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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Air Force **Date:** March 2024

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0207522F I <i>Airbase Air Defense Systems (ABADS)</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	-	48.252	78.867	17.273	0.000	17.273	14.361	16.550	16.925	17.334	Continuing	Continuing
640410: <i>Tech Maturation & Risk Reduct</i>	-	48.252	78.867	17.273	0.000	17.273	14.361	16.550	16.925	17.334	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

NOTE: These documents contain an update to the title of the missile defense effort to better communicate the distinction between overarching system and sub-efforts. The new designation is Airbase Air Defense Systems for Missile Defense (ABADS(MD)), instead of Airbase Air Defense Battle Management Command and Control (ABAD BMC2).

The Airbase Air Defense Systems (ABADS) program element is the principal Air Force (AF) program to provide the ability to detect, track, identify, and defeat airborne threats to missions and assets. These threats include small-unmanned aircraft systems (sUAS), Rockets, Artillery and Mortars (RAM), and cruise missiles. These three efforts (missile defense (MD), counter-sUAS (C-sUAS), and counter-RAM (C-RAM)) aim to protect personnel, assets, and infrastructure vital to supporting the national security strategy.

ABADS(MD) is designed as a configurable combination of Commercial Off the Shelf (COTS)/Government Off the Shelf (GOTS) sensor and non-kinetic effector technologies integrated with tailored Battle Management Command and Control (BMC2) software to provide adaptive, resilient, and dedicated air defense capability. The ABADS(MD) system is designed to operate independently or combine with other local and distributed capabilities to form a multi-layered defense-in-depth, improving airbase defense and airbase resiliency.

ABADS(MD) FY25 funding will realize a Government Development Security and Operations (DevSecOps) software pipeline, update software and continue the development and testing of system prototype. ABADS(MD) funding supports and maintains ABADS(MD) transition to a Government DevSecOps software pipeline to further align with the ABMS portfolio (Distributed Battle Management Node, Digital Infrastructure, and Cloud Based Command and Control), permits further completion of remaining requirements specified in the ABAD BMC2 Rapid Prototyping Requirements Document (RPRD), and any prioritized capability upgrades. Specific RPRD requirements funded with FY25 include finalizing integration with Advanced Battle Management System (ABMS) upgrades, finalizing integration of a composite tracking fire solution, finalizing integration with joint service fire control networks, and incorporating the integration of additional sensors and effectors. FY25 funding also enables initial activities required to successfully transfer the ABAD prototyping effort to a Program of Record (PoR).

ABADS Counter-small Unmanned Aircraft Systems (C-sUAS) specifically aims to counter the threats posed by the rapid proliferation of inexpensive yet highly capable systems, and the enemies who target US Service members, Allies, and Coalition partners. The ABADS(C-sUAS) program will continue to analyze evolving threats, evaluate new capabilities, and design an open system architecture that reduces life cycle cost and enables fielding to all 180+ AF installations. ABADS(C-sUAS)

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features a system of systems approach to integrate sensors and effectors into a robust Command and Control (C2) interface able to detect, track, identify, and defeat sUAS threats. The AF works closely with the DoD Joint C-sUAS Office (JCO) to align annual efforts.

ABADS(C-sUAS) FY2025 funding will further develop and test Command, Control, Communication, Computers, and Intelligence (C4I) systems. To include follow-on of Medusa C2 System and focus on needed expeditionary sense and defeat capability development. The Medusa C2 system supports Joint All-Domain Command & Control (JADC2) development and employs electronic warfare capabilities, artificial intelligence for operator task automation, a closed-loop training system for operator certification and proficiency, and track fusion. Funding will support development and test (through bi-weekly software sprints) of Medusa C2 software to further interoperability and incorporation within the ABMS architecture. It will continue electronic warfare upgrades, to include but not limited to new sensor and effector components, and new Ninja skills which leverage full Ninja capability within Medusa C2 and other C2 systems. Ninja is an Omni-direction RF detect and defeat system that detects, IDs and tracks Group One and Two drones by manipulating its command and control signals to either take control of or disable the UAS. Funding will also continue efforts in alignment with the DoD's JCO, include cyber hardening of all new system changes, and support management of JCO funded Ninja development. Additionally it will be utilized to conduct studies, analysis, and evaluations of threats and capability gaps along with evaluation and streamlined acquisition of new capabilities. ABADS(C-sUAS) funding also supports innovation activities to include studies, analyses, requirements definition, and quick-reaction capability prototypes/ demonstrations to accelerate planning for technology transition, technology insertion and future acquisition programs. Additionally, funds will be used to further develop technical solutions for a National Capital Region (NCR) Common Operational Picture (COP) to provide better C-sUAS protection of Presidential aviation assets.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY2023 \$0.015M was expended for civilian pay expenses in this program element, and in FY2024 \$0.236M is forecasted for civilian pay expenses in this program element.

This effort is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P), because efforts are necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment.

B. Program Change Summary (\$ in Millions)	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	47.465	78.867	10.654	0.000	10.654
Current President's Budget	48.252	78.867	17.273	0.000	17.273
Total Adjustments	0.787	0.000	6.619	0.000	6.619
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	2.015	0.000			
• SBIR/STTR Transfer	-1.228	0.000			
• Other Adjustments	0.000	0.000	6.619	0.000	6.619

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Change Summary Explanation

FY 2023 funding increased by \$2.015M to support C-sUAS JUON effort.
 FY 2025 funding increased by \$6.600M to support NCR COP effort.
 FY 2025 funding request was increased by \$0.019K for inflation adjustments.

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

	FY 2023	FY 2024	FY 2025
<p>Title: ABADS(C-sUAS)</p> <p>Description: The ABADS(C-sUAS) program will continue to defend against the emerging and growing airborne threats. This program protects strategic assets vital to national security while bedded down and while on the move. This program will continue to counter emerging threats posed by advancements in enemy employment tactics and commercially available technology.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Updating Medusa C2 software to further interoperability and incorporation within the ABMS architecture. - Continuing electronic warfare upgrades, to include but not limited to, new sensor and effector components, and improve Ninja to leverage full Ninja capability within Medusa C2 and other C2 systems. - Continuing efforts in alignment with the DoD's JCO. - Evaluating new capabilities and adding these to the capability storefront to enable streamlined acquisition of capabilities for bases. - Developing and testing, via bi-weekly software sprints, annual software upgrades. - Ensuring cyber security requirements are developed and incorporated in all new system changes. - Cyber hardening all new system changes. - Supporting oversight, management, and execution of JCO funded development efforts. - Conducting studies, analysis, and evaluations of threats and capability gaps to refine and update requirements enabling upgraded and improved capabilities. - Initiating and continuing contractor testing of developed updates. - Investigating and prototyping capabilities to support expeditionary systems. <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Will continue to update Medusa C2 software to further interoperability and incorporation within the ABMS architecture. - Will continue electronic warfare upgrades, to include but not limited to new sensor and effector components, and new Ninja skills which leverage full Ninja capability within Medusa C2 and other C2 systems. - Will continue efforts in alignment with the DoD's JCO. - Will continue to evaluate new capabilities and add those to the capability storefront to enable streamlined acquisition of capabilities for bases. - Will continue to develop and test, via bi-weekly software sprints, annual software upgrades. 	7.228	5.604	12.235

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C. Accomplishments/Planned Programs (\$ in Millions)		FY 2023	FY 2024	FY 2025
<ul style="list-style-type: none"> - Will continue to ensure cyber security requirements are developed and incorporated in all new system changes. - Will continue to support oversight, management, and execution of JCO funded development efforts. - Will continue to conduct studies, analysis, and evaluations of threats and capability gaps to refine and update requirements enabling upgraded and improved capabilities. - Will continue efforts in alignment with the DoD's JCO. - Will initiate and continue contractor testing of developed updates. - Will continue to investigate and prototype capabilities to support expeditionary systems. - Will further develop NCR COP technical solutions to include joint interoperability of C-sUAS sensors, development of correlation and fusion process, and to develop cyber-secure cloud infrastructure for data dissemination and processing for C-sUAS protection of Presidential aviation assets <p>FY 2024 to FY 2025 Increase/Decrease Statement: FY2025 Program Funding increased by \$6.619M for NCR COP development</p>				
<p>Title: ABADS(MD)</p> <p>Description: During this program phase, the ABADS(MD) capability will initially field. RDT&E activities in this phase focus on migration to a government DevSecOps software development framework, alignment with ABMS infrastructure and capabilities, final completion of RPRD software backlog, and incorporation of additional capabilities.</p> <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continuing software development utilizing an agile DevSecOps approach - Integrating all software, including joint integrated fire control solution, track manager, tactical radios, ABMS network compatibility and other requirements as specified in the ABAD BMC2 RPRD - Demonstrating integration with an initial effector and supporting sensors - Demonstrating joint service integration with Joint Track Manager Capability (JTMC) and Joint Tactical Integrated Fire Control (JTIFC) capability in ABADS(MD) - Demonstrating an interface into an agreed upon ABMS architecture and C-sUAS C2 networks - Demonstrating compatibility with Tactical Operations Center (TOC) family of systems - Participating in select AF and theater exercises and demonstrations - Incorporating an ABAD system representation in a virtual exercise environment - Demonstrating cost-effective integrated fire control solution for PACAF AOR <p>FY 2025 Plans:</p> <ul style="list-style-type: none"> - Will enable successful stand up of Program of Record and ensure transition of ABADS(MD) - Will participate in select AF and theater exercises and demonstrations 		41.024	73.263	5.038

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<ul style="list-style-type: none"> - Will complete migration of software development efforts to government-run DevSecOps software pipeline - Will support initial fielding of ABADS(MD) capability, and any remaining RPRD software work not completed in FY24 - Will develop, test, and field capability enhancements as identified <p>FY 2024 to FY 2025 Increase/Decrease Statement: Funding decrease due to the RDT&E phase ending and efforts transitioning into the procurement phase.</p>			
Accomplishments/Planned Programs Subtotals	48.252	78.867	17.273

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
• OPAF 03 0207522F: <i>Airbase Air Defense Systems (ABADS) for Missile Defense</i>	-	-	64.665	-	64.665	83.076	130.391	192.686	55.000	Continuing	Continuing
• OPAF 03 0207522F.: <i>Airbase Air Defense Systems (ABADS) for C-sUAS</i>	23.911	5.043	9.550	-	9.550	11.993	12.410	12.670	12.913	Continuing	Continuing

Remarks

E. Acquisition Strategy
The ABADS MD program is a Rapid Prototyping effort following a Middle Tier of Acquisition (MTA) approach. The program uses Indefinite Deliverable / Indefinite Quantity (ID/IQ) contracts to support the prototype capability development. The program will transition to Rapid Fielding in FY25.

The program transitions from development to a fielded system in FY25. Currently, the Advanced Battle Management System (ABMS) Division within the Air Force Life Cycle Management Center (AFLCMC) provides contracting, legal, comptroller, programmatic, engineering, test, and logistics support. AFLCMC provides Other Transaction Authority.

C-sUAS implements a "Government-as-the-Integrator" approach by procuring engineering and integration services to supplement Government resources, in an effort to keep pace with the adversary threat environment. For FY25, the primary efforts endeavor to improve cybersecurity posture, and resolve system gaps. Example integration services also include, but are not limited to, establishing a CI/CD software pipeline, implementing Agile DevSecOps processes and deploying model-based design. As possible, the Government will leverage small business innovative research opportunities to generate new code to produce capabilities for detection and defeat of airborne threats. The milestone decision authority (MDA) for this effort is PEO Digital.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force **Date:** March 2024

Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0207522F / Airbase Air Defense System (ABADS)	Project (Number/Name) 640410 / Tech Maturation & Risk Reduct s
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Product Development (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ABADS(C-sUAS) - Joint Serv System Development	Various	Not specified. : TBD	-	2.052	Sep 2023	-		-		-		-	Continuing	Continuing	-
ABADS(C-sUAS) - Software Development	Various	Not specified. : TBD	-	4.171	Mar 2024	2.179	Apr 2024	1.400	Oct 2024	-		1.400	Continuing	Continuing	-
ABADS(C-sUAS) - Hardware System Development	Various	Not specified. : TBD	-	-		2.019	Apr 2024	1.403	Oct 2024	-		1.403	Continuing	Continuing	-
ABADS(C-sUAS) - NCR COP Development	Various	Not specified. : TBD	-	-		-		6.661	Nov 2024	-		6.661	Continuing	Continuing	-
ABADS(MD) - Prototype Development (Hardware / Software)	C/CPFF	2.1 - Proto / 2.2 s/w : WPAFB, OH	-	24.996	May 2023	43.533	Mar 2024	-		-		-	0.000	68.529	-
ABADS(MD) - Army IBCS Integration	MIPR	2.1 - Prototyping : TBD	-	9.999	Mar 2023	6.252	Jun 2024	-		-		-	0.000	16.251	-
ABADS(MD) - Non-Kinetic Effector Development	C/CPFF	2.1 - Prototyping : WPAFB, OH	-	0.000	Feb 2024	3.314	Aug 2024	-		-		-	0.000	3.314	-
ABADS(MD) - Sensor Laydown Study/ Architecture Support	TBD	2.1 - Prototyping : TBD	-	3.714	Aug 2023	4.000	Apr 2024	-		-		-	0.000	7.714	-
ABADS(MD) Government Software Pipeline	TBD	Software Development : TBD	-	-		5.000	Aug 2024	2.833	Dec 2024	-		2.833	Continuing	Continuing	-
Subtotal			-	44.932		66.297		12.297		-		12.297	Continuing	Continuing	N/A

Support (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Direct Cite Authority (MD)	Various	Not specified. : TBD	-	-		2.239	Dec 2023	2.205	Oct 2024	-		2.205	Continuing	Continuing	-
Direct Cite Authority (C-sUAS)	Various	Not specified. : TBD	-	0.017	Sep 2023	0.236	Apr 2024	0.260	Oct 2024	-		0.260	Continuing	Continuing	-
Subtotal			-	0.017		2.475		2.465		-		2.465	Continuing	Continuing	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Air Force												Date: March 2024			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
3600 / 4				PE 0207522F / Airbase Air Defense System (ABADS)				640410 / Tech Maturation & Risk Reductions (ABADS)							
Test and Evaluation (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ABADS(C-sUAS) - Test Support	Various	Not specified : TBD	-	0.073	Apr 2024	-		0.100	Dec 2024	-		0.100	Continuing	Continuing	-
ABADS(C-sUAS) - Test Range	Various	Not specified : TBD	-	-		-		1.500	Oct 2024	-		1.500	Continuing	Continuing	-
ABADS(MD) - Test	Various	2.3 - System Testing : TBD	-	1.864	Aug 2023	-		-		-		-	0.000	1.864	18.380
ABADS(MD) - Demonstration	Various	2.3 - System Testing : TBD	-	0.000	Jun 2023	5.700	Jun 2024	-		-		-	Continuing	Continuing	-
Subtotal			-	1.937		5.700		1.600		-		1.600	Continuing	Continuing	N/A
Management Services (\$ in Millions)				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
ABADS(C-sUAS) - Management Services	C/Various	Various : Hanscom, MA	-	0.915	Jul 2023	1.170	Feb 2024	0.911	Oct 2024	-		0.911	Continuing	Continuing	-
ABADS(MD) - A&AS Support	C/Various	Various (2.1, 2.2, 2.3) : WPAFB, OH	-	0.300	Aug 2023	2.725	Mar 2024	-		-		-	Continuing	Continuing	24.954
ABADS(MD) - Travel	Various	Various (2.1, 2.2, 2.3) : TBD	-	0.151		0.500		-		-		-	Continuing	Continuing	-
Subtotal			-	1.366		4.395		0.911		-		0.911	Continuing	Continuing	N/A
Project Cost Totals			-	48.252		78.867		17.273		-		17.273	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4A, RDT&E Schedule Details: PB 2025 Air Force		Date: March 2024
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0207522F / Airbase Air Defense System (ABADS)	Project (Number/Name) 640410 / Tech Maturation & Risk Reduct s (ABADS)

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
ABADS(C-sUAS) - Events				
1.1 - ABADS(C-sUAS) - Joint Service Lead System Development	4	2023	4	2024
1.2 - ABADS(C-sUAS) - Software Development	4	2023	1	2029
1.3 - ABADS(C-sUAS) Hardware System Development	3	2024	1	2029
1.4 - ABADS(C-sUAS) NCR COP Development	1	2025	1	2029
1.5 - ABADS(C-sUAS) - Test	2	2023	1	2029
1.6 - ABADS(C-sUAS) - Test Range	1	2024	4	2029
ABADS(MD) - Events				
2.1 - ABADS(MD) - Prototype Development	3	2023	1	2025
2.2 - ABADS(MD) - BMC2 Development (Software)	3	2023	1	2025
2.3 - ABADS(MD) - Prototype Testing	3	2024	4	2025
2.4 - ABADS(MD) - Operational Software Continuous Integration/Test/Delivery	4	2024	4	2028