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

<b>Appropriation/Budget Activity</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide / BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</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	2,822.142	228.807	239.159	209.002	-	209.002	205.087	202.555	209.816	214.110	Continuing	Continuing
MD11: <i>BMDs Radars</i>	2,601.505	198.873	209.931	182.032	-	182.032	176.073	174.633	180.518	183.885	Continuing	Continuing
MC11: <i>Cyber Operations</i>	74.103	21.541	20.727	19.141	-	19.141	20.563	19.641	20.060	20.510	Continuing	Continuing
MD40: <i>Program-Wide Support</i>	146.534	8.393	8.501	7.829	-	7.829	8.451	8.281	9.238	9.715	Continuing	Continuing

**Program MDAP/MAIS Code:** 362

**Note**

Decrease from Fiscal Year (FY) 2024 to FY 2025 reflects completion of backlogged software trouble reports, software development for Digital Receiver Exciter/Signal Processing, and development of Common X-Band software version 6.0.

**A. Mission Description and Budget Item Justification**

The Missile Defense System network of layered sensors provides essential situational awareness and fire control data for the command and control of Missile Defense System weapon systems, such as Ground-Based Midcourse Defense (GMD), Aegis Ballistic Missile Defense (BMD), and Terminal High Altitude Area Defense (THAAD). The suite of remote ground-based sensors provides early warning, midcourse, and terminal missile defense threat data. This data enables layered detection and tracking of missile targets, providing fire-control quality position, velocity, and discrimination data through GMD Fire Control, or Command and Control, Battle Management and Communications (C2BMC).

Overlapping coverage of geographically diverse sensors provides improved threat track data, reduces the impact of the loss of any one sensor, and reduces the potential impact of countermeasures. The extended coverage and accuracy provided by a network of layered sensors increases the defensive footprint and reduces the number of target engagements required, thereby conserving interceptor inventory and maintaining a high probability of successful engagement. Networked forward-based sensors enable C2BMC to pair the best sensor coverage with the best available weapon system to provide the most effective defense against missile threats.

This Program Element (PE) includes Missile Defense System threat discrimination improvements, which will enhance Missile Defense System effectiveness against the evolving adversary threat. The result will be a Missile Defense System architecture more capable of discriminating and destroying reentry vehicles with a higher degree of confidence, improving Warfighter shot doctrine, and more efficiently using interceptor inventory. Missile Defense System threat discrimination improvements are funded from the Enabling (0603890C), Midcourse (0603882C), BMD Sensors (0603884C), C2BMC (0603896C), and Aegis BMD (0603892C) PEs.

The Missile Defense System Sensors Program contributes to regional and homeland missile defense by developing, delivering, and deploying/redeploying Army Navy/Transportable Radar Surveillance and Control-2 (AN/TPY-2) radars for operations or tests. AN/TPY-2 radars can be configured to operate as either a THAAD Fire Unit Radar (terminal mode) or a Forward-Based Radar. These radars are transportable and add flexibility to respond to geographical changes in threats. Radars provide early warning tracking and discrimination data through all phases of missile flight. Through the Missile Defense System C2BMC and coalition data links, the AN/TPY-2

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<b>Appropriation/Budget Activity</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>
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provides fire control data to enable remote Standard Missile-3 engagements by Aegis BMD and to cue deployed THAAD and U.S. and partner Phased Array Tracking Radar to Intercept on Target batteries.

The Missile Defense System sensor network includes: the U.S. Space Force (USSF) COBRA DANE (CD) Radar at Eareckson Air Station, AK, and the USSF Upgraded Early Warning Radars (UEWRs) at Beale Air Force Base, CA; Cape Cod Space Force Station (SFS), MA; Clear SFS, AK; Royal Air Force Fylingdales, United Kingdom; and Thule Air Base, Greenland, for defense of the homeland.

This program element supports sensors Modeling and Simulation development of digital and hardware-in-the-loop models to support Integrated Master Test Plan events and system-level digital testing for Missile Defense System assessments of the Long Range Discrimination Radar, AN/TPY-2, Sea-Based X-Band, UEWR, and CD radar.

This program element also supports the planning and deployment of persistent radars.

Cyber Operations sustain the Risk Management Framework (RMF) and Controls Validation Testing activities, analysis of validation results, risk assessments, reviews of plans of action and milestones, and alignment and integration to the Tier 2 Cybersecurity Service Provider for the Ground Sensors mission systems. Cyber Operations supports the execution of lab-based developmental cyber testing (Baseline Assessment Technical Testing, Cooperative Vulnerability Identification and Adversarial Cybersecurity Developmental Test and Evaluation) for all major mission system software version releases. These efforts position Ground Sensor assets to complete transition to National Institute of Standards and Technology Special Publication 800-53 Revision 5 requirements (e.g., RMF 2.0) and enhance software supply chain security by developing and maintaining the software bill of materials for all developed and delivered Ground Sensors mission and mission support software as directed in the President's Executive Order on Improving the Nation's Cybersecurity dated May 12, 2021.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>
Previous President's Budget	230.502	239.159	212.191	-	212.191
Current President's Budget	228.807	239.159	209.002	-	209.002
Total Adjustments	-1.695	0.000	-3.189	-	-3.189
• 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	-4.388	0.000			
• Other Adjustment	2.693	0.000	-3.189	-	-3.189

**Change Summary Explanation**

N/A

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Missile Defense Agency										<b>Date:</b> March 2024		
<b>Appropriation/Budget Activity</b> 0400 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>				<b>Project (Number/Name)</b> MD11 / <i>BMDS Radars</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>FY 2029</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MD11: <i>BMDS Radars</i>	2,601.505	198.873	209.931	182.032	-	182.032	176.073	174.633	180.518	183.885	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Decrease from Fiscal Year (FY) 2024 to FY 2025 reflects completion of backlogged software trouble reports, software development for Digital Receiver Exciter/Signal Processing, and development of Common X-Band software (CX) version CX 6.0.

**A. Mission Description and Budget Item Justification**

The Missile Defense System Radars project includes development of future Army Navy/Transportable Radar Surveillance and Control-2 (AN/TPY-2), U.S. Space Force (USSF) COBRA DANE (CD), Long Range Discrimination Radar (LRDR), Sea Based X-Band (SBX), and USSF Upgraded Early Warning Radars (UEWR) capabilities through system engineering; software development; and testing support.

Modeling and Simulation (M&S) efforts include enhanced sensor models, development of Radio Frequency scene generators, integration of digital simulations into the Missile Defense System M&S architecture, and Verification, Validation, and Accreditation of radar models. This project also funds participation and support for Missile Defense System element ground and flight test campaigns and Warfighter games and exercises.

This project provides development of discrimination advanced algorithms for Missile Defense System radars to counter evolving threats. The discrimination improvement effort will develop and field integrated element capabilities to improve Missile Defense System ability to identify lethal and non-lethal objects. Sensors will continue development of discrimination improvement midterm design and test support for Missile Defense System radars and far-term trade analysis and planning.

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

	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>
<b>Title:</b> Basic Development Program	23.816	35.330	29.452
<b>Articles:</b>	-	-	-
<b>Description:</b> The Basic Development Program includes development and testing of software maintenance updates to address software trouble reports identified on fielded software versions and flight/ground test events. Software improvement efforts also include optimization of increased processing capabilities. The Basic Development Program also analyzes software performance during flight and ground testing to support Materiel Release for software deliveries. The Materiel Release Closure Plan for the AN/TPY-2 ensures the Reliability, Availability, and Maintainability Program promotes reliability growth in the suite of AN/TPY-2 radars via product improvements.			
Specific and/or unique accomplishments to each FY are as follows:			
<b>FY 2024 Plans:</b>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Missile Defense Agency		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MD11 / <i>BMDS Radars</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>
<ul style="list-style-type: none"> <li>- Continue development and testing of software maintenance updates</li> <li>- Continue resolution of software trouble reports identified on fielded software versions CX 3.0 and CX 4.0</li> <li>- Continue analysis of software performance during flight test and ground test to support Material Release of software version CX 5.0</li> <li>- Upgrade developmental Hardware in the Loop (HWIL) lab equipment</li> </ul> <p><b>FY 2025 Plans:</b></p> <ul style="list-style-type: none"> <li>- Initiate development, testing and software trouble report resolution CX 7.0 software</li> </ul> <p><b>FY 2024 to FY 2025 Increase/Decrease Statement:</b> Decrease from FY 2024 to FY 2025 reflects completion of backlogged software trouble reports identified on fielded software versions CX 3.0 and CX 4.0.</p>			
<p><b>Title:</b> BMDS Radars Modeling &amp; Simulation (M&amp;S)</p> <p><b>Description:</b> Missile Defense System Radars M&amp;S efforts include development and maintenance of enhanced sensor models, development and maintenance of radio frequency scene generators, integration of simulations into the Missile Defense System M&amp;S architecture, and Verification, Validation, and Certification (VV&amp;C) of radar models, including high fidelity models used for performance assessment. This project also supports war games, Warfighter exercises and training, execution of element-level ground test campaigns and element-level post-flight reconstructions, and the development of M&amp;S frameworks and truth models required to anchor M&amp;S. These activities include:</p> <ul style="list-style-type: none"> <li>- Develop and sustain Digital and HWIL representations of various simulations and models to include the tactical versions of AN/TPY-2, LRDR, SBX, UEWRs, and CD, to include development of real-world capabilities in high fidelity ground test and performance assessment models to keep pace with evolving threats and Missile Defense System, continuing LRDR and AN/TPY-2 modeling, along with increasing modeling efforts on the Missile Defense Agency (MDA) standalone radars</li> <li>- Continue development of additional capabilities in high fidelity digital models for AN/TPY-2, SBX, LRDR, UEWR, and CD</li> <li>- Continue development of additional capabilities in high fidelity ground test models for AN/TPY-2, SBX, LRDR and UEWR to keep pace with evolving threats and Missile Defense System</li> <li>- Perform VV&amp;C of radar models, including electronic protection and objective debris mitigation, for use in performance assessments</li> <li>- Support technical and performance assessments including Ground Test and Continuous Digital Assessment using Open Systems Architecture Sensor Models, Open Systems Architecture Signal Injectors, and Multi-band Electronic Attack Digital Injection Capability, to include planning, execution, analysis and reporting</li> </ul>	<p><b>Articles:</b></p> <p>48.633</p> <p>-</p>	<p>50.534</p> <p>-</p>	<p>50.761</p> <p>-</p>

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Missile Defense Agency		<b>Date:</b> March 2024		
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MD11 / <i>BMDS Radars</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>
<p>-Develop HWIL and integrated digital improvements to the MDA Ground Test Architecture that provides assessment data, supplemental to ground and flight tests, in areas that those venues cannot address</p> <p>- Continue HWIL and digital agile system requirements analysis and software development of incremental versions for continuous deliveries of enhanced M&amp;S capabilities</p> <p>- Continue Integration, Test, and Verification of incremental software versions</p> <p>- Conduct continuous agile system requirements analysis, software development, integration, and test of incremental versions for enhanced M&amp;S capabilities</p> <p>- Conduct element-level and support system-level verification and validation activities</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2024 Plans:</b> - SEE ABOVE</p> <p><b>FY 2025 Plans:</b> - SEE ABOVE</p> <p><b>FY 2024 to FY 2025 Increase/Decrease Statement:</b> N/A</p>				
<b>Title:</b> Capability Development Program		76.348	71.977	52.748
		<b>Articles:</b> -	-	-
<p><b>Description:</b> The Capability Development Program provides engineering support to enable compliance with Missile Defense System system specification threat capabilities and addresses advanced threats. This task includes the redesign of select components to address obsolescence and improve reliability of the system. This task continues electronic protection and objective debris mitigation development efforts to reduce or eliminate the effect of corporate clutter and electronic attacks on sensors. It develops, designs, and tests sensor mid-term discrimination improvements for X-Band radars, including SBX threat discrimination improvements. This effort funds participation in far-term discrimination improvement threat model specifications, develops discrimination and countermeasure mitigation capability development, and funds studies of future sensor improvements. Additional software development activities include Terminal High Altitude Area Defense Missile Segment Enhancement fielding and integration, X86 performance optimization to enhance processing speed, improvements to cybersecurity posture, additional development of sensor electronic protection for AN/TPY-2 and LRDR, and developmental information system enhancements. This effort includes threat updates and verification, core standards system engineering, and required updates to models, simulation, and performance assessment updates.</p>				

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Missile Defense Agency		<b>Date:</b> March 2024		
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MD11 / <i>BMDS Radars</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>
Specific and/or unique accomplishments to each FY are as follows:  <b>FY 2024 Plans:</b> <ul style="list-style-type: none"> <li>- Complete development of a next generation Electronic Equipment Unit to resolve obsolescence associated with the legacy Receiver/Exciter and X86 servers (CX 6.0)</li> <li>- Complete development of initial Arbitrary Waveform and advanced signal processing capability (CX 7.0)</li> <li>- Continue AN/TPY-2 Advanced Electronic Protection (EP) Development (CX 6.0) for Enhanced AN/TPY-2 (Forward Based Mode) Protections and Mitigations</li> <li>- Continue SBX EP Algorithm Development &amp; Integration for SBX Stand Alone Radar Protections and Mitigations (XBR 4.3)</li> <li>- Development of SBX EP models and simulation capability</li> <li>- Continue LRDR discrimination studies and development efforts to address updated Homeland Defense Ballistic Missile Threat Space</li> </ul> <b>FY 2025 Plans:</b> <ul style="list-style-type: none"> <li>- Complete development of initial Arbitrary Waveform and advanced signal processing capability (CX 7.0)</li> </ul> <b>FY 2024 to FY 2025 Increase/Decrease Statement:</b> Decrease from FY 2024 to FY 2025 reflects completion of Digital Receiver Exciter/Signal Processing development and completion of CX 6.0 development, delivering incremental system capability to the Warfighter.				
<b>Title:</b> Sensors Directorate Operations		45.374	52.090	49.071
<b>Description:</b> Sensors Directorate Operations provides strategic planning, program integration, contracting, acquisition, engineering, financial management, internal reviews and audits, and program assessments for the Ground Sensors Directorate.  Recurring activities include: <ul style="list-style-type: none"> <li>- Provide technical and business management support activities to provide critical program status and decision-quality data</li> <li>- Ensure Ground Sensors program compliance with internal and external direction, policies, and regulations to deliver critical capability within a consistent and disciplined process</li> <li>- Conduct internal program reviews to measure program progress against the six MDA approved baselines</li> <li>- Continue a Mission Assurance and Manufacturing Engineering Program to include Quality, Configuration Management, Manufacturing, Engineering, and Safety in all phases of the system life cycle, throughout the supply chain, and at all levels of assembly, emphasizing high yield rates that minimize test and rework costs</li> <li>- Provide Quality Safety and Mission Assurance operations to ensure compliance with Agency requirements for design, test, manufacturing, quality, safety and reliability to ensure high-quality products are delivered to the Warfighter</li> </ul>		<b>Articles:</b> -	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Missile Defense Agency		<b>Date:</b> March 2024		
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MD11 / <i>BMDS Radars</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>
<p>- Provide End User Support, Unified Communications, Computer Network Defense Services, Business Automation, and Portal and Data Services to support the Sensors Directorate</p> <p>- Provide sustainment Integrated Product Support in accordance with the AN/TPY-2 Transition and Transfer Annex to the Missile Defense Agency/Army Overarching Memorandum Agreement and Army Regulation (AR700-127) regarding Integrated Logistics Support to ensure timely, structured transition and transfer of the Missile Defense System capability and associated components to the lead Service</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2024 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2025 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2024 to FY 2025 Increase/Decrease Statement:</b> N/A</p>				
<p><b>Title:</b> Upgrade Clear Early Warning Radar</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Provides upgrade of USSF Clear Early Warning Radar Space Force Station (SFS) and USSF Cape Cod Early Warning Radar SFS, which includes adaptation of hardware and software to UEWR infrastructure, support to Missile Defense System communications and architecture work and installation onsite. This project also includes preparing and removing of legacy equipment at each UEWR site.</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2024 Plans:</b> N/A</p> <p><b>FY 2025 Plans:</b> N/A</p> <p><b>FY 2024 to FY 2025 Increase/Decrease Statement:</b> N/A</p>		4.702 -	0.000 -	0.000 -
<b>Accomplishments/Planned Programs Subtotals</b>		198.873	209.931	182.032

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Missile Defense Agency										<b>Date:</b> March 2024	
<b>Appropriation/Budget Activity</b> 0400 / 4				<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>				<b>Project (Number/Name)</b> MD11 / <i>BMDS Radars</i>			

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

<u>Line Item</u>	<u>FY 2023</u>	<u>FY 2024</u>	<u>FY 2025</u>		<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>FY 2029</u>	<u>Cost To</u>		
			<u>Base</u>	<u>OCO</u>					<u>Total</u>	<u>Complete</u>	<u>Total Cost</u>
• 0208866C MD11: <i>BMDS Sensors Procurement</i>	4.606	29.108	57.130	-	57.130	32.154	45.247	29.594	19.481	Continuing	Continuing
• 0208866C MD11: <i>Missile Defense System Radars Program, Operation and Maintenance</i>	203.624	227.768	254.680	-	254.680	276.039	283.073	248.353	254.384	Continuing	Continuing
• 0603882C: <i>Ballistic Missile Defense Midcourse Defense Segment</i>	670.808	903.633	768.227	-	768.227	856.218	842.985	956.974	1,007.150	Continuing	Continuing
• 0603890C: <i>BMD Enabling Programs</i>	589.588	597.720	609.406	-	609.406	623.893	625.985	659.983	677.858	Continuing	Continuing
• 0603896C: <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i>	587.689	554.201	569.662	-	569.662	570.632	587.929	618.050	651.885	Continuing	Continuing
• 0603898C: <i>Ballistic Missile Defense Joint Warfighter Support</i>	50.942	48.248	47.723	-	47.723	48.921	50.062	51.376	52.565	Continuing	Continuing
• 0603904C: <i>Missile Defense Integration and Operations Center (MDIOC)</i>	47.629	50.549	54.525	-	54.525	56.851	58.115	59.600	61.362	Continuing	Continuing
• 0603907C: <i>Sea Based X-Band Radar (SBX)</i>	163.297	177.868	197.339	-	197.339	176.888	162.741	177.598	188.253	Continuing	Continuing
• 0603914C: <i>Ballistic Missile Defense Test</i>	376.650	360.455	367.491	-	367.491	418.514	383.362	435.626	438.825	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
• 0604873C: <i>Long Range Discrimination Radar (LRDR)</i>	65.991	103.517	100.882	-	100.882	63.560	56.020	64.457	72.759	Continuing	Continuing
• 0604879C: <i>Ballistic Missile Defense Sensor Test</i>	88.326	111.049	96.864	-	96.864	104.578	160.011	172.749	183.147	Continuing	Continuing

**Remarks**

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Missile Defense Agency		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MD11 / <i>BMDS Radars</i>

**D. Acquisition Strategy**

The Radar Development Contract (RDC) awarded on November 1, 2017, supports the Ground Sensors Directorate's X-Band Radars (XBR). Missile Defense System capability and performance requirements, which underpin continuing XBR development requirements, include but are not limited to, the AN/TPY-2 radar and the SBX radar. These requirements stem directly from formal Warfighter requirements as developed in the United States Strategic Command-led Warfighter involvement process. MDA's Achievable Capabilities List documents content from the Prioritized Capabilities List and Modification and Fielding Requirements List, which MDA then translates via the Missile Defense System architecture and system specifications into flow-down requirements, characteristics, and capability needs for individual Missile Defense System program specifications and approved through the systems engineering and baseline change management process for Missile Defense System programs to execute. The RDC supports the XBRs for product improvement, including developmental upgrades of software and development of hardware and software to meet enhanced capabilities and risk reduction measures; warfighter support, including wargames and exercise support; engineering services, including engineering support for delivered and accepted radars to facilitate maintenance efforts which may include, but are not limited to, hardware obsolescence studies, hardware redesign, technology insertion and refurbishment; Missile Defense System test subject matter expert (SME) support; modeling and simulation SME support; and cybersecurity. These support activities are for all AN/TPY-2 radars, in the Forward Based Mode and Terminal Mode, and the SBX Radar to include the Weather Air Search Radar located on the SBX platform.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Missile Defense Agency												Date: March 2024			
Appropriation/Budget Activity						R-1 Program Element (Number/Name)				Project (Number/Name)					
0400 / 4						PE 0603884C / Ballistic Missile Defense Sensors				MD11 / BMDS Radars					
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
Basic Development Program - Basic Development - SBX	SS/CPAF	Raytheon : MA	3.971	1.913	Jun 2023	0.000		0.000		-		0.000	0.000	5.884	0.000
Basic Development Program - Information Assurance AN/TPY-2	SS/CPAF	Raytheon : MA	30.767	0.000		0.000		0.000		-		0.000	0.000	30.767	0.000
Basic Development Program - Information Assurance SBX	SS/CPAF	Raytheon : MA	1.303	0.000		0.000		0.000		-		0.000	0.000	1.303	0.000
Basic Development Program - Material Release Get Well Plan - AMCOM	MIPR	DOD - USA - AVIATION AND MISSILE COMMAND (AMCOM) SAFETY OFFICE : AL	0.580	0.000		0.000		0.330	Nov 2024	-		0.330	Continuing	Continuing	Continuing
Basic Development Program - Material Release Get Well Plan - ATEC	MIPR	ATEC : AL	1.734	0.000		0.000		0.000		-		0.000	0.000	1.734	0.000
Basic Development Program - Material Release Get Well Plan - CCDC	SS/CPAF	CCDC AVMC : AL	18.899	0.000		0.000		0.000		-		0.000	0.000	18.899	0.000
Basic Development Program - Sys Integration & Tech Assessments	MIPR	CCDC AVMC : AL	29.415	0.000		0.000		0.000		-		0.000	0.000	29.415	0.000
Basic Development Program - X-Band Software Enhancements/ Development	SS/CPAF	RAYTHEON : MA	181.226	15.001	Nov 2022	25.431	Nov 2023	19.606	Nov 2024	-		19.606	Continuing	Continuing	Continuing
Basic Development Program - X-Band Software Enhancements/ Development - CCDC	MIPR	DOD - USA - COMBAT CAPABILITIES DEVELOPMENT COMMAND (CCDC) AVIATION AND	8.348	6.902	Nov 2022	9.899	Nov 2023	9.516	Nov 2024	-		9.516	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Missile Defense Agency												Date: March 2024			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
0400 / 4				PE 0603884C / Ballistic Missile Defense Sensors				MD11 / BMDS Radars							
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
		MISSILE CENTER (AVMC) : AL													
BMDS Radars Modeling & Simulation (M&S) - M&S Development - Boeing	C/CPAF	Boeing : AL	0.248	0.000		0.000		0.000		-		0.000	0.000	0.248	0.000
BMDS Radars Modeling & Simulation (M&S) - M&S Development - Decibel	C/CPAF	Decibel : AL	2.000	0.000		0.000		0.000		-		0.000	0.000	2.000	0.000
BMDS Radars Modeling & Simulation (M&S) - M&S Development - HWIL and Digital modeling capabilities for IMTP	C/CPAF	RAYTHEON : Various	27.200	0.000		0.000		0.000		-		0.000	0.000	27.200	0.000
BMDS Radars Modeling & Simulation (M&S) - M&S Development - Northrop Grumman	C/CPAF	Northrop Grumman : AL	1.219	0.000		0.000		0.000		-		0.000	0.000	1.219	0.000
BMDS Radars Modeling & Simulation (M&S) - M&S Development - Raytheon	C/CPAF	RAYTHEON : MA	222.372	22.428	Dec 2022	28.229	Jan 2024	28.373	Nov 2024	-		28.373	Continuing	Continuing	Continuing
BMDS Radars Modeling & Simulation (M&S) - M&S Development-FFRDC/UARC	FFRDC	JHU, MITRE : MD, AL	1.171	0.000		0.000		0.000		-		0.000	0.000	1.171	0.000
BMDS Radars Modeling & Simulation (M&S) - M&S Development-LM	SS/CPPIF	LOCKHEED MARTIN CORPORATION : NJ	20.354	6.528	Nov 2022	5.378	Nov 2023	5.542	Nov 2024	-		5.542	Continuing	Continuing	Continuing
BMDS Radars Modeling & Simulation (M&S) - MEDIC Development-CCDC	MIPR	DOD - USA - COMBAT CAPABILITIES DEVELOPMENT COMMAND (CCDC) AVIATION AND MISSILE CENTER (AVMC) : AL	3.600	4.539	Dec 2022	4.360	Nov 2023	4.139	Nov 2024	-		4.139	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Missile Defense Agency												Date: March 2024			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)						Project (Number/Name)					
0400 / 4				PE 0603884C / Ballistic Missile Defense Sensors						MD11 / BMDS Radars					
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
BMDS Radars Modeling & Simulation (M&S) - VV&C of Models - CCDC	MIPR	DOD - USA - COMBAT CAPABILITIES DEVELOPMENT COMMAND (CCDC) AVIATION AND MISSILE CENTER (AVMC) : AL	83.980	10.969	Dec 2022	8.929	Dec 2023	7.285	Dec 2024	-		7.285	Continuing	Continuing	Continuing
BMDS Radars Modeling & Simulation (M&S) - VV&C of Models - GTRI	SS/CPFF	GTRI (Georgia Tech Research Institute) : GA	0.526	0.000		0.000		0.000		-		0.000	0.000	0.526	0.000
BMDS Radars Modeling & Simulation (M&S) - VV&C of Models - LM	SS/CPFF	LOCKHEED MARTIN CORPORATION : NJ	0.000	0.000		0.000		0.756	Nov 2024	-		0.756	Continuing	Continuing	Continuing
Capability Development Program - Electronic Protection - GTRI	SS/CPFF	GTRI : GA	0.521	0.000		0.000		0.000		-		0.000	0.000	0.521	0.000
Capability Development Program - Enhanced Discrimination -M&S - CCDC	MIPR	DOD - USA - COMBAT CAPABILITIES DEVELOPMENT COMMAND (CCDC) AVIATION AND MISSILE CENTER (AVMC) : AL	16.314	0.000		2.422	Nov 2023	0.992	Nov 2024	-		0.992	Continuing	Continuing	Continuing
Capability Development Program - Enhanced Discrimination - MITRE	FFRDC	MITRE : AL	4.363	0.000		0.000		0.000		-		0.000	0.000	4.363	0.000
Capability Development Program - AN/TPY-2 Capability Development - CCDC	MIPR	DOD - USA - COMBAT CAPABILITIES DEVELOPMENT COMMAND (CCDC) AVIATION AND MISSILE CENTER (AVMC) : AL	30.440	0.000		0.000		0.000		-		0.000	0.000	30.440	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Missile Defense Agency												Date: March 2024			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)					Project (Number/Name)						
0400 / 4				PE 0603884C / Ballistic Missile Defense Sensors					MD11 / BMDS Radars						
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
Capability Development Program - AN/TPY-2 Capability Development - GTRI	SS/CPFF	GTRI : GA	1.782	0.000		0.000		0.000		-		0.000	0.000	1.782	0.000
Capability Development Program - AN/TPY-2 Capability Development - JHU	SS/CPFF	JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY LLC, THE : MD	6.699	0.000		0.000		0.000		-		0.000	0.000	6.699	0.000
Capability Development Program - AN/TPY-2 Capability Development - NSWC	MIPR	Naval Surface Warfare Center : VA	0.094	0.000		0.000		0.000		-		0.000	0.000	0.094	0.000
Capability Development Program - AN/TPY-2 Capability Development - PRIME	SS/CPAF	RAYTHEON : MA	263.162	32.624	Nov 2022	19.132	Nov 2023	21.962	Nov 2024	-		21.962	Continuing	Continuing	Continuing
Capability Development Program - Communication Development	MIPR	Secretary of the Air Force (SAF) : Various	8.886	0.000		0.000		0.000		-		0.000	0.000	8.886	0.000
Capability Development Program - Control System Improvement Sustaining Support	C/CPFF	LOCKHEED MARTIN CORPORATION : CO	0.000	1.822	Dec 2022	0.000		0.000		-		0.000	0.000	1.822	0.000
Capability Development Program - Electronic Protection - CCDC	MIPR	DOD - USA - COMBAT CAPABILITIES DEVELOPMENT COMMAND (CCDC) AVIATION AND MISSILE CENTER (AVMC) : AL	25.504	0.000		0.000		0.000		-		0.000	0.000	25.504	0.000
Capability Development Program - Electronic Protection - PRIME	C/CPAF	RAYTHEON : MA	75.324	11.646	Nov 2022	16.602	Nov 2023	0.000		-		0.000	0.000	103.572	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Missile Defense Agency													Date: March 2024		
Appropriation/Budget Activity				R-1 Program Element (Number/Name)						Project (Number/Name)					
0400 / 4				PE 0603884C / Ballistic Missile Defense Sensors						MD11 / BMDS Radars					
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
Capability Development Program - Enhanced Discrimination	C/CPAF	Raytheon : MA	357.142	14.641	Nov 2022	6.417	Nov 2023	4.507	Nov 2024	-		4.507	Continuing	Continuing	Continuing
Capability Development Program - Enhanced Discrimination - LM	SS/CPIF	Lockheed Martin : NJ	11.922	0.000		0.000		0.000		-		0.000	0.000	11.922	0.000
Capability Development Program - High Altitude Electromagnetic Pulse (HEMP) Hardening Testing	MIPR	DOD - USA - ABERDEEN TEST CENTER (ATC) : MD	0.960	0.440	Sep 2023	0.000		0.000		-		0.000	0.000	1.400	0.000
Capability Development Program - Network and Infrastructure Services	C/CPAF	Jacobs Engineering : AL, CO, MA, VA	18.100	5.920	Nov 2022	0.000		0.000		-		0.000	0.000	24.020	0.000
Capability Development Program - Post Intercept Assessment (PIA)	C/CPAF	Raytheon : MA	10.400	0.000		0.000		0.000		-		0.000	0.000	10.400	0.000
Capability Development Program - SBX Capability Development	MIPR	DOD - USA - COMBAT CAPABILITIES DEVELOPMENT COMMAND (CCDC) AVIATION AND MISSILE CENTER (AVMC) : AL	1.660	0.000		0.000		0.000		-		0.000	0.000	1.660	0.000
Capability Development Program - SBX Capability Development - Raytheon	SS/CPAF	RAYTHEON : MA	22.904	4.472	Nov 2022	17.122	Nov 2023	16.451	Nov 2024	-		16.451	Continuing	Continuing	Continuing
Capability Development Program - Science & Technology	Various	Various : Various	0.000	3.228	Jun 2023	0.000		0.000		-		0.000	0.000	3.228	0.000
Capability Development Program - Science and Technology	C/CPFF	RAYTHEON : MA	1.800	0.000		0.000		0.000		-		0.000	0.000	1.800	0.000
Capability Development Program - UEWR	MIPR	CCDC AVMC : AL	6.345	0.000		0.000		0.000		-		0.000	0.000	6.345	0.000

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Missile Defense Agency** **Date:** March 2024

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MD11 / <i>BMDS Radars</i>
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<b>Product Development (\$ in Millions)</b>				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Capability Development - CCDC															
Sensors Directorate Operations - AN/TPY-2 WSMR Support	MIPR	WSMR (White Sands Missile Range) : NM	1.837	0.000		0.000		0.000		-		0.000	0.000	1.837	0.000
Sensors Directorate Operations - Army Hybrid Program Office	MIPR	DOD - USA - AVIATION AND MISSILE COMMAND (AMCOM) LOGISTICS CENTER (ALC) : AL	11.304	0.000		0.000		0.000		-		0.000	0.000	11.304	0.000
Sensors Directorate Operations - Contractor Support Services	C/CPFF	Various : Various	281.674	0.000		0.000		0.000		-		0.000	0.000	281.674	0.000
Sensors Directorate Operations - FFRDC/ UARC	FFRDC	GTRI, JHU/APL, MITRE, MIT/LL : AL, GA, MA, MD, VA	119.623	0.000		0.000		0.000		-		0.000	0.000	119.623	0.000
Sensors Directorate Operations - Network and Infrastructure Services	C/CPAF	Jacobs Engineering : AL, AK, CA, CO, HI, NM, VA	48.897	0.000		0.000		0.000		-		0.000	0.000	48.897	0.000
Sensors Directorate Operations - Network and Infrastructure Services - Network Management	C/FFP	Network Management Resources, Inc : VA	0.662	0.000		0.000		0.000		-		0.000	0.000	0.662	0.000
Sensors Directorate Operations - Other Govt Agencies	MIPR	Various : Various	38.063	0.000		0.000		0.000		-		0.000	0.000	38.063	0.000
Upgrade Clear Early Warning Radar - Advanced Object Classification - CCDC	MIPR	DOD - USA - COMBAT CAPABILITIES DEVELOPMENT COMMAND (CCDC) : AL	2.625	0.900	Aug 2023	0.000		0.000		-		0.000	0.000	3.525	0.000

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2025 Missile Defense Agency</b>												<b>Date: March 2024</b>			
<b>Appropriation/Budget Activity</b> 0400 / 4						<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>						<b>Project (Number/Name)</b> MD11 / <i>BMDS Radars</i>			

<b>Product Development (\$ in Millions)</b>				<b>FY 2023</b>		<b>FY 2024</b>		<b>FY 2025 Base</b>		<b>FY 2025 OCO</b>		<b>FY 2025 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Upgrade Clear Early Warning Radar - Advanced Object Classification - USSF	MIPR	DOD - USSF - US SPACE FORCE (USSF) : CO	1.268	3.582	Mar 2023	0.000		0.000		-		0.000	0.000	4.850	0.000
Upgrade Clear Early Warning Radar - Facilities Site Activation/Admin Comms	MIPR	Various : AL, MA, AK	8.072	0.220	Mar 2023	0.000		0.000		-		0.000	0.000	8.292	0.000
Upgrade Clear Early Warning Radar - Radar Upgrade -- Prime Contractor	C/CPAF	Raytheon : MA	134.513	0.000		0.000		0.000		-		0.000	0.000	134.513	0.000
Joint Emerging Operational Need (JEON) - Software Enhancements/ Development	C/CPAF	Raytheon : MA	70.900	0.000		0.000		0.000		-		0.000	0.000	70.900	0.000
High Altitude Electromagnetic Pulse (HEMP) Hardening - FBM Site Modifications	MIPR	Various : Various	5.800	0.000		0.000		0.000		-		0.000	0.000	5.800	0.000
High Altitude Electromagnetic Pulse (HEMP) Hardening - Hardened Transportable Terminal (HTT) Communications	MIPR	DISA : VA	1.227	0.000		0.000		0.000		-		0.000	0.000	1.227	0.000
High Altitude Electromagnetic Pulse (HEMP) Hardening - Hardened Transportable Terminal (HTT) Engineering, Development and Sustainment	MIPR	Tobyhanna Army Depot (TYAD) : PA	5.773	0.000		0.000		0.000		-		0.000	0.000	5.773	0.000
High Altitude Electromagnetic Pulse	C/Various	Various : Various	39.600	0.000		0.000		0.000		-		0.000	0.000	39.600	0.000

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Missile Defense Agency** **Date:** March 2024

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MD11 / <i>BMDS Radars</i>
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<b>Product Development (\$ in Millions)</b>				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
(HEMP) Hardening - Power Distribution Centers (PDC) and Commercial Power															
High Altitude Electromagnetic Pulse (HEMP) Hardening - Power Distribution System (PDS) Development and Integration	SS/CPAF	Raytheon : MA	16.600	0.000		0.000		0.000		-		0.000	0.000	16.600	0.000
<b>Subtotal</b>			2,291.673	147.775		143.921		119.459		-		119.459	Continuing	Continuing	N/A

**Remarks**  
N/A

<b>Support (\$ in Millions)</b>				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMDS Radars Modeling & Simulation (M&S) - Network and Infrastructure Services	Various	Various : Various	0.000	0.793	Mar 2023	0.000		1.101	Mar 2025	-		1.101	Continuing	Continuing	Continuing
BMDS Radars Modeling & Simulation (M&S) - Network and Infrastructure Services - Jacobs	C/CPAF	JACOBS TECHNOLOGY INC. : Various	1.690	0.000		0.000		0.000		-		0.000	0.000	1.690	0.000
BMDS Radars Modeling & Simulation (M&S) - VV&C of Models - GTRI	SS/CPFF	GEORGIA TECH APPLIED RESEARCH CORPORATION : GA	0.791	0.000		0.879	Oct 2023	0.899	Nov 2024	-		0.899	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Missile Defense Agency												Date: March 2024			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)						Project (Number/Name)					
0400 / 4				PE 0603884C / Ballistic Missile Defense Sensors						MD11 / BMDS Radars					
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
BMDS Radars Modeling & Simulation (M&S) - Warfighter Exercises	SS/CPIF	RAYTHEON : MA	21.283	3.376	Dec 2022	2.759	Feb 2024	2.666	Jan 2025	-		2.666	Continuing	Continuing	Continuing
Capability Development Program - AN/TPY-2 Capability Development - GTRI	SS/CPFF	GEORGIA TECH APPLIED RESEARCH CORPORATION : GA	1.110	0.535	Nov 2022	1.521	Nov 2023	1.280	Nov 2024	-		1.280	Continuing	Continuing	Continuing
Capability Development Program - AN/TPY-2 Capability Development - JHU	SS/CPFF	JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY LLC, THE : MD	1.080	1.020	Nov 2022	1.417	Nov 2023	0.963	Nov 2024	-		0.963	Continuing	Continuing	Continuing
Capability Development Program - Network And Infrastructure Services	C/CPAF	JACOBS TECHNOLOGY INC. : Various	0.000	0.000		6.423	Nov 2023	6.593	Nov 2024	-		6.593	Continuing	Continuing	Continuing
Capability Development Program - X AN/TPY-2 Capability Development - MITRE	FFRDC	DOD - USA - COMMUNICATIONS ELECTRONICS COMMAND (CECOM) : MD	0.366	0.000		0.921	Oct 2023	0.000		-		0.000	0.000	1.287	0.000
Sensors Directorate Operations - AN/TPY-2 WSMR Support	MIPR	DOD - USA - WHITE SANDS MISSILE RANGE (WSMR) : NM	1.019	1.516	Nov 2022	0.826	Oct 2023	0.917	Oct 2024	-		0.917	Continuing	Continuing	Continuing
Sensors Directorate Operations - Army Hybrid Program Office	MIPR	DOD - USA - AVIATION AND MISSILE COMMAND (AMCOM) LOGISTICS CENTER (ALC) : AL	0.957	0.968	Nov 2022	1.122	Dec 2023	1.144	Nov 2024	-		1.144	Continuing	Continuing	Continuing
Sensors Directorate Operations - Civilian Labor	Allot	DOD - MISSILE DEFENSE AGENCY (MDA) CIVILIAN : Various	258.007	20.848	Oct 2022	21.243	Oct 2023	21.526	Oct 2024	-		21.526	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Missile Defense Agency												Date: March 2024			
Appropriation/Budget Activity						R-1 Program Element (Number/Name)				Project (Number/Name)					
0400 / 4						PE 0603884C / Ballistic Missile Defense Sensors				MD11 / BMDS Radars					
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
Sensors Directorate Operations - Contractor Support Services	Various	Various : Various	1.451	1.796	Nov 2022	0.696	Oct 2023	0.514	Oct 2024	-		0.514	Continuing	Continuing	Continuing
Sensors Directorate Operations - Contractor Support Services - Engineering	C/CPFF	PARSONS GOVERNMENT SERVICES INC. : CA	5.240	6.482	Nov 2022	9.099	Oct 2023	7.638	Oct 2024	-		7.638	Continuing	Continuing	Continuing
Sensors Directorate Operations - Contractor Support Services - Logistics	C/CPFF	VENTURI, INC. : AL	1.107	1.797	Nov 2022	1.668	Oct 2023	2.239	Oct 2024	-		2.239	Continuing	Continuing	Continuing
Sensors Directorate Operations - Contractor Support Services - Quality and Mission Assurance	C/CPFF	AI SOLUTIONS, INC. : MD	0.867	0.885	Nov 2022	1.220	Oct 2023	0.384	Oct 2024	-		0.384	Continuing	Continuing	Continuing
Sensors Directorate Operations - Contractor Support Services - Warfighter Integration	C/CPFF	STRATEGIC ALLIANCE SOLUTIONS LLC : VA	2.859	1.485	Jan 2023	2.827	Oct 2023	1.649	Oct 2024	-		1.649	Continuing	Continuing	Continuing
Sensors Directorate Operations - FFRDC - MITRE	FFRDC	DOD - USA - COMMUNICATIONS ELECTRONICS COMMAND (CECOM) : Various	4.078	4.339	Nov 2022	4.476	Nov 2023	4.926	Oct 2024	-		4.926	Continuing	Continuing	Continuing
Sensors Directorate Operations - Network and Infrastructure Services	C/CPAF	Various : Various	0.750	0.750	Jan 2023	1.070	Jan 2024	1.142	Jan 2025	-		1.142	Continuing	Continuing	Continuing
Sensors Directorate Operations - UARC - JHU/APL	SS/CPFF	JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY LLC, THE : Various	2.166	2.260	Dec 2022	2.481	Nov 2023	2.198	Nov 2024	-		2.198	Continuing	Continuing	Continuing
Sensors Directorate Operations - UEWR	Various	Various : Various	0.000	0.000		0.200	Nov 2023	0.161	Nov 2024	-		0.161	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Missile Defense Agency** **Date:** March 2024

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MD11 / <i>BMDS Radars</i>
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<b>Support (\$ in Millions)</b>				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Network and Infrastructure Services															
<b>Subtotal</b>			304.821	48.850		60.848		57.940		-		57.940	Continuing	Continuing	N/A

**Remarks**  
Operations and sustainment support for the USSF CD and AN/TPY-2 Radars Contract Logistics Support (CLS) are Operations and Maintenance Defense-Wide appropriations and are described in the MDA O-Documents.

<b>Test and Evaluation (\$ in Millions)</b>				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
<b>Subtotal</b>			-	-		-		-		-		-	-	-	N/A

**Remarks**  
N/A

<b>Management Services (\$ in Millions)</b>				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Sensors Directorate Operations - Contractor Support Services - Acquisition	C/CPFF	BCF SOLUTIONS, INC. : VA	2.720	1.698	Dec 2022	3.362	Oct 2023	2.422	Oct 2024	-		2.422	Continuing	Continuing	Continuing
Sensors Directorate Operations - Contractor Support Services - Various	Various	Various : Various	2.291	0.550	Nov 2022	1.800	Oct 2023	2.211	Oct 2024	-		2.211	Continuing	Continuing	Continuing
<b>Subtotal</b>			5.011	2.248		5.162		4.633		-		4.633	Continuing	Continuing	N/A

**Remarks**  
N/A

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<b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2025 Missile Defense Agency								<b>Date:</b> March 2024			
<b>Appropriation/Budget Activity</b> 0400 / 4				<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>				<b>Project (Number/Name)</b> MD11 / <i>BMDS Radars</i>			
	<b>Prior Years</b>	<b>FY 2023</b>		<b>FY 2024</b>		<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	2,601.505	198.873		209.931		182.032	-	182.032	Continuing	Continuing	N/A

**Remarks**  
Award Dates reflect date of first obligation. Additional obligations may incrementally occur throughout the year.

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**Exhibit R-4, RDT&E Schedule Profile: PB 2025 Missile Defense Agency** **Date:** March 2024

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MD11 / <i>BMDS Radars</i>
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Significant Event Complete ▲	Milestone Decision Complete ★	Element Test Complete ◆	System Level Test Complete ●	Complete Activity ◆
Significant Event Planned △	Milestone Decision Planned ☆	Element Test Planned ◇	System Level Test Planned ○	Planned Activity ◇

	FY 2023			FY 2024			FY 2025			FY 2026			FY 2027			FY 2028			FY 2029		
GTD-08a (N/I) (Missile Defense System Ground Test)	◆																				
(EX) AIR AND MISSILE DEFENSE EXERCISE 23	◆	◆	◆																		
GTI-09 Sprint 2 (E/C) (Missile Defense System Ground Test)		◆	◆																		
SICO-09-3 Ground Test		◆																			
FTX-26 (OT) (SN, OT Target Only Flight Test)			▲																		
FTX-49			▲																		
FTG-12 (GM, DT/OT Intercept Flight Test)				▲																	
(EX) AIR AND MISSILE DEFENSE EXERCISE 24				◇	◇	◇															
SICO 9-4 Ground Test				◇																	
GTI-08b (N/I)					◇																
GTI-ISR (23) (Missile Defense System Ground Test)					◇																
GTI-08b Part 2					△																
GTD-08b (N/I)						◇	◇														
LR-08b (N/I)						△															
FEM-02							◇														
GTI-101 (E/C)								◇													
GTI-13 Sprint 1 (N/I) (Missile Defense System Ground Test)								◇													
GTI-13 Sprint 2 (N/I) (Missile Defense System Ground Test)									◇												
FTX-28 E1 (TH, DT/OT Tracking Exercise Flight Test)										△											
FTX-28 E3 (TH, DT/OT Tracking Exercise Flight Test)										△											
GTD-13 (N/I) (Missile Defense System Ground Test)											◇										
GTI-12 (E/C)											◇										
JFTX-01 E1 (JAPAN, DT Tracking Exercise Flight Test)												△									
JFTX-01 E2 (JAPAN, DT Tracking Exercise Flight Test)													△								

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**Exhibit R-4, RDT&E Schedule Profile: PB 2025 Missile Defense Agency** **Date:** March 2024

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MD11 / <i>BMDS Radars</i>
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	Significant Event Complete ▲		Milestone Decision Complete ★		Element Test Complete ◆		System Level Test Complete ●		Complete Activity ◆	
	Significant Event Planned △		Milestone Decision Planned ☆		Element Test Planned ◇		System Level Test Planned ○		Planned Activity ◇	
	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029			
LR-13				◇						
GTD-12 (E/C) (Missile Defense System Ground Test)				◇						
GTI-14 Sprint 1 (N/I)				◇						
FTG-16 (GM, DT Intercept Flight Test)					△					
GTI-14 (N/I) Sprint 2 (Missile Defense System Ground Test)					◇					
FTX-28 E2 (TH, DT/OT Tracking Exercise Flight Test)					△					
FTT-26 (MRBM T1)					△					
GTI-24 (I)					◇					
TH CTV-04					△					
FTG-17 (GM, DT/OT Intercept Flight Test)					△					
GTD-14 (N/I) ((Missile Defense System Ground Test)					◇					
GTI-ISR (27) (Missile Defense System Ground Test)					◇					
GTI-15 (E/C)						◇				
FTT-24 (Black Dagger)						△				
GTD-24 (I)						◇				
GTD-15 (E/C)						◇				
FTG-18 (DT/OT)						△				
GTI-ASI (28)							◇			
GTI-16 Sprint 1 (N/I)							◇			
TH CTV-03 (TH Flight Test)								△		
GTI-16 Sprint 2 (N/I)									◇	
FTO-04										△
GTD-16 (N/I)										◇

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2025 Missile Defense Agency		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MD11 / <i>BMDS Radars</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
GTD-08a (N/I) (Missile Defense System Ground Test)	1	2023	1	2023
(EX) AIR AND MISSILE DEFENSE EXERCISE 23	1	2023	3	2023
GTI-09 Sprint 2 (E/C) (Missile Defense System Ground Test)	2	2023	3	2023
SICO-09-3 Ground Test	2	2023	2	2023
FTX-26 (OT) (SN, OT Target Only Flight Test)	4	2023	4	2023
FTX-49	4	2023	4	2023
FTG-12 (GM, DT/OT Intercept Flight Test)	1	2024	1	2024
(EX) AIR AND MISSILE DEFENSE EXERCISE 24	1	2024	3	2024
SICO 9-4 Ground Test	2	2024	2	2024
GTI-08b (N/I)	3	2024	3	2024
GTI-ISR (23) (Missile Defense System Ground Test)	3	2024	3	2024
GTI-08b Part 2	3	2024	3	2024
GTD-08b (N/I)	4	2024	1	2025
LR-08b (N/I)	4	2024	4	2024
FEM-02	1	2025	1	2025
GTI-101 (E/C)	2	2025	2	2025
GTI-13 Sprint 1 (N/I) (Missile Defense System Ground Test)	2	2025	2	2025
GTI-13 Sprint 2 (N/I) (Missile Defense System Ground Test)	4	2025	4	2025
FTX-28 E1 (TH, DT/OT Tracking Exercise Flight Test)	1	2026	1	2026
FTX-28 E3 (TH, DT/OT Tracking Exercise Flight Test)	1	2026	1	2026
GTD-13 (N/I) (Missile Defense System Ground Test)	2	2026	2	2026
GTI-12 (E/C)	2	2026	2	2026

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2025 Missile Defense Agency **Date:** March 2024

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MD11 / <i>BMDS Radars</i>
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Events	Start		End	
	Quarter	Year	Quarter	Year
JFTX-01 E1 (JAPAN, DT Tracking Exercise Flight Test)	3	2026	3	2026
JFTX-01 E2 (JAPAN, DT Tracking Exercise Flight Test)	3	2026	3	2026
LR-13	3	2026	3	2026
GTD-12 (E/C) (Missile Defense System Ground Test)	3	2026	3	2026
GTI-14 Sprint 1 (N/I)	4	2026	4	2026
FTG-16 (GM, DT Intercept Flight Test)	2	2027	2	2027
GTI-14 (N/I) Sprint 2 (Missile Defense System Ground Test)	3	2027	3	2027
FTX-28 E2 (TH, DT/OT Tracking Exercise Flight Test)	3	2027	3	2027
FTT-26 (MRBM T1)	3	2027	3	2027
GTI-24 (I)	3	2027	3	2027
TH CTV-04	3	2027	3	2027
FTG-17 (GM, DT/OT Intercept Flight Test)	4	2027	4	2027
GTD-14 (N/I) ((Missile Defense System Ground Test)	4	2027	4	2027
GTI-ISR (27) (Missile Defense System Ground Test)	4	2027	4	2027
GTI-15 (E/C)	1	2028	1	2028
FTT-24 (Black Dagger)	2	2028	2	2028
GTD-24 (I)	3	2028	3	2028
GTD-15 (E/C)	3	2028	3	2028
FTG-18 (DT/OT)	3	2028	3	2028
GTI-ASI (28)	4	2028	4	2028
GTI-16 Sprint 1 (N/I)	4	2028	4	2028
TH CTV-03 (TH Flight Test)	2	2029	2	2029
GTI-16 Sprint 2 (N/I)	3	2029	3	2029
FTO-04	3	2029	3	2029
GTD-16 (N/I)	4	2029	4	2029

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

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MC11 / <i>Cyber Operations</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
MC11: <i>Cyber Operations</i>	74.103	21.541	20.727	19.141	-	19.141	20.563	19.641	20.060	20.510	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

N/A

**A. Mission Description and Budget Item Justification**

Sustain the Department of Defense Instruction (DoDI) 8510.01 Risk Management Framework (RMF) for Department of Defense (DoD) Information Technology (IT) requirement for the Missile Defense Agency (MDA) Ground Sensors Directorate and conduct Security Control Assessments (SCA) activities, analysis of validation results, risk assessments, and reviews of proposed Program Manager/Information System Security Manager (PM/ISSM) Plans of Action and Milestones (POA&M) for MDA Ground Sensors mission and mission support systems. It also includes support for external cybersecurity assessments and penetration testing of the Ground Sensors mission systems, both in laboratory developmental testing and during ground test activities, in accordance with Director, Operational Test and Evaluation directives and the Integrated Master Test Plan. It maintains the Assessment and Authorization (A&A) data repository, capturing the RMF documentation (artifacts, validation results, Cybersecurity Risk Assessment results, cybersecurity scorecard, and Authorizing Official (AO) authorization decisions) and POA&M for all MDA information systems. It positions Ground Sensors assets to complete transition to National Institute of Standards and Technology (NIST) Special Publication 800-53 Revision 5 requirements (i.e. RMF 2.0) once DoD requirements are released. This project supports aligning, developing, and implementing an integrated Tier 2 Cyber Security Service Provider (CSSP) capability on the Ground Sensors mission systems under the DoD Cybersecurity Discipline Implementation Plan and DoDI 8530.01 Cybersecurity Activities Support to DoD Information Network Operations.

Provides the monitoring, prioritization, and tracking of Cybersecurity mitigation detailed in Information Technology security POA&Ms. The activities include preparation of A&A documentation and accreditation recommendations to the MDA Senior Information Security Officer/SCA and AO. Independent Verification and Validation team actions ensure the availability, integrity, authentication, confidentiality, and non-repudiation of the MDA mission, test, and administrative systems. These activities are necessary to comply with the Federal Information Security Management Act.

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

	FY 2023	FY 2024	FY 2025
<b>Title:</b> Network / System Certification and Accreditation (C&A)	21.541	20.727	19.141
<b>Articles:</b>	-	-	-
<b>Description:</b> Cyber Operations funds Ground Sensors Directorate Information System Security Manager and Information System Security Officer civilian salaries and cybersecurity engineering and architecture planning for program information technology systems. This project plans and tests the cybersecurity controls for the Missile Defense System and maintains RMF authorizations for Ground Sensors managed information systems, conducts Controls Validation Testing/SCA of Ground Sensors mission and support systems, and provides and maintains POA&M to mitigate cybersecurity deficiencies. Cyber Operations conducts annual			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Missile Defense Agency		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MC11 / <i>Cyber Operations</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>
<p>cybersecurity program reviews on the Sensors enclaves to assess compliance in implementing and maintaining controls. This effort supports the aligning, developing, and implementing an integrated Tier 2 CSSP capability on the Ground Sensors mission systems under the DoD Cybersecurity Discipline Implementation Plan and DoDI 8530.01 Cybersecurity Activities Support to DoD Information Network Operations. Develop and maintain the software bill of materials for all developed and delivered mission and mission support software as directed in the President's "Executive Order on Improving the Nation's Cybersecurity" dated May 12, 2021. Execution of developmental cybersecurity test events for Army Navy/Transportable Radar Surveillance and Control-2(AN/TPY-2), Sea-Based X-Band (SBX) radar, and Long Range Discrimination Radar (LRDR).</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2024 Plans:</b></p> <ul style="list-style-type: none"> <li>- Funds Ground Sensors assets to complete transition to NIST Special Publication 800-53 revision 5 requirements (i.e. RMF 2.0) once DoD requirements are released.</li> <li>- Execution of two (2) operational cybersecurity test events (LRDR).</li> </ul> <p><b>FY 2025 Plans:</b></p> <ul style="list-style-type: none"> <li>- Funds the development and delivery of itemized software subcomponent inventory used in Ground Sensors mission and mission support software. Inventory is required to implement software supply chain risk management procedures and increase the transparency and speed at which vulnerabilities are identified and remediated.</li> <li>- Execution of six (6) operational cybersecurity test events affecting LRDR, AN/TPY-2, and SBX, as well as four (4) developmental cybersecurity tests for LRDR and SBX in order to assess the cyber survivability of Ground Sensors systems in a cyber-contested environment.</li> </ul> <p><b>FY 2024 to FY 2025 Increase/Decrease Statement:</b> N/A</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	21.541	20.727	19.141

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>FY 2029</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• 0603896C: <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i>	587.689	554.201	569.662	-	569.662	570.632	587.929	618.050	651.885	Continuing	Continuing

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

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MC11 / <i>Cyber Operations</i>
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**C. Other Program Funding Summary (\$ in Millions)**

<b>Line Item</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>FY 2029</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• 0603898C: <i>Ballistic Missile Defense Joint Warfighter Support</i>	50.942	48.248	47.723	-	47.723	48.921	50.062	51.376	52.565	Continuing	Continuing
• 0603904C: <i>Missile Defense Integration and Operations Center (MDIOC)</i>	47.629	50.549	54.525	-	54.525	56.851	58.115	59.600	61.362	Continuing	Continuing
• 0603907C: <i>Sea Based X-Band Radar (SBX)</i>	163.297	177.868	197.339	-	197.339	176.888	162.741	177.598	188.253	Continuing	Continuing
• 0604873C: <i>Long Range Discrimination Radar (LRDR)</i>	65.991	103.517	100.882	-	100.882	63.560	56.020	64.457	72.759	Continuing	Continuing
• 0604879C: <i>Ballistic Missile Defense Sensor Test</i>	88.326	111.049	96.864	-	96.864	104.578	160.011	172.749	183.147	Continuing	Continuing
• 0901598C: <i>Management HQ - MDA</i>	26.352	28.363	29.033	-	29.033	29.632	30.245	30.870	31.508	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**

The Ground Sensors Directorate will execute the DoDI 8510.01 RMF for DoD IT requirements on several existing Radar Prime Contracts, including the Radar Development Contract, the Radar Test Contract, LRDR, and the Contractor Logistics Support contract. Ground Sensors will also employ Contracted Service Support resources through the Technical, Engineering, Advisory, and Management (TEAMS), TEAMS Next contracts, Federally Funded Research and Development support, and via Military Interdepartmental Purchase Request through Military Sealift Command. Ground Sensors will conduct SCA activities, developmental and operational cybersecurity testing, analyze validation results, accomplish risk assessments, and perform reviews of proposed PM/ISSM POA&M for MDA Ground Sensors mission and mission support systems.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Missile Defense Agency** **Date:** March 2024

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MC11 / <i>Cyber Operations</i>
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<b>Product Development (\$ in Millions)</b>				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Network / System Certification and Accreditation (C&A) - AN/TPY 2 Cybersecurity Compliance	SS/CPAF	RAYTHEON : MA	2.406	5.327	Nov 2022	2.502	Oct 2023	2.044	Oct 2024	-		2.044	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Cybersecurity Compliance	SS/CPAF	RAYTHEON : Various	0.000	1.006	Mar 2023	0.000		0.000		-		0.000	0.000	1.006	0.000
Network / System Certification and Accreditation (C&A) - LRDR Cybersecurity Compliance	SS/FPIF	LOCKHEED MARTIN CORPORATION : NJ	1.152	0.000		1.682	Oct 2023	1.694	Oct 2024	-		1.694	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - SNR-G Cybersecurity Compliance	SS/FPIF	LOCKHEED MARTIN CORPORATION : NJ	0.000	0.000		0.000		0.847	Nov 2024	-		0.847	Continuing	Continuing	Continuing
<b>Subtotal</b>			3.558	6.333		4.184		4.585		-		4.585	Continuing	Continuing	N/A

**Remarks**  
N/A

<b>Support (\$ in Millions)</b>				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Network / System Certification and Accreditation (C&A) - AN/TPY 2 CSSP Development and Implementation	SS/CPAF	Raytheon : MA	18.866	0.000		0.000		0.000		-		0.000	0.000	18.866	0.000

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Missile Defense Agency												Date: March 2024			
Appropriation/Budget Activity				R-1 Program Element (Number/Name)				Project (Number/Name)							
0400 / 4				PE 0603884C / Ballistic Missile Defense Sensors				MC11 / Cyber Operations							
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
Network / System Certification and Accreditation (C&A) - AN/TPY 2 Cybersecurity Compliance	SS/CPAF	RAYTHEON : MA	9.002	5.024	Dec 2022	1.676	Oct 2023	3.246	Oct 2024	-		3.246	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - CND/IA Advisory and Assistance Services (Booz Allen) - Consolidated in Contract Support Services	C/CPFF	Booz Allen Hamilton : AL, CO, VA	5.134	0.000		0.000		0.000		-		0.000	0.000	5.134	0.000
Network / System Certification and Accreditation (C&A) - CND/IA Advisory and Assistance Services (Torch Technologies) - Consolidated in Contract Support Services	C/CPFF	Torch Technologies : AL, CO, VA	2.641	0.000		0.000		0.000		-		0.000	0.000	2.641	0.000
Network / System Certification and Accreditation (C&A) - Civilian Salaries/Travel	Allot	MDA : AL, CO, VA	2.601	0.508	Oct 2022	0.500	Oct 2023	0.537	Oct 2024	-		0.537	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Contract Support Services	Various	Various : Various	7.843	0.559	Sep 2023	3.115	Nov 2023	1.867	Nov 2024	-		1.867	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Contract Support Services - Cybersecurity Engineering - BAH	C/CPFF	BOOZ ALLEN HAMILTON INC. : VARIOUS	0.000	0.000		3.377	Nov 2023	2.280	Nov 2024	-		2.280	Continuing	Continuing	Continuing

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Missile Defense Agency												Date: March 2024			
Appropriation/Budget Activity						R-1 Program Element (Number/Name)				Project (Number/Name)					
0400 / 4						PE 0603884C / Ballistic Missile Defense Sensors				MC11 / Cyber Operations					
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
Network / System Certification and Accreditation (C&A) - Contract Support Services - Cybersecurity Engineering - DAC	C/CPFF	DECISIVE ANALYTICS CORPORATION : AL	1.025	0.000		0.765	Nov 2023	0.912	Nov 2024	-		0.912	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Contract Support Services - Cybersecurity Engineering - Parsons	C/CPFF	PARSONS GOVERNMENT SERVICES INC. : VA	1.658	0.733	Nov 2022	1.997	Nov 2023	1.042	Nov 2024	-		1.042	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Contract Support Services - Cybersecurity Engineering - System High Corporation	SS/CPFF	SYSTEM HIGH CORPORATION : Various	2.053	2.310	Nov 2022	0.000		0.000		-		0.000	0.000	4.363	0.000
Network / System Certification and Accreditation (C&A) - Cybersecurity Supply Chain Compliance	SS/CPAF	Raytheon : MA	9.849	0.000		0.000		0.000		-		0.000	0.000	9.849	0.000
Network / System Certification and Accreditation (C&A) - LRDR Cybersecurity Compliance	SS/FPIF	Lockheed Martin : NJ	5.321	0.000		0.000		0.000		-		0.000	0.000	5.321	0.000
Network / System Certification and Accreditation (C&A) - SBX Cybersecurity Compliance	MIPR	Military Sealift Command : VA	1.326	0.000		0.000		0.000		-		0.000	0.000	1.326	0.000
Network / System Certification and Accreditation (C&A) - SBX	C/CPFI	GRYPHON TECHNOLOGIES, L.C. : VARIOUS	1.275	1.293	May 2023	1.711	May 2024	1.028	May 2025	-		1.028	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Missile Defense Agency** **Date:** March 2024

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MC11 / <i>Cyber Operations</i>
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<b>Support (\$ in Millions)</b>				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Cybersecurity Compliance - Gryphon															
Network / System Certification and Accreditation (C&A) - SBX Cybersecurity Compliance - PRIME	SS/CPAF	RAYTHEON : MA	1.730	3.360	May 2023	2.903	May 2024	2.171	May 2025	-		2.171	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Systems Engineering Cybersecurity - Jacobs	C/CPIF	JACOBS TECHNOLOGY INC. : Various	0.000	0.737	Nov 2022	0.000		1.129	Nov 2024	-		1.129	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Systems Engineering Cybersecurity - MITRE	FFRDC	DOD - USA - COMMUNICATIONS ELECTRONICS COMMAND (CECOM) : MD	0.221	0.684	Nov 2022	0.499	Nov 2023	0.344	Nov 2024	-		0.344	Continuing	Continuing	Continuing
<b>Subtotal</b>			70.545	15.208		16.543		14.556		-		14.556	Continuing	Continuing	N/A

**Remarks**  
 Decrease in Contract Support Services is offset by the breakout of the Jacobs Technology, Inc. performer for Systems Engineering Cybersecurity - Jacobs.  
 Increase in AN/TPY-2 Cybersecurity Compliance is due to Risk Management Framework deliverables added to comply with National Institute of Standards and Technology (NIST) Special Publication (SP) 800-53 Revision 5 and Committee on National Security Systems Instruction (CNSSI) 1253.

<b>Test and Evaluation (\$ in Millions)</b>				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
<b>Subtotal</b>			-	-		-		-		-		-	-	-	N/A

**Remarks**  
 N/A

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**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2025 Missile Defense Agency **Date:** March 2024

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MC11 / <i>Cyber Operations</i>
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<b>Management Services (\$ in Millions)</b>				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
<b>Subtotal</b>			-	-		-		-		-		-	-	-	N/A

**Remarks**  
N/A

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	74.103	21.541	20.727	19.141	-	19.141	Continuing	Continuing	N/A

**Remarks**  
Award Dates reflect date of first obligation. Additional obligations may incrementally occur throughout the year.

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**Exhibit R-4, RDT&E Schedule Profile: PB 2025 Missile Defense Agency** **Date:** March 2024

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MC11 / <i>Cyber Operations</i>
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	Significant Event Complete ▲				Milestone Decision Complete ★				Element Test Complete ◆				System Level Test Complete ●				Complete Activity ◆					
	Significant Event Planned △				Milestone Decision Planned ☆				Element Test Planned ◇				System Level Test Planned ○				Planned Activity ◇					
	FY 2023			FY 2024			FY 2025			FY 2026			FY 2027			FY 2028			FY 2029			
Risk Management Framework (RMF) Assessment and Authorization (A&A) package preparation and submission	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Cyber Security Program Policy / Risk Management	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Cyber Security Mitigation Monitoring and Tracking	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Missile Defense System Cyber Security Policy Development	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇
Integrated Cyber Security Service Provider	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2025 Missile Defense Agency		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MC11 / <i>Cyber Operations</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Risk Management Framework (RMF) Assessment and Authorization (A&A) package preparation and submission	1	2023	4	2029
Cyber Security Program Policy / Risk Management	1	2023	4	2029
Cyber Security Mitigation Monitoring and Tracking	1	2023	4	2029
Missile Defense System Cyber Security Policy Development	1	2023	4	2029
Integrated Cyber Security Service Provider	1	2023	4	2029

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Missile Defense Agency										<b>Date:</b> March 2024		
<b>Appropriation/Budget Activity</b> 0400 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>				<b>Project (Number/Name)</b> MD40 / <i>Program-Wide Support</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025 Base</b>	<b>FY 2025 OCO</b>	<b>FY 2025 Total</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>FY 2029</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MD40: <i>Program-Wide Support</i>	146.534	8.393	8.501	7.829	-	7.829	8.451	8.281	9.238	9.715	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

Program Wide Support (PWS) is allocated on a pro-rata basis across multiple Agency program elements (PEs) each fiscal year based on the total Agency budget, and therefore fluctuates per PE by fiscal year.

**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.

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

	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>
<b>Title:</b> Program Wide Support	8.393	8.501	7.829
<b>Articles:</b>	-	-	-
<b>Description:</b> 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			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2025 Missile Defense Agency		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MD40 / <i>Program-Wide Support</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>
<p>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.</p> <p><b>FY 2024 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2025 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2024 to FY 2025 Increase/Decrease Statement:</b> Decrease from FY 2024 to FY 2025 reflects the PWS allocation on a pro-rata basis across multiple Agency PE's each fiscal year based on the total Agency budget, and therefore fluctuates per PE by fiscal year.</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	8.393	8.501	7.829

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

N/A

**Remarks**

**D. Acquisition Strategy**

The acquisition strategy for MDA Consolidated Support consists of contract actions to industry for: a) Engineering and technical support; b) studies, analyses, and evaluations; and c) management and professional services to MDA functional organizations and program offices. With a focus to achieve Small Business goals, MDA is leveraging existing contracts and will competitively award new contracts to meet MDA's Fiscal Years 2020-2030 Advisory and Assistance Services support.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Missile Defense Agency** **Date:** March 2024

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / Ballistic Missile Defense Sensors	<b>Project (Number/Name)</b> MD40 / Program-Wide Support
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<b>Support (\$ in Millions)</b>				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Wide Support - Agency Operations and Support Services #2	C/CPFF	HUNTSVILLE REHABILITATION FOUNDATION : Various	0.000	0.000		0.902	Nov 2023	4.274	Nov 2024	-		4.274	Continuing	Continuing	Continuing
Program Wide Support - Agency Facilities and Maintenance	MIPR	Army Garrison Resource : AL, CO, CA, VA	14.100	0.000		0.000		0.000		-		0.000	0.000	14.100	0.000
Program Wide Support - Agency Operations Management	C/CPAF	Various : Multi: AL, CA, CO, VA	8.600	0.000		0.000		0.000		-		0.000	0.000	8.600	0.000
Program Wide Support - Agency Operations and Support Other Agency Services	MIPR	Various : AK, AL, CO, CA, HI, MD, VA	13.481	0.000		0.000		0.000		-		0.000	0.000	13.481	0.000
Program Wide Support - Agency Operations and Support Services	C/FFP	VENTURI, INC. : Multi: AK, AL, CO, CA, HI, MD, VA	95.222	8.393	Nov 2022	3.095	Nov 2023	1.634	Nov 2024	-		1.634	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services #3	MIPR	GSA - GENERAL SERVICES ADMINISTRATION (GSA) : Various	0.000	0.000		0.171	Nov 2023	1.921	Nov 2024	-		1.921	Continuing	Continuing	Continuing
Program Wide Support - Prior year no longer funded in the FYDP	Various	Various : Various	15.131	0.000		0.000		0.000		-		0.000	0.000	15.131	0.000
<b>Subtotal</b>			146.534	8.393		4.168		7.829		-		7.829	Continuing	Continuing	N/A

**Remarks**  
In accordance with the Financial Management Regulation cost category definitions, some items have transferred to appropriate cost categories.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2025 Missile Defense Agency** **Date:** March 2024

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MD40 / <i>Program-Wide Support</i>
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<b>Management Services (\$ in Millions)</b>				FY 2023		FY 2024		FY 2025 Base		FY 2025 OCO		FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Wide Support - Agency Operations and Support Services	C/CPFF	VENTURI, INC. : AL	0.000	0.000		4.333	Nov 2023	0.000		-		0.000	0.000	4.333	0.000
<b>Subtotal</b>			0.000	0.000		4.333		0.000		-		0.000	0.000	4.333	N/A

**Remarks**  
N/A

	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	146.534	8.393	8.501	7.829	-	7.829	Continuing	Continuing	N/A

**Remarks**  
Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2025 Missile Defense Agency		<b>Date:</b> March 2024
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	<b>Project (Number/Name)</b> MD40 / <i>Program-Wide Support</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MD40 Program-Wide Support	1	2023	4	2029