

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Missile Defense Agency **Date:** March 2023

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>
---	--

COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	2,572.019	250.123	230.502	239.159	-	239.159	212.191	233.877	242.623	251.226	Continuing	Continuing
MD11: <i>BMDs Radars</i>	2,380.617	220.888	200.770	209.931	-	209.931	184.133	202.733	212.070	218.960	Continuing	Continuing
MC11: <i>Cyber Operations</i>	54.599	19.504	21.339	20.727	-	20.727	20.421	21.694	20.709	21.124	Continuing	Continuing
MD40: <i>Program-Wide Support</i>	136.803	9.731	8.393	8.501	-	8.501	7.637	9.450	9.844	11.142	Continuing	Continuing

Program MDAP/MAIS Code: 362

Note

Increase from Fiscal Year (FY) 2023 to FY 2024 provides for additional testing of software maintenance updates and resolution of software trouble reports for multiple software builds.

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 through the development, delivery, and deployment/redeployment of 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 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,

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Missile Defense Agency	Date: March 2023
---	-------------------------

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>
---	--

the AN/TPY-2 provides fire control data to enable remote Standard Missile-3 engagements by Aegis BMD, and to cue deployed THAAD and U.S. and partner PATRIOT (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, Upgraded Early Warning Radar, 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 (i.e., RMF 2.0) and enhances 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. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	254.962	231.134	250.028	-	250.028
Current President's Budget	250.123	230.502	239.159	-	239.159
Total Adjustments	-4.839	-0.632	-10.869	-	-10.869
• Congressional General Reductions	0.000	-0.632			
• 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	-4.839	0.000			
• Other Adjustment	0.000	0.000	-10.869	-	-10.869

Change Summary Explanation

The decrease in FY 2024 reflects realignment to higher Department priorities.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency **Date:** March 2023

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD11 / <i>BMDS Radars</i>
--	--	---

COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
MD11: <i>BMDS Radars</i>	2,380.617	220.888	200.770	209.931	-	209.931	184.133	202.733	212.070	218.960	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Increase from (Fiscal Year) FY 2023 to FY 2024 provides for additional testing of software maintenance updates and resolution of software trouble reports for multiple software builds.

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)

	FY 2022	FY 2023	FY 2024
Title: Basic Development Program	20.814	25.101	35.330
Articles:	-	-	-
Description: 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 provides analysis of 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:			
FY 2023 Plans:			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD11 / <i>BMDS Radars</i>		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2022	FY 2023	FY 2024
- SEE ABOVE.				
<p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Continue development and testing of software maintenance updates - Continue resolution of software trouble reports identified on fielded software versions CX 3.0 and CX 4.0 - Continue analysis of software performance during flight test and ground test to support Material Release of software version CX 5.0 - Upgrade developmental Hardware in the Loop (HWIL) lab equipment <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase from FY 2023 to FY 2024 provides for additional testing of software maintenance updates and resolution of software trouble reports for multiple software builds.</p>				
<p>Title: BMDS Radars Modeling & Simulation (M&S)</p> <p>Description: Missile Defense System Radars M&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&S architecture, and Verification, Validation, and Certification (VV&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&S frameworks and truth models required to anchor M&S. These activities include:</p> <ul style="list-style-type: none"> - Develop and sustain Digital and Hardware-in-the Loop (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 - Perform VV&C of radar models, including electronic protection and objective debris mitigation, for use in performance assessments - Support technical and performance assessments including Ground Test and Continuous Digital Assessment using Open Systems Architecture Sensor Models (OSM), Open Systems Architecture Signal Injectors, and Multi-band Electronic Attack Digital Injection Capability (MEDIC) - Develop End-to-end Digital Integrated System-level Simulation (EDISS) and Ground Test Integrated System-level Simulation (GTISS) improvements to the Missile Defense Agency (MDA) Ground Test Architecture that provides assessment data, supplemental to Ground and Flight tests, in areas that those venues cannot address - Conduct continuous agile system requirements analysis, software development, integration, and test of incremental versions for enhanced EDISS and GTISS capabilities 		76.002	54.298	50.534
		Articles:	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD11 / <i>BMDS Radars</i>		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2022	FY 2023	FY 2024
<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>FY 2023 Plans: Digital M&S Priorities: - Continue core modeling of real-world radar capabilities to keep pace with the evolving Missile Defense System, continuing LRDR and AN/TPY-2 modeling, along with increasing modeling efforts on MDA standalone radars - Continue supporting Continuous Digital Assessments to include planning, execution, analysis and reporting - Complete software development of EDISS v2 - Complete integration and testing for EDISS v2 - Complete software development of interfaces for OSM models for AN/TPY-2, COBRA DANE, UEWR, SBX, and LRDR for EDISS v3 - Conduct element-level and support system-level verification and validation activities - Continue EDISS v4 system requirements analysis - Continue development of additional capabilities in high fidelity digital models for AN/TPY-2, SBX, LRDR, UEWR, and CD - Complete EDISS v4 Design Synthesis - Complete EDISS v4 Engineering and Development - Continue EDISS v4 Integration, Test, and Verification</p> <p>Ground Test and HWIL M&S Priorities: - Complete Phase 1 of GTISS improvements to the MDA Ground Test Architecture - Complete GTISS Phase 2 Integration, Test, and Verification - Complete GTISS Phase 3 Design Synthesis - Complete GTISS Phase 3 Engineering and Development - Continue GTISS Phase 3 Integration, Test, and Verification - Continue development of additional capabilities in high fidelity ground test models for AN/TPY-2, SBX, LRDR, and UEWR - Complete Element Post Flight Reconstructions of FTX-45 for LRDR and UEWR</p> <p>FY 2024 Plans: - SEE ABOVE</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>				
Title: Capability Development Program		75.484	74.534	71.977

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD11 / <i>BMDS Radars</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
<p align="right"><i>Articles:</i></p> <p>Description: 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 attack on sensors. It develops, designs, and tests sensor mid-term discrimination improvements for X-Band radars, to include 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, and 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.</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Continue development of sensor mid-term threat discrimination improvements for X-Band radars, to include SBX threat discrimination improvements - Continue development of sensor Electronic Protection and Objective Debris Mitigation development efforts to mitigate electronic attack and to reduce the effect of clutter on sensors - Continue development of a domestic secure server solution to meet the AN/TPY-2 cybersecurity and performance requirements - Initiate enhanced electronic protections mitigations <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Complete development of a next generation Electronic Equipment Unit to resolve obsolescence associated with the legacy Receiver/Exciter and X86 servers (CX 6.0) - Complete development of initial Arbitrary Waveform and advanced signal processing capability (CX 7.0) - Continue AN/TPY-2 Advanced Electronic Protection (EP) Development (CX 6.0) for Enhanced AN/TPY-2 (Forward Based Mode) Protections and Mitigations - Continue SBX EP Algorithm Development & Integration for SBX Stand Alone Radar Protections and Mitigations (XBR 4.3) - Development of SBX EP models and simulation capability 	-	-	-

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD11 / <i>BMDS Radars</i>		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2022	FY 2023	FY 2024
- Continue LRDR discrimination studies and development efforts to address updated Homeland Defense Ballistic Missile Threat Space FY 2023 to FY 2024 Increase/Decrease Statement: N/A				
Title: Sensors Directorate Operations		44.462	45.377	52.090
Articles:		-	-	-
Description: Program 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"> - Provide technical and business management support activities to provide critical program status and decision quality data - Ensure Ground Sensors program compliance with internal and external direction, policies, and regulations to deliver critical capability within a consistent and disciplined process - Conduct internal program reviews to measure program progress against the six Missile Defense Agency approved baselines - 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 which minimize test and rework costs - 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 - Provide End User Support, Unified Communications, Computer Network Defense Services, Business Automation, and Portal and Data Services to support the Sensors Directorate - Provide sustainment Integrated Product Support (IPS) in accordance with the Army/Navy Transportable Radar Surveillance Model 2 (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 Specific and/or unique accomplishments to each FY are as follows: FY 2023 Plans: - SEE ABOVE. FY 2024 Plans:				

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD11 / <i>BMDS Radars</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
- SEE ABOVE.			
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Increase from FY 2023 to FY 2024 provides adjustments for inflation, consolidation of communication and information technology (classified and unclassified) service agreements and properly aligns program office support to requirements.			
<i>Title:</i> Upgrade Clear Early Warning Radar	4.126	1.460	0.000
<i>Articles:</i>	-	-	-
<i>Description:</i> Upgrade of U.S. Space Force (USSF) Clear Early Warning Radar Space Force Station (SFS) and USSF Cape Cod Early Warning Radar SFS includes adaptation of hardware and software to UEWR infrastructure, support to Missile Defense System communications and architecture work and installation at site. This project also includes preparation and removal of legacy equipment at each UEWR site.			
Specific and/or unique accomplishments to each FY are as follows:			
<i>FY 2023 Plans:</i> -Continue Automatic Data Processing Equipment (ADPE) Rehost strings for Integrated Software Test Center (ISTC) 1 and ISTC 2 required for CD to continue participation in ground tests			
<i>FY 2024 Plans:</i> N/A			
<i>FY 2023 to FY 2024 Increase/Decrease Statement:</i> Decrease from FY 2023 to FY 2024 reflects completion of the USSF UEWR upgrades.			
Accomplishments/Planned Programs Subtotals	220.888	200.770	209.931

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0208866C MD11: <i>BMDS Sensors Procurement</i>	2.738	4.606	29.108	-	29.108	35.257	13.382	27.475	10.200	Continuing	Continuing
• 0208866C MD11: <i>Missile Defense System Radars Program, Operation and Maintenance</i>	190.715	200.207	227.768	-	227.768	228.246	255.910	259.386	264.174	Continuing	Continuing

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency **Date:** March 2023

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD11 / <i>BMDS Radars</i>
--	--	---

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

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• 0603882C: <i>Ballistic Missile Defense Midcourse Defense Segment</i>	707.632	689.018	903.633	-	903.633	852.567	906.634	930.538	875.198	Continuing	Continuing
• 0603890C: <i>BMD Enabling Programs</i>	616.800	588.847	597.720	-	597.720	620.823	639.398	648.954	650.432	Continuing	Continuing
• 0603896C: <i>Ballistic Missile Defense Command and Control, Battle Management & Communication</i>	556.914	589.374	554.201	-	554.201	574.275	585.966	598.896	582.156	Continuing	Continuing
• 0603898C: <i>Ballistic Missile Defense Joint Warfighter Support</i>	50.261	50.269	48.248	-	48.248	49.164	50.445	51.542	52.859	Continuing	Continuing
• 0603904C: <i>Missile Defense Integration and Operations Center (MDIOC)</i>	44.188	49.367	50.549	-	50.549	56.624	58.020	59.193	60.615	Continuing	Continuing
• 0603907C: <i>Sea Based X-Band Radar (SBX)</i>	147.241	164.668	177.868	-	177.868	196.952	176.633	162.632	162.578	Continuing	Continuing
• 0603914C: <i>Ballistic Missile Defense Test</i>	388.956	366.824	360.455	-	360.455	430.281	436.921	465.074	375.256	Continuing	Continuing
• 0604181C: <i>Hypersonic Defense</i>	281.886	517.977	208.997	-	208.997	218.939	294.326	366.951	644.996	Continuing	Continuing
• 0604672C: <i>Homeland Defense Radar-Hawaii</i>	75.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	75.000
• 0604873C: <i>Long Range Discrimination Radar (LRDR)</i>	129.552	75.120	103.517	-	103.517	100.114	68.815	69.219	65.521	Continuing	Continuing
• 0604879C: <i>Ballistic Missile Defense Sensor Test</i>	77.428	88.326	111.049	-	111.049	90.697	103.885	154.905	127.807	Continuing	Continuing

Remarks

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 (USSTRATCOM)-led Warfighter Involvement Process. MDA's Achievable Capabilities List documents content from the Prioritized Capabilities List and Modification and Fielding Requirements List,

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD11 / <i>BMDS Radars</i>

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 (FBM) and Terminal Mode, and the SBX Radar to include the Weather Air Search Radar located on the SBX platform.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency												Date: March 2023			
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 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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 - Material Release Get Well Plan - AMCOM	MIPR	AMCOM : AL	0.580	0.000		0.133	Nov 2022	0.000		-		0.000	0.000	0.713	0.000
Basic Development Program - Basic Development - SBX	SS/CPAF	Raytheon : MA	3.971	0.000		2.000	Nov 2022	0.000		-		0.000	0.000	5.971	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 - 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 : TBD	168.760	12.466	Nov 2021	14.834	Nov 2022	25.431	Nov 2023	-		25.431	Continuing	Continuing	Continuing
Basic Development Program - X-Band Software Enhancements/ Development - CCDC	MIPR	DOD - USA - COMBAT CAPABILITIES DEVELOPMENT COMMAND (CCDC) AVIATION AND	0.000	8.348	Nov 2021	8.134	Nov 2022	9.899	Nov 2023	-		9.899	Continuing	Continuing	Continuing

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency												Date: March 2023			
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 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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	0.000	27.200	May 2022	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 : Various	199.390	22.982	Jan 2022	21.456	Jan 2023	28.229	Jan 2024	-		28.229	Continuing	Continuing	Continuing
BMDS Radars Modeling & Simulation (M&S) - M&S Development-FFRDC/UARC	Various	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	11.743	8.611	Nov 2021	8.993	Feb 2023	5.378	Nov 2023	-		5.378	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	0.000		9.203	Dec 2022	4.360	Nov 2023	-		4.360	Continuing	Continuing	Continuing

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency												Date: March 2023			
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 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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	MIPR	DOD - USA - COMBAT CAPABILITIES DEVELOPMENT COMMAND (CCDC) AVIATION AND MISSILE CENTER (AVMC) : AL	71.241	12.739	Dec 2021	11.192	Dec 2022	8.929	Dec 2023	-		8.929	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
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	15.819	0.495	Nov 2021	1.000	Feb 2023	2.422	Nov 2023	-		2.422	Continuing	Continuing	Continuing
Capability Development Program - Enhanced Discrimination - MITRE	MIPR	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
Capability Development Program - AN/TPY-2	SS/CPFF	GTRI : GA	1.782	0.000		0.000		0.000		-		0.000	0.000	1.782	0.000

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency												Date: March 2023			
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 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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 - GTRI															
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	248.721	14.441	Nov 2021	14.262	Nov 2022	19.132	Nov 2023	-		19.132	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 - 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 : TBD	49.827	25.497	Nov 2021	9.292	Nov 2022	16.602	Nov 2023	-		16.602	Continuing	Continuing	Continuing
Capability Development Program - Enhanced Discrimination	C/CPAF	Raytheon : MA	334.044	23.098	Jan 2022	23.957	Nov 2022	6.417	Nov 2023	-		6.417	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

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency												Date: March 2023			
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 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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 - High Altitude Electromagnetic Pulse (HEMP) Hardening Testing	MIPR	DOD - USA - ABERDEEN TEST CENTER (ATC) : MD	0.000	0.960	Dec 2021	0.000		0.000		-		0.000	0.000	0.960	0.000
Capability Development Program - Network and Infrastructure Services	C/CPAF	Jacobs Engineering : AL, CO, MA, VA	12.216	5.884	Nov 2021	6.213	Nov 2022	0.000		-		0.000	0.000	24.313	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	0.907	0.753	Nov 2021	1.548	Nov 2022	15.823	Nov 2023	-		15.823	Continuing	Continuing	Continuing
Capability Development Program - SBX Capability Development - Raytheon	SS/CPAF	RAYTHEON : MA	22.904	0.000		14.387	Nov 2022	1.299	Nov 2023	-		1.299	Continuing	Continuing	Continuing
Capability Development Program - Science and Technology	C/CPFF	RAYTHEON : MA	0.000	1.800	Jun 2022	0.000		0.000		-		0.000	0.000	1.800	0.000
Capability Development Program - UEWR Capability Development - CCDC	MIPR	CCDC AVMC : AL	6.345	0.000		0.000		0.000		-		0.000	0.000	6.345	0.000
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)	11.304	0.000		0.000		0.000		-		0.000	0.000	11.304	0.000

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency												Date: March 2023			
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 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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
		LOGISTICS CENTER (ALC) : AL													
Sensors Directorate Operations - Civilians/Travel	Allot	MDA : AL, VA, MA	239.050	18.957	Oct 2021	20.874	Nov 2022	21.243	Oct 2023	-		21.243	Continuing	Continuing	Continuing
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	SS/CPAF	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	0.000	2.625	Jul 2022	0.000		0.000		-		0.000	0.000	2.625	0.000
Upgrade Clear Early Warning Radar - Advanced Object Classification - USSF	MIPR	DOD - USSF - US SPACE FORCE (USSF) : CO	0.000	1.268	May 2022	0.000		0.000		-		0.000	0.000	1.268	0.000
Upgrade Clear Early Warning Radar - Facilities Site Activation/Admin Comms	MIPR	Various : AL, MA, AK	7.839	0.233	Apr 2022	0.000		0.000		-		0.000	0.000	8.072	0.000

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency **Date:** March 2023

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD11 / <i>BMDS Radars</i>
--	--	---

Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
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 (HEMP) Hardening - Power Distribution Centers (PDC) and Commercial Power	C/TBD	Various : Various	39.600	0.000		0.000		0.000		-		0.000	0.000	39.600	0.000
High Altitude Electromagnetic Pulse (HEMP) Hardening - Power Distribution System	SS/CPAF	Raytheon : MA	16.600	0.000		0.000		0.000		-		0.000	0.000	16.600	0.000

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency **Date:** March 2023

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD11 / <i>BMDS Radars</i>
--	--	---

Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
(PDS) Development and Integration															
Subtotal			2,361.323	188.357		167.478		165.164		-		165.164	Continuing	Continuing	N/A

Remarks
N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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	C/CPAF	JACOBS TECHNOLOGY INC. : Various	0.000	1.690	Jan 2022	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	0.000	0.791	Nov 2021	0.860	Feb 2023	0.879	Oct 2023	-		0.879	Continuing	Continuing	Continuing
BMDS Radars Modeling & Simulation (M&S) - Warfighter Exercises	SS/CPIF	RAYTHEON : MA	19.294	1.989	Feb 2022	2.594	Dec 2022	2.759	Feb 2024	-		2.759	Continuing	Continuing	Continuing
Capability Development Program - AN/TPY-2 Capability Development - GTRI	SS/CPFF	GEORGIA TECH APPLIED RESEARCH CORPORATION : GA	0.000	1.110	Nov 2021	1.888	Nov 2022	1.521	Nov 2023	-		1.521	Continuing	Continuing	Continuing
Capability Development Program - AN/TPY-2 Capability Development - JHU	SS/CPFF	JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY LLC, THE : MD	0.000	1.080	Nov 2021	1.093	Nov 2022	1.417	Nov 2023	-		1.417	Continuing	Continuing	Continuing

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency **Date:** March 2023

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD11 / <i>BMDS Radars</i>
--	--	---

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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 Program - AN/TPY-2 Capability Development - MITRE	MIPR	DOD - USA - COMMUNICATIONS ELECTRONICS COMMAND (CECOM) : MD	0.000	0.366	Oct 2021	0.894	Oct 2022	0.921	Oct 2023	-		0.921	Continuing	Continuing	Continuing
Capability Development Program - Network And Infrastructure Services	C/CPAF	JACOBS TECHNOLOGY INC. : VARIOUS	0.000	0.000		0.000		6.423	Nov 2023	-		6.423	Continuing	Continuing	Continuing
Sensors Directorate Operations - AN/TPY-2 WSMR Support	MIPR	DOD - USA - WHITE SANDS MISSILE RANGE (WSMR) : NM	0.000	1.019	Oct 2021	0.975	Dec 2022	0.826	Oct 2023	-		0.826	Continuing	Continuing	Continuing
Sensors Directorate Operations - Army Hybrid Program Office	MIPR	DOD - USA - AVIATION AND MISSILE COMMAND (AMCOM) LOGISTICS CENTER (ALC) : AL	0.000	0.957	Dec 2021	1.100	Dec 2022	1.122	Dec 2023	-		1.122	Continuing	Continuing	Continuing
Sensors Directorate Operations - Contractor Support Services	Various	Various : Various	0.000	1.451	Oct 2021	1.314	Oct 2022	0.696	Oct 2023	-		0.696	Continuing	Continuing	Continuing
Sensors Directorate Operations - Contractor Support Services - Engineering	C/CPFF	PARSONS GOVERNMENT SERVICES INC. : CA	0.000	5.240	Oct 2021	6.640	Jan 2023	9.099	Oct 2023	-		9.099	Continuing	Continuing	Continuing
Sensors Directorate Operations - Contractor Support Services - Logistics	C/CPFF	VENTURI, INC. : AL	0.000	1.107	Oct 2021	0.000		1.668	Oct 2023	-		1.668	Continuing	Continuing	Continuing
Sensors Directorate Operations - Contractor Support Services - Quality and Mission Assurance	C/CPFF	AI SOLUTIONS, INC. : MD	0.000	0.867	Oct 2021	1.112	Nov 2022	1.220	Oct 2023	-		1.220	Continuing	Continuing	Continuing
Sensors Directorate Operations - Contractor	C/CPFF	STRATEGIC ALLIANCE	0.000	2.859	Oct 2021	2.375	Jan 2023	2.827	Oct 2023	-		2.827	Continuing	Continuing	Continuing

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency **Date:** March 2023

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD11 / <i>BMDS Radars</i>
--	--	---

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Support Services - Warfighter Integration		SOLUTIONS LLC : VA													
Sensors Directorate Operations - FFRDC - MITRE	MIPR	DOD - USA - COMMUNICATIONS ELECTRONICS COMMAND (CECOM) : TBD	0.000	4.078	Nov 2021	4.384	Nov 2022	4.476	Nov 2023	-		4.476	Continuing	Continuing	Continuing
Sensors Directorate Operations - Network and Infrastructure Services	C/CPAF	Various : Various	0.000	0.750	Jan 2022	1.000	Jan 2023	1.070	Jan 2024	-		1.070	Continuing	Continuing	Continuing
Sensors Directorate Operations - UARC - JHU/APL	SS/CPFF	JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY LLC, THE : VARIOUS	0.000	2.166	Nov 2021	2.441	Dec 2022	2.481	Nov 2023	-		2.481	Continuing	Continuing	Continuing
Sensors Directorate Operations - UEWR Network and Infrastructure Services	Various	Various : Various	0.000	0.000		0.000		0.200	Nov 2023	-		0.200	Continuing	Continuing	Continuing
Upgrade Clear Early Warning Radar - Automatic Data Processing Equipment (ADPE) Rehost	MIPR	DOD - USSF - US SPACE FORCE (USSF) : Various	0.000	0.000		1.460	Jan 2023	0.000		-		0.000	0.000	1.460	0.000
Subtotal			19.294	27.520		30.130		39.605		-		39.605	Continuing	Continuing	N/A

Remarks
Operations and sustainment support for the U.S. Space Force (USSF) COBRA DANE (CD), and Army Navy/Transportable Radar Surveillance and Control (AN/TPY-2) Radars Contract Logistics Support (CLS) are Operations and Maintenance (O&M) Defense-Wide appropriations and are described in the Missile Defense Agency (MDA) O-Documents.

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Subtotal			-	-		-		-		-		-	-	-	N/A

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency **Date:** March 2023

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD11 / <i>BMDS Radars</i>
--	--	---

Test and Evaluation (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			

Remarks
N/A

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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	0.000	2.720	Oct 2021	1.554	Oct 2022	3.362	Oct 2023	-		3.362	Continuing	Continuing	Continuing
Sensors Directorate Operations - Contractor Support Services - Various	Various	Various : Various	0.000	2.291	Oct 2021	1.608	Oct 2022	1.800	Oct 2023	-		1.800	Continuing	Continuing	Continuing
Subtotal			0.000	5.011		3.162		5.162		-		5.162	Continuing	Continuing	N/A

Remarks
N/A

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2,380.617	220.888	200.770	209.931	-	209.931	Continuing	Continuing	N/A

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

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Missile Defense Agency **Date:** March 2023

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD11 / <i>BMDS Radars</i>
--	--	---

	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 2022		FY 2023		FY 2024		FY 2025		FY 2026		FY 2027		FY 2028	
GTI-ISR (21) (Missile Defense System Ground Test)	◆													
FTX-43 (OTHER, DT Tracking Exercise Flight Test)	▲													
(EX) AIR AND MISSILE DEFENSE EXERCISE 22	◆	◆	◆											
FTT-21 (TH, DT Intercept Flight Test)		▲												
(EX) EAGLE RESOLVE 22		▲												
GTI-08a (N/I) (Missile Defense System Ground Test)			◆											
GTI-09 Sprint 1 (E/C) (Missile Defense System Ground Test)				◆										
FTX-45			▲											
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					◇									
FTT-25 (TH, DT/OT Intercept Flight Test)						△								
SICO 9-4 Ground Test						◇								
FTX-26 (OT) (SN, OT Target Only Flight Test)							△							
GTI-08b (N/I)							◇							
GTI-101 (E/C)								◇						
FTG-12 (GM, DT/OT Intercept Flight Test)								△						
(EX) AIR AND MISSILE DEFENSE EXERCISE 24								◇	◇	◇				
GTI-ASI (24) (Missile Defense System Ground Test)								◇						
GTD-08b (N/I)								◇						
FTX-28 E2 (TH, DT/OT Tracking Exercise Flight Test)										△				
FTX-28 E1 (TH, DT/OT Tracking Exercise Flight Test)										△				
FTX-28 E3 (TH, DT/OT Tracking Exercise Flight Test)										△				

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Missile Defense Agency **Date:** March 2023

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD11 / <i>BMDS Radars</i>
--	--	---

	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 2022		FY 2023		FY 2024		FY 2025		FY 2026		FY 2027		FY 2028	
GTI-102 (I)														
GTI-ISR (23) (Missile Defense System Ground Test)														
GTI-13 Sprint 1 (N/I) (Missile Defense System Ground Test)														
GTI-ISR (25) (Missile Defense System Ground Test)														
GTI-13 Sprint 2 (N/I) (Missile Defense System Ground Test)														
JFTX-01 E1 (JAPAN, DT Tracking Exercise Flight Test)														
JFTX-01 E2 (JAPAN, DT Tracking Exercise Flight Test)														
FTT-26 (MRBM T1)														
GTD-13 (N/I) (Missile Defense System Ground Test)														
GTI-12 (E/C)														
GTD-12 (E/C) (Missile Defense System Ground Test)														
GTI-ASI (26) (Missile Defense System Ground Test)														
TH CTV-03 (TH, DT Interceptor Only Flight Test)														
GTI-14 Sprint 1 (N/I)														
GTI-24 (N/I)														
FTG-16 (GM, DT Intercept Flight Test)														
GTI-14 (N/I) Sprint 2 (Missile Defense System Ground Test)														
SICO-24 (N/I)														
GTI-15 Sprint 1 (E/C)														
FTT-22 (TH, DT/OT Intercept Flight Test)														
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 Sprint 2 (E/C)														

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD11 / <i>BMDS Radars</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
GTI-ISR (21) (Missile Defense System Ground Test)	1	2022	1	2022
FTX-43 (OTHER, DT Tracking Exercise Flight Test)	1	2022	1	2022
(EX) AIR AND MISSILE DEFENSE EXERCISE 22	1	2022	3	2022
FTT-21 (TH, DT Intercept Flight Test)	2	2022	2	2022
(EX) EAGLE RESOLVE 22	2	2022	2	2022
GTI-08a (N/I) (Missile Defense System Ground Test)	3	2022	3	2022
GTI-09 Sprint 1 (E/C) (Missile Defense System Ground Test)	4	2022	4	2022
FTX-45	4	2022	4	2022
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	2	2023
SICO-09-3 Ground Test	2	2023	2	2023
FTT-25 (TH, DT/OT Intercept Flight Test)	3	2023	3	2023
SICO 9-4 Ground Test	3	2023	3	2023
FTX-26 (OT) (SN, OT Target Only Flight Test)	4	2023	4	2023
GTI-08b (N/I)	4	2023	4	2023
GTI-101 (E/C)	1	2024	1	2024
FTG-12 (GM, DT/OT Intercept Flight Test)	1	2024	1	2024
(EX) AIR AND MISSILE DEFENSE EXERCISE 24	1	2024	3	2024
GTI-ASI (24) (Missile Defense System Ground Test)	2	2024	2	2024
GTD-08b (N/I)	2	2024	2	2024
FTX-28 E2 (TH, DT/OT Tracking Exercise Flight Test)	3	2024	3	2024

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Missile Defense Agency **Date:** March 2023

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD11 / <i>BMDS Radars</i>
--	--	---

Events	Start		End	
	Quarter	Year	Quarter	Year
FTX-28 E1 (TH, DT/OT Tracking Exercise Flight Test)	3	2024	3	2024
FTX-28 E3 (TH, DT/OT Tracking Exercise Flight Test)	3	2024	3	2024
GTI-102 (I)	3	2024	3	2024
GTI-ISR (23) (Missile Defense System Ground Test)	3	2024	3	2024
GTI-13 Sprint 1 (N/I) (Missile Defense System Ground Test)	1	2025	1	2025
GTI-ISR (25) (Missile Defense System Ground Test)	2	2025	2	2025
GTI-13 Sprint 2 (N/I) (Missile Defense System Ground Test)	3	2025	3	2025
JFTX-01 E1 (JAPAN, DT Tracking Exercise Flight Test)	3	2025	3	2025
JFTX-01 E2 (JAPAN, DT Tracking Exercise Flight Test)	3	2025	3	2025
FTT-26 (MRBM T1)	3	2025	3	2025
GTD-13 (N/I) (Missile Defense System Ground Test)	4	2025	4	2025
GTI-12 (E/C)	1	2026	1	2026
GTD-12 (E/C) (Missile Defense System Ground Test)	2	2026	2	2026
GTI-ASI (26) (Missile Defense System Ground Test)	3	2026	3	2026
TH CTV-03 (TH, DT Interceptor Only Flight Test)	3	2026	3	2026
GTI-14 Sprint 1 (N/I)	4	2026	4	2026
GTI-24 (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)	2	2027	2	2027
SICO-24 (N/I)	3	2027	3	2027
GTI-15 Sprint 1 (E/C)	3	2027	3	2027
FTT-22 (TH, DT/OT Intercept Flight Test)	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

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Missile Defense Agency **Date:** March 2023

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD11 / <i>BMDS Radars</i>
--	--	---

Events	Start		End	
	Quarter	Year	Quarter	Year
GTI-15 Sprint 2 (E/C)	1	2028	1	2028
GTD-15 (E/C)	2	2028	2	2028
FTG-18 (DT/OT)	3	2028	3	2028
GTI-25 (N/I)	3	2028	3	2028
GTI-ASI (28)	4	2028	4	2028
GTI-16 Sprint 1 (N/I)	4	2028	4	2028

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency **Date:** March 2023

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MC11 / <i>Cyber Operations</i>
--	--	--

COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
MC11: <i>Cyber Operations</i>	54.599	19.504	21.339	20.727	-	20.727	20.421	21.694	20.709	21.124	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 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 in 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 the alignment, development, and implementation of an integrated Tier 2 Cyber Security Service Provider (CSSP) capability on the Ground Sensors mission systems in accordance with 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 2022	FY 2023	FY 2024
Title: Network / System Certification and Accreditation (C&A)	19.504	21.339	20.727
Articles:	-	-	-
Description: Cyber Operations funds Ground Sensors Directorate Information System Security Manager and Information System Security Officer civilian salaries as well as 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			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MC11 / <i>Cyber Operations</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
<p>cybersecurity program reviews on the Sensors enclaves to assess compliance in implementing and maintaining controls. This effort supports the alignment, development, and implementation of an integrated Tier 2 CSSP capability on the Ground Sensors mission systems in accordance with 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 (SBOM) 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>FY 2023 Plans:</p> <ul style="list-style-type: none"> -Develop and maintain the SBOM 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 four (4) developmental cybersecurity test events for AN/TPY-2 (2), SBX (1), and LRDR (1) and two (2) operational cybersecurity tests (SBX). <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - 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. - Execution of two (2) operational cybersecurity test events (LRDR). <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>			
Accomplishments/Planned Programs Subtotals	19.504	21.339	20.727

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• 0603896C: <i>Ballistic Missile Defense Command and Control, Battle Management & Communication</i>	556.914	589.374	554.201	-	554.201	574.275	585.966	598.896	582.156	Continuing	Continuing
• 0603898C: <i>Ballistic Missile Defense Joint Warfighter Support</i>	50.261	50.269	48.248	-	48.248	49.164	50.445	51.542	52.859	Continuing	Continuing

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency **Date:** March 2023

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MC11 / <i>Cyber Operations</i>
--	--	--

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

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603904C: <i>Missile Defense Integration and Operations Center (MDIOC)</i>	44.188	49.367	50.549	-	50.549	56.624	58.020	59.193	60.615	Continuing	Continuing
• 0603907C: <i>Sea Based X-Band Radar (SBX)</i>	147.241	164.668	177.868	-	177.868	196.952	176.633	162.632	162.578	Continuing	Continuing
• 0604672C: <i>Homeland Defense Radar-Hawaii</i>	75.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	75.000
• 0604873C: <i>Long Range Discrimination Radar (LRDR)</i>	129.552	75.120	103.517	-	103.517	100.114	68.815	69.219	65.521	Continuing	Continuing
• 0604879C: <i>Ballistic Missile Defense Sensor Test</i>	77.428	88.326	111.049	-	111.049	90.697	103.885	154.905	127.807	Continuing	Continuing
• 0901598C: <i>Management HQ - MDA</i>	24.102	25.259	28.363	-	28.363	29.039	29.601	30.174	30.760	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Ground Sensors Directorate will execute the DoDI 8510.01 RMF for DoD IT requirement on several existing Radar Prime Contracts to include 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, & Management (TEAMS) and TEAMS Next contracts, Federally Funded Research and Development (MITRE) support, and via Military Interdepartmental Purchase Request (MIPR) 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.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency **Date:** March 2023

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MC11 / <i>Cyber Operations</i>
--	--	--

Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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	0.000	2.406	Oct 2021	3.057	Oct 2022	2.502	Oct 2023	-		2.502	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Cybersecurity Compliance	SS/CPAF	RAYTHEON : Various	0.000	0.000		0.428	Nov 2022	0.000		-		0.000	0.000	0.428	0.000
Network / System Certification and Accreditation (C&A) - LRDR Cybersecurity Compliance	SS/FPIF	LOCKHEED MARTIN CORPORATION : NJ	0.000	1.152	Aug 2022	1.739	Oct 2022	1.682	Oct 2023	-		1.682	Continuing	Continuing	Continuing
Subtotal			0.000	3.558		5.224		4.184		-		4.184	Continuing	Continuing	N/A

Remarks
N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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	13.647	5.219	Oct 2021	0.000		0.000		-		0.000	0.000	18.866	0.000
Network / System Certification and Accreditation (C&A) - AN/TPY 2 Cybersecurity Compliance	SS/CPAF	RAYTHEON : MA	9.002	0.000		1.643	Mar 2023	1.676	Oct 2023	-		1.676	Continuing	Continuing	Continuing

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency												Date: March 2023			
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 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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) - 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	2.082	0.519	Oct 2021	0.483	Oct 2022	0.500	Oct 2023	-		0.500	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Contract Support Services	Various	MDA : Various	5.597	0.000		0.000		0.000		-		0.000	0.000	5.597	0.000
Network / System Certification and Accreditation (C&A) - Contract Support Services - Cybersecurity Engineering - BAH	C/CPFF	BOOZ ALLEN HAMILTON INC. : VARIOUS	0.000	0.000		2.850	Nov 2022	3.377	Nov 2023	-		3.377	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Contract Support Services - Cybersecurity Engineering - DAC	C/CPFF	DECISIVE ANALYTICS CORPORATION : AL	0.000	1.025	Nov 2021	1.112	Nov 2022	0.765	Nov 2023	-		0.765	Continuing	Continuing	Continuing

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency **Date:** March 2023

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MC11 / <i>Cyber Operations</i>
--	--	--

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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) - Contract Support Services - Cybersecurity Engineering - Parsons	C/CPFF	PARSONS GOVERNMENT SERVICES INC. : VA	0.000	1.658	Nov 2021	1.959	Nov 2022	1.997	Nov 2023	-		1.997	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Contract Support Services - Cybersecurity Engineering - Serco	C/CPFF	SERCO INC. : VARIOUS	0.000	0.000		0.000		0.368	Nov 2023	-		0.368	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Contract Support Services - Cybersecurity Engineering - System High Corporation	SS/CPFF	SYSTEM HIGH CORPORATION : Various	0.000	2.053	Nov 2021	0.000		0.000		-		0.000	0.000	2.053	0.000
Network / System Certification and Accreditation (C&A) - Contract Support Services - Cybersecurity Engineering - Various	C/Various	Various : Various	0.000	0.865	Nov 2021	0.000		0.000		-		0.000	0.000	0.865	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

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency												Date: March 2023			
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 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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) - 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 Cybersecurity Compliance - Gryphon	C/CPIF	GRYPHON TECHNOLOGIES, L.C. : VARIOUS	0.000	1.275	Nov 2021	1.293	Nov 2022	1.711	Nov 2023	-		1.711	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - SBX Cybersecurity Compliance - PRIME	SS/CPAF	RAYTHEON : MA	0.000	1.730	Nov 2021	3.253	Nov 2022	2.903	Nov 2023	-		2.903	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Sensors Test Cybersecurity Compliance	Various	Various : Various	0.000	0.000		1.874	Nov 2022	1.500	Nov 2023	-		1.500	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Systems Engineering Cybersecurity	Various	Various : VARIOUS	0.000	1.381	Nov 2021	1.158	Feb 2023	1.247	Nov 2023	-		1.247	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Systems Engineering Cybersecurity - MITRE	MIPR	DOD - USA - COMMUNICATIONS ELECTRONICS COMMAND (CECOM) : MD	0.000	0.221	Nov 2021	0.490	Nov 2022	0.499	Nov 2023	-		0.499	Continuing	Continuing	Continuing
Subtotal			54.599	15.946		16.115		16.543		-		16.543	Continuing	Continuing	N/A
Remarks															
N/A															

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency								Date: March 2023			
Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>				Project (Number/Name) MC11 / <i>Cyber Operations</i>			
	Prior Years	FY 2022		FY 2023		FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	54.599	19.504		21.339		20.727	-	20.727	Continuing	Continuing	N/A

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

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2024 Missile Defense Agency **Date:** March 2023

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MC11 / <i>Cyber Operations</i>
--	--	--

	FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
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	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) 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	2022	4	2028
Cyber Security Program Policy / Risk Management	1	2022	4	2028
Cyber Security Mitigation Monitoring and Tracking	1	2022	4	2028
Missile Defense System Cyber Security Policy Development	1	2022	4	2028
Integrated Cyber Security Service Provider	1	2022	4	2028

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency **Date:** March 2023

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD40 / <i>Program-Wide Support</i>
--	--	--

COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
MD40: <i>Program-Wide Support</i>	136.803	9.731	8.393	8.501	-	8.501	7.637	9.450	9.844	11.142	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)

	FY 2022	FY 2023	FY 2024
Title: Program Wide Support	9.731	8.393	8.501
Articles:	-	-	-
Description: 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			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD40 / <i>Program-Wide Support</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
<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>FY 2023 Plans: - SEE ABOVE.</p> <p>FY 2024 Plans: - SEE ABOVE.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>			
Accomplishments/Planned Programs Subtotals	9.731	8.393	8.501

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.

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency **Date:** March 2023

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / Ballistic Missile Defense Sensors	Project (Number/Name) MD40 / Program-Wide Support
--	---	---

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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		0.000		0.902	Nov 2023	-		0.902	Continuing	Continuing	Continuing
Program Wide Support - Agency Facilities and Maintenance	MIPR	Various Multi: : 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/CPFF	VENTURI, INC. : Multi: AK, AL, CO, CA, HI, MD, VA	85.491	9.731	Nov 2021	8.393	Nov 2022	3.095	Nov 2023	-		3.095	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services #3	C/CPFF	Various : Various	0.000	0.000		0.000		0.171	Nov 2023	-		0.171	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
Subtotal			136.803	9.731		8.393		4.168		-		4.168	Continuing	Continuing	N/A

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

UNCLASSIFIED

Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Missile Defense Agency **Date:** March 2023

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD40 / <i>Program-Wide Support</i>
--	--	--

Management Services (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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		0.000		4.333	Nov 2023	-		4.333	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		0.000		4.333		-		4.333	Continuing	Continuing	N/A

Remarks
N/A

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	136.803	9.731	8.393	8.501	-	8.501	Continuing	Continuing	N/A

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

UNCLASSIFIED

Exhibit R-4A, RDT&E Schedule Details: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603884C / <i>Ballistic Missile Defense Sensors</i>	Project (Number/Name) MD40 / <i>Program-Wide Support</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MD40 Program-Wide Support	1	2022	4	2028