Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army	Date: April 2022
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603305A *I Army Missle Defense Systems Integration*

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	139.518	56.702	12.001	-	12.001	12.708	12.951	12.952	13.078	0.000	259.910
TR5: *Missile Defense Battlelab*	-	139.518	56.702	12.001	-	12.001	12.708	12.951	12.952	13.078	0.000	259.910

A. Mission Description and Budget Item Justification

This Program Element (PE) funds missile defense systems integration efforts for the US Army Space and Missile Defense Command.in its role as the Army Service Component Command (ASCC) to USSTRATCOM and USSPACECOM.

USASMDC: Headquarters, Department of the Army General Order 37, dated 16 October 2006, designated USASMDC as the Army proponent for ground-based midcourse defense (GMD), the Army integrator for global missile defense, and the ASCC of the U.S. Strategic Command (USSTRATCOM). Upon its establishment, USASMDC became the ASCC of the United States Space Command (USSPACECOM). Army Regulation (AR) 10-87 Army Commands, Army Service Component Commands, and Direct Reporting Units, dated 4 September 2007 and AR 5-22 The Army Force Modernization Proponent System dated 19 August 2009 designates USASMDC as the Army specified proponent for Global Missile Defense (GMD) capabilities. As the Army proponent for GMD, USASMDC is responsible for developing warfighting concepts, conducting warfighting experiments to validate those concepts, identifying capabilities needed to implement the validated concepts, and developing Doctrine, Organizations, Training, Material, Leadership & Education, Personnel, Facilities and Policy (DOTMLPF-P) solutions to realize GMD capabilities. As the Army integrator for global missile defense, USASMDC is responsible for reviewing programs managed by the Army, other Services, Defense agencies and National agencies to ensure that they are correctly synchronized and will ultimately provide the capabilities required by USSTRATCOM and USSPACECOM to execute their global missile defense responsibilities.

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	140.195	11.702	0.000	-	0.000
Current President's Budget	139.518	56.702	12.001	-	12.001
Total Adjustments	-0.677	45.000	12.001	-	12.001
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	45.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	12.001	-	12.001
• Adjustment to the execution year	-0.677	-	-	-	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army	Date: April 2022
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603305A *I Army Missle Defense Systems Integration*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Project: TR5: *Missile Defense Battlelab*		
Congressional Add: *Program increase - pragmatic artificial intelligence and new technology*	10.500	-
Congressional Add: *Program increase - integrated environmental control and power*	16.000	5.000
Congressional Add: *Program increase - hot air tunnel and MESO technologies for hypersonics*	47.000	-
Congressional Add: *Program increase - conventional mission capabilities*	10.250	-
Congressional Add: *Program increase - air and missile system critical technology development*	12.000	-
Congressional Add: *Program increase - advanced technology end?to?end testbed*	10.500	-
Congressional Add: *Program increase - gun launched interceptors*	8.000	-
Congressional Add: *Program increase*	15.000	-
Congressional Add: *Electro-Magnetic Denial and Protect*	-	6.000
Congressional Add: *Multiple Engagement End-To-End Testbed*	-	2.500
Congressional Add: *A2IFS (Advanced Dynamic and Features Simulation)*	-	23.500
Congressional Add: *PNT Resiliency Lab*	-	8.000
Congressional Add Subtotals for Project: TR5	129.250	45.000
Congressional Add Totals for all Projects	129.250	45.000

Change Summary Explanation

FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 4	R-1 Program Element (Number/Name) PE 0603305A / *Army Missle Defense Systems Integration*	Project (Number/Name) TR5 / *Missile Defense Battlelab*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
TR5: *Missile Defense Battlelab*	-	139.518	56.702	12.001	-	12.001	12.708	12.951	12.952	13.078	0.000	259.910
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Program Element (PE) funds the Strategic Missile Defense (SMD) Force Development activities of the United States Army Space and Missile Defense Command (USASMDC) Space and Missile Defense Center of Excellence (SMDCoE). The SMDCoE is the warfighting function lead and Department of the Army force modernization proponent to develop the associated operational prototyping, experimentation, operational analysis, and modeling and simulation in support of missile defense capabilities for current and future Forces. The SMDCoE SMD Force Development workforce support the research and doctrine development from one of the SMDCoE principle locations in Huntsville, AL; Colorado Springs, CO; and Joint Base Langley-Eustis. As the Army proponent for SMD, USASMDC is responsible for developing warfighting concepts, conducting warfighting experiments to validate those concepts, identifying capabilities needed to implement the validated concepts, and developing Doctrine, Organizations, Training, Material, Leadership & Education, Personnel, Facilities and Policy (DOTMLPF-P) solutions to develop future SMD capabilities. As the Army integrator for SMD, USASMDC is responsible for reviewing programs managed by the Army, other Services, Defense agencies and National agencies to ensure that they are correctly synchronized and will ultimately provide the capabilities required by USSTRATCOM and USSPACECOM to execute their strategic missile defense responsibilities.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Prototypes	1.602	1.713	1.720
Description: Develop and assess current SMD technologies and assess capabilities through participation in wargames and experiments.			
FY 2022 Plans: Take the lessons learned from the FY 2021 efforts to continue to evaluate new technologies in realistic operating environments. This is accomplished by participating in and providing support to Unified Quest wargames and experiments to analyze and integrate technology to identify the feasibility integration into Army missile defense systems. The Space and Missile Defense Command will participate and support biennial rewrites of Army Capstone, Operational and Functional Concepts. Continue to provide operational manager support to USSTRATCOM, USNORTHCOM and USSOCOM Joint Technical Capability Demonstrations to ensure Army missile defense equities are represented in advanced technology developments by demonstrating military utility when applied to military equipment and techniques. Examples include: supporting multi service experiments and capability development of the national-directed Phased Adaptive Approach (PAA) for Ballistic Missile Defense (BMD) as it is applied to each of the regional CCMDs; developing effective Integrated Missile Defense concepts for Army support to the Phased Adaptive Approach (PAA) being implemented within each regional CCMD. A focus area will be improving upon the Missile Defeat Integrated Capability Development Working Group formed in FY 2020 with additional experimentation aimed			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603305A / *Army Missle Defense Systems Integration*	**Project (Number/Name)** TR5 / *Missile Defense Battlelab*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
at further improving the timeliness and effectiveness of counter ballistic missile time sensitive targeting. Continue support to TRADOC proponents with their responsibilities relative to doctrine, organization, training, material, leader development and education, personnel, facilities and policy (DOTMLPF-P) plus related matters to continue missile defense proponent input to Joint Capabilities Integration and Development System (JCIDS), Science and Technology, Concept Development, and Capability Development. Provide Government program management and oversight for DOTMLPF-P development and analysis for missile defense-related programs for which USASMDC is the Army's proponent - Ground-based Midcourse Defense System, the Army Navy/Transportable Radar Surveillance and Control Model 2 (AN/TPY-2) Forward-based Mode Radar (FBM), and Army-specific applications of the Command and Control, Battle Management and Communications program. Specifically, provide support to Ground-based Midcourse Defense (GMD) Missile Field #4 (MF4) development and construction. Provide support to recapitalized MEP-810C generator fielding and radar site power conversion activities in USINDOPACOM AOR. Provide Hardened Transportable Terminal fielding to USCENTCOM, USINDOPACOM, and USEUCOM AORs and continue to support C2BMC software development, integration, fielding, and operations & sustainment activities. Provide Government program management and oversite for National Capital Region's Integrated Air Defense System. ***FY 2023 Plans:*** USASMDC SMDCoE will continue to pursue Army modernization priorities through participation in the Joint Warfighting Concept and support to combatant command wargaming, experimentation and concept development. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Adjustment to economic assumptions.			
Title: Analysis, and Models and Simulations (M&S) ***Description:*** USASMDC is the proponent for multiple models and simulations (M&S) critical to the Army and Joint analysis, exercise, wargaming, and experimentation communities. ***FY 2022 Plans:*** Take the lessons learned from the FY 2021 efforts and continue to evaluate new technologies in realistic operating environments. This will be accomplished by supporting ongoing efforts that provide the most realistic operating environment available to perform technology gap and cost reduction analysis of missile defense systems. Realistic operating environments will be available to determine the ability of the specific technologies to fill capability gaps in terms of utility to the warfighter. Support of technology demonstrations, Analysis and Demonstration Tools/Test Beds for evolving missile defense concepts will address emerging needs and continue to be expanded to ensure that advanced technology development can adequately enhance missile defense capabilities. The Space and Missile Defense Center of Excellence (SMD CoE) will continue to provide program management for maintenance, sustainment, and development for Extended Air Defense Simulation (EADSIM) delivering the required high fidelity synthetic operating environment to provide the capability to perform system and cost benefit analysis, operational planning, and	0.701	0.750	0.753

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603305A / *Army Missle Defense Systems Integration*	**Project (Number/Name)** TR5 / *Missile Defense Battlelab*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
exercise/ experimentation support. The SMD CoE will continue to provide program management for maintenance, sustainment, and development for Reconfigurable Tactical Operations Simulator (RTOS) and Future Force Experimentation Air Defense Simulation (FFEADS) delivering operator in the loop capability for air and missile defense simulation in distributed exercises and experiments. The SMD CoE will continue to provide program management for maintenance, sustainment, and development for for the Joint Embedded Messaging System (JEMS) providing data translation application that enables communications between disparate systems, protocols and architectures. These funds will be executed by USASMDC SMD CoE. ***FY 2023 Plans:*** Continue improve Missile Defense analysis, advanced modelling and simulations by leveraging lessons learned from previous efforts. Evaluate new technologies in realistic operating environments to accurately reflect modern missile defense capabilities. Develop the Future Force Experimentation Air Defense System (FFEADS) simulation model to provide operator-in-the-loop representations of all Army air and missile defense weapon, and command and control systems. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Adjustment to economic assumptions.			
Title: Disruptive Concepts and Technologies Development ***Description:*** Provide concept development / DOTMLPF-P support to the Army Air and Missile Defense Cross Functional Team (AMD CFT) for priority programs. ***FY 2022 Plans:*** Current efforts are focused on maturing operating concepts leveraging advanced technologies to include Artificial Intelligence Air and Missile Defense (AIAMD), enduring Indirect Fires Protection Capability (IFPC) and laser technology air and missile defense protection systems. ***FY 2023 Plans:*** USASMDC SMDCoE maintains focus on developing concepts to integrate emerging technologies which support the development of next generation capabilities to match, then outpace the threat in order to ensure success in competition, crisis, conflict, and change. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Adjustment to economic assumptions.	6.262	7.296	7.700
Title: Strategic Missile Defense Operations Resourcing and Support ***Description:*** Requirement supports the SMDCoE responsibility to provide resources to support underlying operating expenses for the strategic missile defense force development mission area.	1.703	1.820	1.828

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603305A / *Army Missle Defense Systems Integration*	**Project (Number/Name)** TR5 / *Missile Defense Battlelab*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
FY 2022 Plans: Resources provide the support staff for senior SMDCoE leadership, budget and program support, reimbursement for Army Contracting Command (ACC), and a variety of logistical support requirements all necessary to sustain operations and ensure efficient accomplishment of the larger force development mission. ***FY 2023 Plans:*** Continue to provide operational and logistical support to ensure the long range planning and overall mission accomplishment of the Army SMDCoE. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Adjustment to economic assumptions.			
Title: SBIR/STTR Transfer ***Description:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638	-	0.123	-
Accomplishments/Planned Programs Subtotals	10.268	11.702	12.001

	FY 2021	FY 2022
Congressional Add: Program increase - pragmatic artificial intelligence and new technology	10.500	-
FY 2021 Accomplishments: FY21 Pragmatic Artificial Intelligence and new Technology Laboratory: The Space and Missile Defense Technical Center (SMDTC) initiated the Pragmatic Artificial Intelligence and New Technology (PAINT) laboratory capability to apply Artificial Intelligence (AI) ?Expert Systems? and other new technologies to Integrated Air and Missile Defense (IAMD) capabilities. The effort began applications of expert computer systems capturing human knowledge and incorporate it into a bounded, autonomous software program. The effort develops methodologies, decision making criteria, lessons learned by IAMD subject matter experts (SMEs), and encode them into the command and control software applications. The PAINT effort focuses on applications of basic AI principals to impact the speed and accuracy of software for the benefit of testing IAMD systems in a lab environment such as exercise and test safety and operational planning.		
Congressional Add: Program increase - integrated environmental control and power	16.000	5.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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	FY 2021	FY 2022
FY 2021 Accomplishments: FY21 Integrated Environmental Control and Power: The Space and Missile Defense Technical Center (SMDTC) continue the development, testing and evaluation, and pre-production reliability testing of integrated power and thermal management technologies, components, and systems. The effort integrated thermal and power management sub-systems to refine and mature advanced platforms of Counter-Unmanned Aircraft System (C-UAS) needs of advanced weapon pods or small stationary container systems to more effectively operate and contribute to Integrated Air and Missile Defense/Short Range Air Defense (IAMD) objectives. The effort built upon the advanced high efficiency Alternating Current (AC) and Direct Current (DC) compatible Environmental Control Unit and electronics cooling technologies allowing for the rapid integration of highly compact and energy efficient DC generators. ***FY 2022 Plans:*** The project further addresses the need and requirement as set forth by CENTCOM and expressed to the Rapid Equipping Force to facilitate integration of power generation equipment with environmental control systems for lighter weight and true plug-and-play operation. The effort builds upon the advanced high efficiency AC and DC compatible ECU and electronics cooling technologies developed under this program in the past years and thus allows for the rapid integration of highly compact and energy efficient DC generators. These integrated systems find their best use in battlefield theaters for air missile defense applications.		
Congressional Add: Program increase - hot air tunnel and MESO technologies for hypersonics ***FY 2021 Accomplishments:*** FY21 Hypersonic Testing and Related Technology Development: The Space and Missile Defense Technical Center (SMDTC) will initiate the design and development of a test laboratory capability for High Speed/Hypersonic (HS/H) systems. The test will confirm design margins for a test capability for testing HS/H systems in a validated realistic environment. This test supports design refinements of capabilities related to the use of nitrous oxide for non-vitiated hot air flow used in HS/H engine testing. The Hot Air Tunnel validates safety and chemistry requirements for HS/H systems in a validated realistic environment. The effort will began development of a full duration test laboratory capability for HS/H systems.	47.000	-
Congressional Add: Program increase - conventional mission capabilities ***FY 2021 Accomplishments:*** FY21 Conventional Mission Capabilities: The Space and Missile Defense Technical Center (SMDTC) matured rapid mission planning and range safety capabilities leveraging existing, proven, and low-risk systems. These efforts integrates and develops software tools for trajectory propagation, aerothermal analysis, flight guidance, system vulnerability, and real-time weather. The effort supports test in the Air and Missile Software Integration Laboratory (AMSIL) to meet the near and long-term advances in Integrated Air and Missile Defense (IAMD) system requirements including the Long Range Hypersonic Weapon (LRHW).	10.250	-

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603305A / *Army Missle Defense Systems Integration*	**Project (Number/Name)** TR5 / *Missile Defense Battlelab*

	FY 2021	FY 2022
The SMDTC continues the development of a mission planner supporting detailed flight planning of emerging weapon systems including the LRHW. This planner combines high fidelity vehicle flight dynamics, aerothermal analyses, signature analyses, and environmental analyses (including real-time and predicted weather) with a comprehensive human/machine interface (HMI) and visualization capability. The SMDTC augmented the planner compliant tools enabling hazard analysis. Initiated adding capabilities for link margin analyses for telemetry, radar, and flight termination systems. Initiated integration of capability within the AMSIL.		
Congressional Add: Program increase - air and missile system critical technology development ***FY 2021 Accomplishments:*** FY21 Air and Missile System Critical Technology Development (AMSCT): The Space and Missile Defense Technical Center (SMDTC) continue the development and demonstration of scalable HPM devices that can be integrated on multiple platforms. The effort assess HPM lethality to optimized effects in threat systems and Identifies HPM protection capabilities to battlefield systems. Provides and develops Air and Missile test environment supporting multiple Space and IAMD technologies and weapon systems.	12.000	-
Congressional Add: Program increase - advanced technology end?to?end testbed ***FY 2021 Accomplishments:*** FY21 Advanced Technology end-to-end testbed: The Space and Missile Defense Technical Center (SMDTC) initiates the establishment an Advanced Technology Testbed simulation and test capability to replicate realistic flight in 3 and 6 Degrees of Freedom (DOF) dynamic environments for advanced weapon systems. The capability supported the assessment of effect of these environments on critical subsystems, including the state-of-the-art Integrated Air and Missile Defense (IAMD) seekers/sensors, avionics guidance computers, and inertial measurement units (IMU). The testbed will be designed and developed to include offensive and defensive weapon technologies to engage the emerging threats in a realistic environment, for complete kill chain of air and missile defense technology evaluation capability. Initiate technical simulations of advanced IAMD threat sand capabilities to assess system task plans, and engagement plans (e.g. 3DOF, 6DOF) with possible use for ground tests	10.500	-
Congressional Add: Program increase - gun launched interceptors ***FY 2021 Accomplishments:*** Research and develop how Counter - Rocket, Artillery, Mortar / Unmanned Aerial Systems (C-RAM / C-UAS) defenses can be overwhelmed by swarm attack . This work will prototype a maneuverable, laser guided GLI by utilizing an Insensitive Munitions compliant solid propulsion divert system and a laser seeker assembly. Design, integrate, and test a prototype GLI to address the C-RAM / C-UAS mission as part of the Integrated Air and Missile Defense role.	8.000	-
Congressional Add: Program increase	15.000	-

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603305A / *Army Missle Defense Systems Integration*	**Project (Number/Name)** TR5 / *Missile Defense Battlelab*

	FY 2021	FY 2022
FY 2021 Accomplishments: Develop techniques for protection of tactical space resources against cyberattack and dedicated capabilities for continual responsiveness to threat advancement Develop and integrate advanced capability prototype Hardware in The Loop (HWIL) / Software in the Loop (SWIL) for cyber resilient tactical space technologies. Perform non-invasive multi-source attack vector stimulation of space prototypes to support the development and integration of future Army space capabilities that are globally responsive to the joint warfighter and provide the foundation for long-term overmatch against near-peer adversaries. Develop and fabricate thermal management system test and integrations evaluation capability. Develop Electronics cooling for supersonic and hypersonic missiles scalable directly with missile components. Complex compound heat shield materials development and test he joint warfighter and provide the foundation for long-term overmatch against near-peer adversaries. Research and Enhance Laser Lethality Infrastructure for Cruise Missile Lethality Vulnerability Modules developments. Research and Purchase targets for Lethality Vulnerability Module developments.		
Congressional Add: Electro-Magnetic Denial and Protect ***FY 2022 Plans:*** Develop High Power Microwave (HPM) technologies and systems capable of engaging specific target classes. Leverage extensive history of HPM hardware system development, effects testing, and predictive algorithms to narrow the focus of the effort to provide efficient and expedient technology development.	-	6.000
Congressional Add: Multiple Engagement End-To-End Testbed ***FY 2022 Plans:*** Establish an End-to-End Advanced Weapons Technology Architecture Testbed to deliver a software architecture to incorporate disparate models into an end-to-end, raid on salvo, Red Force/Blue Force weapons versus ballistic missile defense system simulation testbed to be used for technical assessment of the weapon systems.	-	2.500
Congressional Add: A2IFS (Advanced Dynamic and Features Simulation) ***FY 2022 Plans:*** Develop advanced ground test techniques and technologies to dramatically decrease the cost and schedule associated with the development of ground testing and hypersonic systems development by: Providing continuous test capability to accelerate the deployment of advanced systems Providing precise control of testing environment provides highest fidelity data capture Providing a secure method to develop future systems without adversary observation	-	23.500
Congressional Add: PNT Resiliency Lab ***FY 2022 Plans:*** The intent of this funding is to establish a world class test facility to simulate, characterize and develop innovative technologies that assure PNT resiliency to the warfighter. It will enable end-to- end	-	8.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
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	FY 2021	FY 2022
assessment of capabilities, vulnerabilities, identification of mitigation strategies, alternatives and solutions and then validation of means to ensuring Commanders guaranteed access to critical PNT information and services.		
Congressional Adds Subtotals	129.250	45.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

SMDCoE strategic missile defense capability development efforts have a natural association and linkage with Army Space and High Altitude (SHA) capability development also performed within the SMDCoE. Emerging space and high altitude technologies and concepts often influence SMD identification, tracking and response.

D. Acquisition Strategy

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
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Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Personnel and Operations Support	C/TBD	To Be determined : To be Determined	16.577	6.630		7.674		8.356		-		8.356	Continuing	Continuing	-
SBIR/STTR Transfer	TBD	Various : Various	-	-		0.123	Mar 2022	-		-		-	0.000	0.123	-
		Subtotal	16.577	6.630		7.797		8.356		-		8.356	Continuing	Continuing	N/A

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Contracts	Various	To Be Determined : To Be determined	6.060	3.638		3.905		3.645		-		3.645	Continuing	Continuing	-
Various	Various	To be determined : to be determined	48.438	129.250		-		-		-		-	0.000	177.688	-
Electro-Magnetic Denial and Protect (CA)	TBD	SMDC : Various	-	-		6.000		-		-		-	0.000	6.000	-
Integrated Environmental Control and Power (CA)	TBD	SMDC : Various	-	-		5.000		-		-		-	0.000	5.000	-
Multiple Engagement End-To-End Testbed	TBD	SMDC : Various	-	-		2.500		-		-		-	0.000	2.500	-
A2IFS (Advanced Dynamic and Instrumentation and Features Simulation) (CA)	TBD	SMDC : Various	-	-		23.500		-		-		-	0.000	23.500	-
PNT Resiliency Lab (CA)	TBD	SMDC : Various	-	-		8.000		-		-		-	0.000	8.000	-
		Subtotal	54.498	132.888		48.905		3.645		-		3.645	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Experiments & technology enhancements of	Various	Various Colorado Springs CO and	117.427	-		-		-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Army			Date: April 2022
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2021 Cost	FY 2021 Award Date	FY 2022 Cost	FY 2022 Award Date	FY 2023 Base Cost	FY 2023 Base Award Date	FY 2023 OCO Cost	FY 2023 OCO Award Date	FY 2023 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
prototypes/tools and analysis.		Huntsville AL : Alabama, Colorado Springs													
Govt Support and Support Contracts	Various	Various Colorado Springs CO and Huntsville AL : Alabama, Colorado Springs	138.783	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	256.210	-		-		-		-		-	Continuing	Continuing	N/A

	Prior Years	FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	327.285	139.518		56.702		12.001		-		12.001	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603305A / *Army Missle Defense Systems Integration*	**Project (Number/Name)** TR5 / *Missile Defense Battlelab*

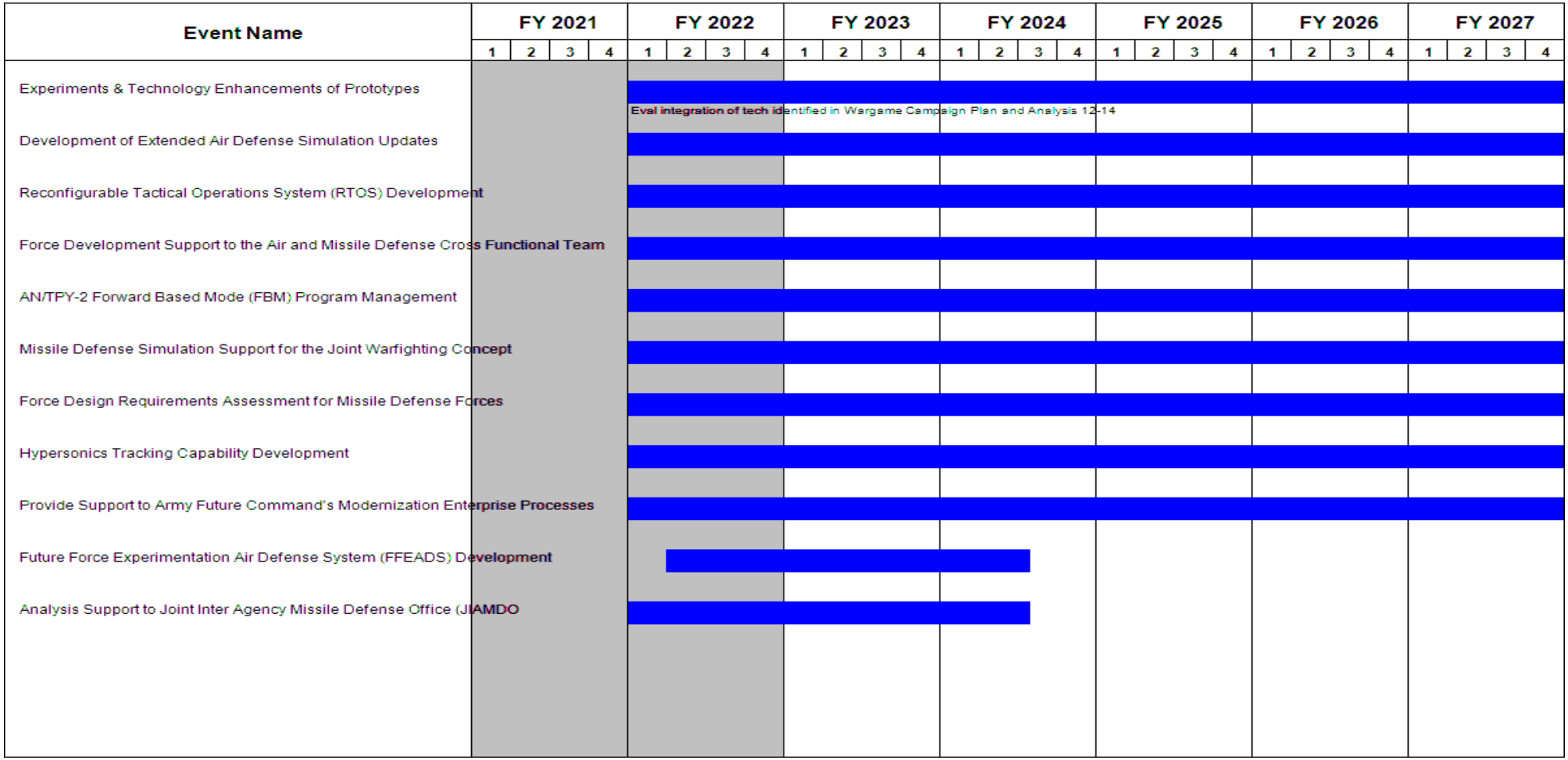

Exhibit R-4A, RDT&E Schedule Details: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 4	**R-1 Program Element (Number/Name)** PE 0603305A / *Army Missle Defense Systems Integration*	**Project (Number/Name)** TR5 / *Missile Defense Battlelab*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Experiments & Technology Enhancements of Prototypes	1	2022	4	2027
Development of Extended Air Defense Simulation Updates	1	2022	4	2027
Reconfigurable Tactical Operations System (RTOS) Development	1	2022	4	2027
Force Development Support to the Air and Missile Defense Cross Functional Team	1	2022	4	2027
AN/TPY-2 Forward Based Mode (FBM) Program Management	1	2022	4	2027
Missile Defense Simulation Support for the Joint Warfighting Concept	1	2022	4	2027
Force Design Requirements Assessment for Missile Defense Forces	1	2022	4	2027
Hypersonics Tracking Capability Development	1	2022	4	2027
Provide Support to Army Future Command?s Modernization Enterprise Processes	1	2022	4	2027
Future Force Experimentation Air Defense System (FFEADS) Development	2	2022	3	2024
Analysis Support to Joint Inter Agency Missile Defense Office (JIAMDO	1	2022	3	2024