, testing, and deploying a CWMD situational awareness system. This system will enable a comprehensive, global capability for situational awareness of threats from WMD as well as global efforts to counter those threats. This system will enable a shared understanding of the CWMD operating environment and will support planning and decision-making by the U.S. government and its partners. The CWMD mission space is characterized by immense amounts of information, such as the characteristics and location of WMD-related facilities and materials, personnel and expertise, and dual-use technologies. The CWMD Systems program comprises next-generation advanced information technologies, coupled with affiliated fusion cells, to locate, gather, access, share, and visualize this WMD-relevant information to facilitate collaboration and decision-making. These solutions will revolutionize CWMD knowledge management, providing decision makers and operational personnel a dynamic, tailorable, and holistic view of the global CWMD operating environment.

The diversity and complexity of the CWMD mission requires an integrated approach toward capability development, based on a systems perspective that links strategic objectives with interrelated tasks and associated capabilities. The CWMD mission is intertwined with counter-terrorism and homeland defense and hence system development must leverage and integrate complementary technologies developed to support other mission areas. The CWMD Systems program also will enable international collaboration in countering WMD by breaking down unnecessary data stove-pipes and by enabling the U.S. Government and its partners to access and share knowledge.

This program also responds to the strategic needs outlined in the 2014 QDR, the DoD Strategy for Countering WMD, the FY2016-2020 DPG, and capability requirements approved by the JROC. The CWMD Systems program will develop and field a global CWMD situational awareness capability to meet the needs of Combatant Commands, the OSD, the Joint Staff, the Services, and Defense Agencies. Other U.S. Government Departments and Agencies will be able to utilize this capability to support their mission needs and collaborate with the DoD. This program is designed to leverage existing DoD resources and proven approaches to achieve its goals and rapidly deliver an operational capability.

The CWMD Systems portfolio is supported by two RDT&E program elements (0303310D8Z for RDT&E of advanced materiel and non-materiel solutions, and 0607310D8Z for upgrades or improvements to fielded systems), as well as an O&M line "CWMD Sustainment" (ORC-2531) for program sustainment and administrative costs associated with analyses, oversight, and portfolio management.

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<p>Title: Countering Weapons of Mass Destruction (CWMD) Systems</p> <p>Description:</p> <ul style="list-style-type: none"> • Research, develop, test, and evaluate materiel and non-materiel solutions to locate, gather, fuse, share, and visualize WMD and CWMD information, and facilitate collaboration and decision-making. • CWMD Systems will support development of capabilities to: identify, classify and prioritize global WMD threats and vulnerabilities; maintain awareness of US and partner CWMD activities; support US and partner planning and decision making for CWMD; support collaboration across the CWMD community; and visualize information for analysts, operators, and decision-makers. • Materiel solutions will include an enterprise-scale common data and applications platform (named Constellation), operating on the DoD Information Network (DoDIN), specifically the Non-classified Internet Protocol Router Network (NIPRNet), the Secret Internet Protocol Router Network (SIPRNet), and the Joint World-wide Intelligence Communications System (JWICS), as well as interfacing with off-DODIN information sources via open-source protocols. • The Constellation information system will obtain, analyze, and fuse global information about WMD threat and CWMD operations, activities, and plans, and provide analysts, operators, and decision-makers access to this information via a single, comprehensive information environment. • Non-materiel solutions include affiliated fusion cells that will monitor, analyze, and disseminate integrated WMD intelligence and information and CWMD activities in support of Combatant Commands, the Services, Defense Agencies, and U.S. Government partners in the CWMD mission. Information sharing with foreign governments will be governed by applicable policy and statute. <p>FY 2015 Accomplishments:</p> <ul style="list-style-type: none"> • Continued development and integration of software applications tied to demonstrations, exercises, experiments, and deployments. • Completed staffing of two 20-person fusion cells at the Defense Threat Reduction Agency (DTRA) / U.S. Strategic Command (USSTRATCOM) Center for Combating Weapons of Mass Destruction (DTRA/SCC-WMD) and the Defense Intelligence Agency (DIA). Trained personnel in fusion cells, and developed, tested, and implemented workflows for analysis, reachback support, and feedback to support ongoing development of data and applications capabilities. • Continued to build/upgrade/modify the required infrastructure, including hardware and software for computational and processing capabilities, training, and organizational support. • Achieved network and system certifications and accreditations for mature technologies that were deployed as part of risk reduction effort to meet emerging needs of users. • Rapidly developed and deployed an unclassified interagency dashboard for information sharing across the U.S. Government to enable common situational awareness of the Ebola outbreak in West Africa and U.S. and international response efforts. The Ebola dashboard attracted over 800 users from over 100 different U.S. Government offices. 	44.690	42.404	44.836

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> • At the request of U.S. Central Command (USCENTCOM), supported stand-up of USCENTCOM's WMD Pathway Defeat organization through table-top exercises, focused on deliberate planning for a real-world WMD challenge in the USCENTCOM region. • Conducted an interagency table-top exercise for U.S. Embassy in Singapore, partnered with Naval Postgraduate School (NPS) and U.S. Special Operations Command (USSOCOM), Pacific, in Aug 2015, focused on WMD counterproliferation and additive manufacturing. • Sustained technical partnerships with the United Kingdom's (UK) Defense Science and Technology Laboratory (DSTL) to develop interoperability between U.S. and UK cloud environments and with Navy, Air Force, Army, and Strategic Capabilities Office (SCO) for cooperative development of the Tactical Cloud Reference Implementation (TCRI) data and analytics framework. <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> • Receive approval of CWMD Situational Awareness (SA) Information System Initial Capabilities Document (IS ICD) by the JROC and refine capability needs based on user input and feedback on developmental prototype. • Receive authorities to operate developmental prototype information system (named Constellation) on NIPRNET, SIPRNET, and JWICS networks and a secure instance on the World Wide Web. • Implement initial cross-domain solutions to securely transfer information from lower classification networks to higher classification networks. • Deploy Constellation developmental prototype by third quarter of fiscal year 2016 for limited set of users at Combatant Commands, DTRA, and DIA. • Expand Combatant Command, interagency, and international mission partnerships to identify user needs, support system development, develop data access and sharing agreements, and initial use of prototype information system. • Achieve full Manning (level of effort and skillset) capacity for fusion cells. • Conduct table-top and operational exercises and experiments to further refine Combatant Command, interagency and other mission partner user needs, including injects into multiple high-profile DoD exercises. <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> • Transition Constellation developmental prototype to operational prototype in third quarter of fiscal year 2017. • Expand user base to include all Combatant Commands and other DoD Components as well as key U.S. Government agencies and Allied governments. • Implement cross-domain solutions to securely transfer data across multiple classification domains and information networks. Target capabilities may include federated query across classification boundaries. 			
Accomplishments/Planned Programs Subtotals	44.690	42.404	44.836

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C. Other Program Funding Summary (\$ in Millions)
N/A

Remarks

D. Acquisition Strategy
Assess utility of CWMD Situational Awareness information system (Constellation) beginning with the deployment of a developmental prototype in FY16 with incremental capability releases that mature into an operational CWMD situational awareness capability, through application of agile infrastructure and software development methodologies.

E. Performance Metrics
Success in this area is measured by compliance with various statutes and DoD directives that govern the conduct of the affairs within the Office of the Assistant Secretary of Defense for Nuclear, Chemical and Biological Defense Programs (OASD/NCB). Maintain cost, schedule, and performance reporting, review, and adjudication. Maintain requirements traceability matrix.