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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Missile Defense Agency **Date:** March 2024

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603180C / <i>Advanced Research</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	259.099	84.996	21.461	19.354	-	19.354	23.432	24.863	26.418	26.894	Continuing	Continuing
MD25: <i>Advanced Technology Development</i>	253.126	84.196	20.698	18.609	-	18.609	22.442	23.829	25.230	25.639	Continuing	Continuing
MD40: <i>Program-Wide Support</i>	5.973	0.800	0.763	0.745	-	0.745	0.990	1.034	1.188	1.255	Continuing	Continuing

Program MDAP/MAIS Code: 362

Note

N/A

A. Mission Description and Budget Item Justification

The Advanced Research Program conducts leading edge technology research and development efforts to enable future missile defense capabilities. The Missile Defense Agency (MDA) executes this mission by capitalizing on the creativity and innovation of the brightest minds in our Nation's universities, small and large businesses, national laboratories, other government agencies, and allied countries. In accordance with identified Agency requirements and Warfighter needs, the program develops, assesses and demonstrates the utility of emerging component technologies. After successful maturation and demonstration activities, the program facilitates transition of the technologies to the Missile Defense System through a Commercialization and Transition Office and other MDA programs.

B. Program Change Summary (\$ in Millions)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	85.323	21.461	22.024	-	22.024
Current President's Budget	84.996	21.461	19.354	-	19.354
Total Adjustments	-0.327	0.000	-2.670	-	-2.670
• 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	0.000	0.000			
• SBIR/STTR Transfer	-0.327	0.000			
• Other Adjustment	0.000	0.000	-2.670	-	-2.670

Change Summary Explanation

Decrease from PB 2024 to PB 2025 reflects efficiencies realized in MDA Advisory and Assistance Services.

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Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603180C / <i>Advanced Research</i>				Project (Number/Name) MD25 / <i>Advanced Technology Development</i>			
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
MD25: <i>Advanced Technology Development</i>	253.126	84.196	20.698	18.609	-	18.609	22.442	23.829	25.230	25.639	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Decrease from FY 2024 to FY 2025 reflects efficiencies realized in MDA Advisory and Assistance Services.

A. Mission Description and Budget Item Justification

The Missile Defense Agency's (MDA) Advanced Technology Development Program pursues a broad range of emerging technologies targeted for application into the Missile Defense System. MDA explores potential new Missile Defense System capabilities by leveraging the creativity and innovation of the Nation's industry, universities, and national laboratories to develop advanced technologies. MDA also pursues advanced technology development through cooperative international research agreements between U.S., foreign entities and universities of allied nations. The program manages the selection process and administers the Missile Defense Small Business Innovation Research (SBIR) program element, 0605502C. SBIR topics and projects are selected annually based on needs across the Missile Defense System and executed in partnership with sponsoring intra-agency organizations. These mechanisms foster a cooperative environment between small businesses, prime contractors, and MDA elements to yield reduced cost and increased returns on investment for successful technology integration efforts.

MDA's Advanced Technology Development Project assesses the feasibility and technical performance of the advanced research and development efforts through in-house means and partnerships with Department of Defense and other government agency laboratories. MDA provides independent assessments, demonstration and experimentation environments, and other concept assessment capabilities. The output of the experimentation, demonstration, and laboratory efforts provide risk reduction, transition feasibility, performance assessments, concept assessment data and analysis, and an overall improvement in the state-of-the-art of advanced technology evaluation. The culmination of research, development, and assessment is the commercialization and transition of promising technologies into the Missile Defense System.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2023	FY 2024	FY 2025
Title: Advanced Research	84.196	20.698	18.609
Articles:	-	-	-
Description: This activity funds technology and research initiatives executed through continuous cycles of development, maturation, and assessment of component technologies identified by emerging weapon and sensor system concepts.			
Recurring tasks include:			
- Conduct systems engineering, integration, research, and material solution analysis to identify initiatives and technology to include missiles, sensors, and command and control components in the defense against current and future threats			

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Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603180C / <i>Advanced Research</i>	Project (Number/Name) MD25 / <i>Advanced Technology Development</i>
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025
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- Provide assessment and maturation of critical technologies to address future threat capabilities
- Pursue advanced technology investments for defense against ballistic and non-ballistic hypersonic threats
- Develop breakthrough technology and innovative solutions from private industry, qualified accredited educational institutions, and non-profit organizations to include:
 - Additive manufacturing technology initiatives for interceptor propulsion and structural components
 - Materials development, assessment, and processing techniques
 - Advanced threat component technologies
 - Electro-optical and infrared sensor and communication systems
 - Radar and radio frequency communication systems
 - Interceptor and space systems component technologies
 - Left through right of launch integration
- Assess and evaluate advanced technology investments to extract risk-reduction information and determine transition feasibility
- Execute the Broad Agency Announcement (BAA) addressing breakthrough technologies and innovative solutions from private industry, qualified accredited educational institutions, and non-profit organizations to include:
 - Artificial intelligence related to machine learning, big data, and Decision Theory
 - Computer Science, Signal and Data Processing
 - Directed energy technology
 - Future Missile Defense System concept development
 - Kill Web Algorithms, Probability and Decision Theory
 - Modeling and simulation
 - Radar and radio frequency sensor systems
 - Phenomenology
- Utilize NanoSat technology demonstrations and sounding rockets to conduct maturation testing and reduce risk for new and advanced technologies for the Missile Defense System
- Continue to assess incoming innovative technology white papers and pursue awards for those that align with Agency priorities and budget, emphasizing component technologies that address advanced threat challenges
- Leverage university research opportunities including allied nations to enhance Missile Defense System advanced technology initiatives and build stronger relationships with allies and partners
- Manage the selection process of SBIR and technology application programs to assist MDA funded technology developers in finding and entering technology transfer opportunities to missile defense applications

Specific and/or unique accomplishment to each FY are as follows:

FY 2024 Plans:

FY 2023	FY 2024	FY 2025

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2023	FY 2024	FY 2025
- Continue NanoSat Testbed Initiative: Commence next series of experimentation focused on improved engagement management techniques			
- Continue High Temperature Seeker Window Assessment: Mature and evaluate seeker windows that support existing and future missions			
FY 2025 Plans: SEE ABOVE			
FY 2024 to FY 2025 Increase/Decrease Statement: Decrease from FY 2024 to FY 2025 reflects efficiencies realized in MDA Advisory and Assistance Services			
Accomplishments/Planned Programs Subtotals	84.196	20.698	18.609

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u> <u>Base</u>	<u>FY 2025</u> <u>OCO</u>	<u>FY 2025</u> <u>Total</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603176C: <i>Advanced Concepts and Performance Assessment</i>	39.293	17.825	17.920	-	17.920	39.210	58.477	67.637	72.697	Continuing	Continuing
• 0604181C: <i>Hypersonic Defense</i>	513.267	208.997	182.283	-	182.283	193.100	205.122	250.208	327.698	Continuing	Continuing

Remarks

D. Acquisition Strategy

The acquisition strategy to conduct technology development agreements consists of partnering with accredited universities, small businesses, and nonprofit organizations. MDA awards competitive procurements via the MDA Innovation, Science, and Technology BAA and the SBIR and the Small Business Technology Transfer program.

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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
MD40: <i>Program-Wide Support</i>	5.973	0.800	0.763	0.745	-	0.745	0.990	1.034	1.188	1.255	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

PWS contains non-headquarters management costs in support of MDA functions and activities across the entire Missile Defense System. These functions include Government Civilians and Contract Support Services. This effort provides integrity and oversight of the Missile Defense System as well as supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes personnel to support global deployments performing deployment site preparation and activation, and provides facility capabilities for MDA Executing Agent locations worldwide. Other MDA wide costs include: physical and technical security; civilian drug testing; audit readiness; the Science, Technology, Engineering, and Mathematics (STEM) program; legal services and settlements; travel and agency training; office, equipment, vehicle, and warehouse leases; utilities and base operations across multiple geographic locations; commercial and ancillary facility services; management of all facility aspects regardless of lifecycle stage; supplies and maintenance; compliance with statutory environmental requirements; data and unified communications support; materiel and readiness and central property management of equipment; Facilities Sustainment, Restoration and Modernization (FSRM) program (formerly Real Property Maintenance) to keep the Department's inventory of facilities in good working order; and similar operating expenses. PWS is allocated on a pro-rata basis across most Agency PEs and therefore fluctuates per PE by fiscal year based on the total Agency budget in that fiscal year.