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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 6: RDT&E Management Support</i>	R-1 Program Element (Number/Name) PE 0605706A / <i>Materiel Systems Analysis</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	21.233	21.830	21.558	-	21.558	-	-	-	-	-	-
541: <i>Materiel Sys Analysis</i>	-	21.233	21.830	21.558	-	21.558	-	-	-	-	-	-

A. Mission Description and Budget Item Justification

This Program Element (PE) resources the Combat Capabilities Development Command (CCDC) Data and Analysis Center (DAC) to conduct integrated material performance analyses to support Army decisions in technology, materiel acquisition, and the design, development, fielding and sustainment of Army materiel systems. The analysis products funded by this PE are leveraged to support Materiel Acquisition decisions and influence the design, development, and sustainment of Army weapon/materiel systems in support of the current and future force in the areas of Long Range Precision Fires, Next Generation Combat Vehicles, Future Vehicle Lift, Network/Command, Control, Communications and Intelligence, Air and Missile Defense, Soldier Lethality and other Army Priority efforts.

As the Army's center for integrated materiel performance analysis, the CCDC DAC supports Army and Department of Defense (DoD) decision makers throughout the entire acquisition process in responding to analytical requirements across the full spectrum of materiel. The DAC's unique in-house, consistent, integrated analytical capability provides the Army Futures Command (AFC) and Army leadership with timely, independent, unbiased, reliable, and high quality analysis to support complex decisions required for Current Operations and the development of the Future Force. The DAC's integrated set of skills, tools, and data repository are focused on the highest Army Priorities with a core mission to build the body of evidence and deliver objective analysis and experimentation across the entire life cycle to ensure Readiness today and a more lethal Future Force tomorrow.

This PE develops and certifies system level, and systems-of-systems level, performance and effectiveness data across a broad range of capabilities such as target acquisition, probability of inflicting catastrophic damage, personnel and vehicle survivability, mobility, network, system reliability, and several additional capability areas used in Army studies. The PE funds the development of item-level performance methodology, and Models and Simulations (M&S) for the current and future operational environments and emerging threats. The M&S capabilities support the development, linkage and accreditation of live, virtual, and constructive simulations, and provide unique tools that support systems analysis of individual systems and the combined arms environment. This M&S infrastructure provides a hierarchical modeling framework that is unique to the DAC and allows for a comprehensive performance and effectiveness analysis and prediction capability that can be utilized to support trade-off and investment decisions prior to extensive and expensive hardware testing of proposed systems/technologies.

This PE funds the Center for Reliability Growth (CRG), to develop critical tools, methodologies, policies, guidance and educational materials required to help acquisition programs achieve required reliability during the acquisition process. The CRG develops and applies engineering approaches to assess the reliability of Army materiel and provides recommendations on ways to improve reliability, thereby, reducing logistics footprints and life cycle costs, and extending failure-free periods for materiel. The CRG has developed an integrated set of skills and tools focused on its core competencies to be responsive in delivering objective data and analysis across the entire life cycle to ensure Readiness today and a more lethal future force tomorrow.

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B. Program Change Summary (\$ in Millions)	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022 Base</u>	<u>FY 2022 OCO</u>	<u>FY 2022 Total</u>
Previous President's Budget	21.342	21.859	21.824	-	21.824
Current President's Budget	21.233	21.830	21.558	-	21.558
Total Adjustments	-0.109	-0.029	-0.266	-	-0.266
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.109	-0.029			
• Adjustments to Budget Years	-	-	-0.266	-	-0.266

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Appropriation/Budget Activity 2040 / 6					R-1 Program Element (Number/Name) PE 0605706A / <i>Materiel Systems Analysis</i>				Project (Number/Name) 541 / <i>Materiel Sys Analysis</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
541: <i>Materiel Sys Analysis</i>	-	21.233	21.830	21.558	-	21.558	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

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As the Army's center for integrated materiel performance analysis, the CCDC DAC supports Army and Department of Defense (DoD) decision makers throughout the entire acquisition process in responding to analytical requirements across the full spectrum of materiel. The DAC's unique in-house, consistent, integrated analytical capability provides Army Futures Command (AFC) and Army leadership with timely, independent, unbiased, reliable, and high quality analysis to support complex decisions required for Current Operations and the development of the Future Force. The DAC's integrated set of skills, tools and data repository are focused on the highest Army Priorities with a core mission to build the body of evidence and deliver objective analysis and experimentation across the entire life cycle to ensure Readiness today and a more lethal Future Force tomorrow.

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

	FY 2020	FY 2021	FY 2022
Title: Materiel Systems Analysis	21.233	21.830	21.558

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Appropriation/Budget Activity 2040 / 6	R-1 Program Element (Number/Name) PE 0605706A / <i>Materiel Systems Analysis</i>	Project (Number/Name) 541 / <i>Materiel Sys Analysis</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
<p>Description: This activity provides for systems and engineering analyses to support the entire Future Force Modernization Enterprise decisions in technology, materiel acquisition, and the design, development, fielding and sustainment of Army materiel systems; the development of system level performance and effectiveness data and item-level performance methodology, and models and simulations; and the development of critical tools, methodologies, policies and guidance as the Center for Reliability Growth to improve reliability, extend failure-free periods, and reduce support costs.</p> <p>FY 2021 Plans: Continue to conduct materiel systems analysis through the development and enhancement of comprehensive sets of system performance data and essential verified and validated item/system level methodologies, tools, and models and simulations. Continue to provide analytical support to Test and Evaluation (T&E) planning, to reduce testing through the use of modeling and simulation, and to provide software analysis and reliability capabilities to support T&E. Conduct follow-on studies for major Army programs undergoing engineering change proposals and continue to provide essential certified weapons system performance data for all major Army studies. Continue to provide critical tools, policies and educational materials as the Army's Center for Reliability Growth to improve system reliability throughout the acquisition process. Continue to provide extensive analytical support to the Cross Functional Teams (CFTs) to include Analysis of Alternatives (AoA's), system cost/performance tradeoffs, early technology trade-offs, weapons/systems mix analyses, system Technical and Schedule risk assessments, business case analyses, cost benefit analyses, requirements analyses, technology insertion studies, reliability growth studies, and Physics of Failure (PoF) analyses. Conduct systems analysis and assessments in support of multiple efforts including Mobile-Short-Range Air Defense (M-SHORAD), Future Vehicle Lift (FVL), Assured-Positioning, Navigation and Timing (A-PNT), Network, Next Generation Combat Vehicle Quarterback, Directed Energy systems, Autonomous Vehicles, Artificial Intelligence, Multi-Domain Operations, Active Protection Systems, and Electronic Warfare, and Army Futures Command/Combat Capabilities Development Command's highest priority platforms, technologies and weapon systems. For systems analyzed, provide relevant data and results to materiel developers and senior decision makers to support acquisition decisions.</p> <p>FY 2022 Plans: Will conduct integrated material performance analysis by developing, collecting, and retaining technology and system performance data as AFC's repository for the body of evidence concerning Army technologies and systems. Will develop and maintains essential verified and validated item/system level methodologies, tools, and models and simulations. Will provide extensive analytical support to the CFTs to include AoA's, system cost/ performance tradeoffs, early technology trade-offs, weapons/systems mix analyses, system Technical and Schedule risk assessments, business case analyses, cost benefit analyses, requirements analyses, technology insertion studies, reliability growth studies, and PoF analyses. Will provide analytical support to the planning and conduct of T&E). Will perform follow-on studies for major Army programs undergoing engineering change proposals and provide essential certified weapons system performance data for all major Army studies. Will provide critical tools, policies and educational materials as the Army's Center for Reliability Growth to improve system reliability throughout the acquisition process. Will conduct systems analysis and assessments in support of multiple high-priority programs</p>			

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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2020	FY 2021	FY 2022
including Long Range Precision Fires systems, Next Generation Combat Vehicles, Future Vertical Lift, Network / Command, Control, Communications and intelligence (C3I), Air & Missile Defense, Soldier Lethality, and other highest Army priority efforts. For systems and technologies analyzed will provide relevant data and results to materiel developers, evaluators, senior decision makers, and downstream force-on-force modelers to support acquisition decisions.			
<i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> Decrease reflects adjustment for inflation.			
Accomplishments/Planned Programs Subtotals	21.233	21.830	21.558

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

N/A

Remarks

D. Acquisition Strategy

N/A