

**UNCLASSIFIED**

**Exhibit R-2, RDT&E Budget Item Justification:** PB 2023 Missile Defense Agency **Date:** April 2022

|   |  |
|---|--|
| <b>Appropriation/Budget Activity</b><br>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><br>PE 0603884C / <i>Ballistic Missile Defense Sensors</i> |
|---|--|

| COST (\$ in Millions)             | Prior Years | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total | FY 2024 | FY 2025 | FY 2026 | FY 2027 | Cost To Complete | Total Cost |
|-----------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element             | 2,312.414   | 259.605 | 254.962 | 231.134      | -           | 231.134       | 250.028 | 274.705 | 276.254 | 257.575 | Continuing       | Continuing |
| MD11: <i>BMDs Radars</i>          | 2,146.367   | 234.250 | 225.016 | 201.402      | -           | 201.402       | 220.505 | 246.437 | 244.188 | 227.133 | Continuing       | Continuing |
| MC11: <i>Cyber Operations</i>     | 43.344      | 11.255  | 20.215  | 21.339       | -           | 21.339        | 20.724  | 20.416  | 21.689  | 20.704  | Continuing       | Continuing |
| MD40: <i>Program-Wide Support</i> | 122.703     | 14.100  | 9.731   | 8.393        | -           | 8.393         | 8.799   | 7.852   | 10.377  | 9.738   | Continuing       | Continuing |

**Program MDAP/MAIS Code:** 362

**Note**

Decrease from FY 2022 to FY 2023 reflects the FY 2022 Congressional Plus-up for the additional development of Modeling & Simulation (M&S) of new Hardware-in-the-loop (HWIL) and Digital model capabilities to support Integrated Master Test Plan (IMTP) events and system-level digital testing, including development and testing of radar protections and mitigations as well as improvement to MDS cybersecurity.

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

The Missile Defense System (MDS) network of layered Sensors provides essential situational awareness and fire control data for the command and control of MDS 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 (GFC), 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 MDS threat discrimination improvements, which will enhance MDS effectiveness against the evolving adversary threat. The result will be a MDS 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. MDS threat discrimination improvements are funded from the Enabling (0603890C), Midcourse (0603882C), BMD Sensors (0603884C), C2BMC (0603896C), and Aegis BMD (0603892C) PEs.

The BMD 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 MDS C2BMC and coalition data links, the AN/TPY-2 provides fire control data

**UNCLASSIFIED**

|   |                         |
|---|-------------------------|
| <b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Missile Defense Agency | <b>Date:</b> April 2022 |
|---|-------------------------|

|   |  |
|---|--|
| <b>Appropriation/Budget Activity</b><br>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><br>PE 0603884C / <i>Ballistic Missile Defense Sensors</i> |
|---|--|

to enable remote Standard Missile (SM)-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 MDS sensor network includes: the COBRA DANE (CD) Radar at Eareckson Air Station, AK, and the 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 M&S development of Digital and Hardware-in-the-loop (HWIL) models to support IMTP events and system-level digital testing for MDS assessments of LRDR, AN/TPY-2, SBX, 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 (CVT) activities, analysis of validation results, risk assessments, reviews of Plans of Action and Milestones (POA&Ms), and alignment and integration to the Tier 2 Cybersecurity Service Provider (CSSP) for the Sensors mission systems. Cyber Operations supports the execution of lab-based developmental cyber testing (Cooperative Vulnerability Identification (CVI) and Adversarial Cybersecurity Developmental Test and Evaluation (ACD)) for all major mission system software version releases. Enhances software supply chain security by developing and maintaining the software bill of materials (SBOM) 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 2021</b> | <b>FY 2022</b> | <b>FY 2023 Base</b> | <b>FY 2023 OCO</b> | <b>FY 2023 Total</b> |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget                       | 265.803        | 224.750        | 0.000               | -                  | 0.000                |
| Current President's Budget                        | 259.605        | 254.962        | 231.134             | -                  | 231.134              |
| Total Adjustments                                 | -6.198         | 30.212         | 231.134             | -                  | 231.134              |
| • Congressional General Reductions                | 0.000          | 0.000          |                     |                    |                      |
| • Congressional Directed Reductions               | 0.000          | 0.000          |                     |                    |                      |
| • Congressional Rescissions                       | 0.000          | 0.000          |                     |                    |                      |
| • Congressional Adds                              | 0.000          | 30.212         |                     |                    |                      |
| • Congressional Directed Transfers                | 0.000          | 0.000          |                     |                    |                      |
| • Reprogrammings                                  | 0.000          | 0.000          |                     |                    |                      |
| • SBIR/STTR Transfer                              | -6.198         | 0.000          |                     |                    |                      |
| • Missile Defeat and Defense Enhancement          | 0.000          | 0.000          | 0.000               | -                  | 0.000                |
| • Other Adjustment                                | 0.000          | 0.000          | 231.134             | -                  | 231.134              |

**Change Summary Explanation**

Increase of \$30.2 million in FY 2022 provides the Congressional Plus-up for HWIL and Digital modeling capabilities for the IMTP and improvements to Missile Defense System Cybersecurity.

**UNCLASSIFIED**

|   |  |                         |
|---|--|-------------------------|
| <b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2023 Missile Defense Agency   |  | <b>Date:</b> April 2022 |
| <b>Appropriation/Budget Activity</b><br>0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide / BA 4:<br/>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i> | <b>R-1 Program Element (Number/Name)</b><br>PE 0603884C / <i>Ballistic Missile Defense Sensors</i> |                         |

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

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Missile Defense Agency **Date:** April 2022

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

| COST (\$ in Millions)      | Prior Years | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total | FY 2024 | FY 2025 | FY 2026 | FY 2027 | Cost To Complete | Total Cost |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| MD11: <i>BMDS Radars</i>   | 2,146.367   | 234.250 | 225.016 | 201.402      | -           | 201.402       | 220.505 | 246.437 | 244.188 | 227.133 | Continuing       | Continuing |
| Quantity of RDT&E Articles | -           | -       | -       | -            | -           | -             | -       | -       | -       | -       |                  |            |

**Note**

Decrease from FY 2022 to FY 2023 reflects the FY 2022 Congressional Plus-up for the additional development of Modeling & Simulation (M&S) of new Hardware-in-the-loop (HWIL) and Digital model capabilities to support Integrated Master Test Plan (IMTP) events and system-level digital testing, including development and testing of radar protections and mitigations.

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

The Missile Defense System (MDS) Radars project includes development of future AN/TPY-2, COBRA DANE, Long Range Discrimination Radar (LRDR), Sea Based X-Band (SBX), and 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 MDS M&S architecture, and Verification, Validation, and Accreditation of radar models. Joint Emerging Operational Needs Statement (JEONS) provides rapid deployment of software upgrades to optimize performance against increasing threats and improve regional integration. This project also funds participation and support for MDS element ground and flight test campaigns and Warfighter games and exercises.

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

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

|   | FY 2021 | FY 2022 | FY 2023 |
|---|---------|---------|---------|
| <b>Title:</b> Basic Development Program   | 26.003  | 22.314  | 25.207  |
| <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 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 (RAM) 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:   |         |         |         |

**UNCLASSIFIED**

|   |  |   |                |                |
|---|--|---|----------------|----------------|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency  |  | <b>Date:</b> April 2022                                   |                |                |
| <b>Appropriation/Budget Activity</b><br>0400 / 4  | <b>R-1 Program Element (Number/Name)</b><br>PE 0603884C / <i>Ballistic Missile Defense Sensors</i> | <b>Project (Number/Name)</b><br>MD11 / <i>BMDS Radars</i> |                |                |
| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>   |  | <b>FY 2021</b>  | <b>FY 2022</b> | <b>FY 2023</b> |
| <p><b>FY 2022 Plans:</b><br/>- SEE ABOVE.</p> <p><b>FY 2023 Plans:</b><br/>- SEE ABOVE.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b><br/>Increase from FY 2022 to FY 2023 provides for additional testing of software maintenance updates and resolution of software trouble reports.</p>  |  |   |                |                |
| <p><b>Title:</b> BMDS Radars Modeling &amp; Simulation (M&amp;S)</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Missile Defense System (MDS) Radars M&amp;S efforts include development and maintenance of enhanced sensor models, development and maintenance of Radio Frequency (RF) scene generators, integration of digital simulations into the MDS, M&amp;S architecture, and Verification, Validation, and Certification (VV&amp;C) of radar models, including high fidelity models used for performance assessment. This effort includes support for technical and performance assessments using Open Systems Architecture Sensor Models (OSM), Open Systems Architecture Signal Injectors (OSI) and other models/tools, as well as development and sustainment of Digital and Hardware in the Loop (HWIL) representations of various simulations and models to include the tactical versions of AN/TPY-2, LRDR, SBX, UEWR, and CD. This effort funds the development of End-to-end Digital Integrated System-level Simulation (EDISS) and Ground Test Integrated System-level Simulation (GTISS) improvements to the MDA Ground Test Architecture. MDS Radars M&amp;S efforts also fund the development and validation of Multi-band Electronic Attack Digital Injection Capability (MEDIC). This effort includes support for tactical requirements verification, including development and VV&amp;C of models for testing electronic protection and objective debris mitigation algorithms. This project also supports war games, Warfighter exercises and training, and execution of element-level ground test campaigns and element-level post-flight reconstructions, as well as the development of M&amp;S frameworks and truth models required to anchor M&amp;S.</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2022 Plans:</b><br/>Digital M&amp;S Priorities:<br/>- Continue core modeling of real-world radar capabilities to keep pace with the evolving MDS, continuing LRDR and AN/TPY-2 modeling, along with increasing modeling efforts on MDA standalone radars to support system-level digital testing and IMTP events<br/>- Conduct supporting Continuous Digital Assessments<br/>- Continue integration, test, and analysis of EDISS v1 capabilities</p> |  | 40.950<br>-   | 75.330<br>-    | 54.483<br>-    |

**UNCLASSIFIED**

|  |                         |
|--|-------------------------|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency | <b>Date:</b> April 2022 |
|--|-------------------------|

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

| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>   | FY 2021 | FY 2022 | FY 2023 |
|---|---------|---------|---------|
| <ul style="list-style-type: none"> <li>- Continue software development of EDISS v2</li> <li>- Continue integration and testing for EDISS v2</li> <li>- Initiate software development for EDISS v3</li> <li>- Initiate EDISS v4 system requirements analysis</li> <li>- Initiate development of additional capabilities in high fidelity digital models for AN/TPY-2 and SBX</li> <li>- Continue validation of high fidelity digital model for LRDR</li> <li>- Continue development of medium fidelity digital models to support Warfighter exercises and training</li> <li>- Continue operations and sustainment of MDS Sensors HWIL lab and analysis environment</li> </ul> <p>Ground Test M&amp;S Priorities:</p> <ul style="list-style-type: none"> <li>- Continue Phase 1 of GTISS improvements to the MDA Ground Test Architecture</li> <li>- Complete Engineering and Development of GTISS Phase 2</li> <li>- Continue Integration and Test GTISS Phase 2 M&amp;S</li> <li>- Complete GTISS Phase 3 Functional Analysis and System Design</li> <li>- Initiate GTISS Phase 3 Integration, Test, and Verification</li> <li>- Initiate development of additional capabilities in high fidelity ground test models to support IMTP events</li> <li>- Continue validation of high fidelity models for AN/TPY-2</li> <li>- Continue development of protections and mitigations modeling capabilities</li> <li>- Procure next generation hardware to support increased model capabilities</li> <li>- Initiate verification and validation activities for protections and mitigations modeling capabilities</li> </ul> <p><b>FY 2023 Plans:</b></p> <p>Digital M&amp;S Priorities:</p> <ul style="list-style-type: none"> <li>- Continue core modeling of real-world radar capabilities to keep pace with the evolving MDS, continuing LRDR and AN/TPY-2 modeling, along with increasing modeling efforts on MDA standalone radars</li> <li>- Continue supporting Continuous Digital Assessments to include planning, execution, analysis and reporting</li> <li>- Complete software development of EDISS v2</li> <li>- Complete integration and testing for EDISS v2</li> <li>- Complete software development of interfaces for OSM models for AN/TPY-2, COBRA DANE, UEWR, SBX, and LRDR for EDISS v3</li> <li>- Conduct element-level and support system-level verification and validation activities</li> <li>- Continue EDISS v4 system requirements analysis</li> <li>- Continue development of additional capabilities in high fidelity digital models for AN/TPY-2, SBX, LRDR, UEWR, and CD</li> <li>- Complete EDISS v4 Design Synthesis</li> </ul> |         |         |         |

**UNCLASSIFIED**

|   |  |   |                |                |
|---|--|---|----------------|----------------|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency  |  | <b>Date:</b> April 2022                                   |                |                |
| <b>Appropriation/Budget Activity</b><br>0400 / 4  | <b>R-1 Program Element (Number/Name)</b><br>PE 0603884C / <i>Ballistic Missile Defense Sensors</i> | <b>Project (Number/Name)</b><br>MD11 / <i>BMDS Radars</i> |                |                |
| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>   |  | <b>FY 2021</b>  | <b>FY 2022</b> | <b>FY 2023</b> |
| <ul style="list-style-type: none"> <li>- Complete EDISS v4 Engineering and Development</li> <li>- Continue EDISS v4 Integration, Test, and Verification</li> </ul> <p>Ground Test and Hardware-in-the-Loop (HWIL) M&amp;S Priorities:</p> <ul style="list-style-type: none"> <li>- Complete Phase 1 of GTISS improvements to the MDA Ground Test Architecture</li> <li>- Complete GTISS Phase 2 Integration, Test, and Verification</li> <li>- Complete GTISS Phase 3 Design Synthesis</li> <li>- Complete GTISS Phase 3 Engineering and Development</li> <li>- Continue GTISS Phase 3 Integration, Test, and Verification</li> <li>- Continue development of additional capabilities in high fidelity ground test models for AN/TPY-2, SBX, LRDR, and UEWR</li> <li>- Complete Element Post Flight Reconstructions (EPFRs) of FTX-45 for LRDR and UEWR</li> </ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b><br/>Decrease from FY 2022 to FY 2023 reflects the Congressional Plus-up completion of CPU funding for additional development for Modeling &amp; Simulation (M&amp;S) of new Hardware-in-the-loop (HWIL) and Digital model capabilities to support Integrated Master Test Plan (IMTP) events and system-level digital testing, including development and testing of radar protections and mitigations."</p> <p><b>Title:</b> Capability Development Program</p> <p><b>Description:</b> The Capability Development Program provides engineering support to enable compliance with BMD 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 and develops discrimination and countermeasure mitigation capability development. Additional software development activities include THAAD Missile Segment Enhancement (MSE) 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><b>FY 2022 Plans:</b></p> |  |   |                |                |
|   |  | 120.309   | 82.531         | 74.824         |
|   |  | <b>Articles:</b><br>-                                     | -              | -              |

**UNCLASSIFIED**

|  |  |   |                |                |
|--|--|---|----------------|----------------|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency   |  | <b>Date:</b> April 2022                                   |                |                |
| <b>Appropriation/Budget Activity</b><br>0400 / 4   | <b>R-1 Program Element (Number/Name)</b><br>PE 0603884C / <i>Ballistic Missile Defense Sensors</i> | <b>Project (Number/Name)</b><br>MD11 / <i>BMDS Radars</i> |                |                |
| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>  |  | <b>FY 2021</b>  | <b>FY 2022</b> | <b>FY 2023</b> |
| <ul style="list-style-type: none"> <li>- Continue development of sensor mid-term threat discrimination improvements for X-Band radars, to include SBX threat discrimination improvements</li> <li>- 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</li> <li>- Initiate development of a domestic secure server solution to meet the AN/TPY-2 cybersecurity and performance requirements</li> </ul> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue development of sensor mid-term threat discrimination improvements for X-Band radars, to include SBX threat discrimination improvements</li> <li>- 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</li> <li>- Continue development of a domestic secure server solution to meet the AN/TPY-2 cybersecurity and performance requirements</li> <li>- Initiate enhanced electronic protections mitigations</li> </ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b><br/>Decrease from FY 2022 to FY 2023 reflects completion of development for X-Band Refined Space and Intel Data capability and efforts to support Expanded THAAD/MSE Integration.</p>   |  |   |                |                |
| <b>Title:</b> Sensors Directorate Operations   |  | 46.099  | 43.140         | 45.428         |
|  |  | <b>Articles:</b>  | -              | -              |
| <p><b>Description:</b> Program Operations provides strategic planning, program integration, contracting, acquisition, engineering, financial management, internal reviews and audits, and program assessments for the Sensors Program Office.</p> <p>Recurring activities include:</p> <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 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 Missile Defense Agency 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 which minimize test and rework costs</li> <li>- Provide Quality Safety and Mission Assurance (QSMA) 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> <p>Specific and/or unique accomplishments to each FY are as follows:</p> |  |   |                |                |

**UNCLASSIFIED**

|  |                         |
|--|-------------------------|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency | <b>Date:</b> April 2022 |
|--|-------------------------|

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

| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>   | FY 2021    | FY 2022    | FY 2023    |
|---|------------|------------|------------|
| <p><b>FY 2022 Plans:</b><br/>- SEE ABOVE.</p> <p><b>FY 2023 Plans:</b><br/>- SEE ABOVE.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b><br/>N/A</p>   |            |            |            |
| <p><b>Title:</b> Upgrade Clear Early Warning Radar</p> <p align="right"><b>Articles:</b></p>  | 0.889<br>- | 1.701<br>- | 1.460<br>- |
| <p><b>Description:</b> Upgrade of Clear Early Warning Radar and Cape Cod Early Warning Radar includes adaptation of hardware and software to UEWR infrastructure, support to MDS communications and architecture work and installation at site. This project also includes preparation and removal of legacy equipment at each UEWR site.</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2022 Plans:</b><br/>-Initiate 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</p> <p><b>FY 2023 Plans:</b><br/>-Continue Automatic Data Processing Equipment (ADPE) Rehost strings for ISTC 1 and ISTC 2 required for CD to continue participation in ground tests</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b><br/>Decrease from FY 2022 to FY 2023 reflects completion of non-recurring engineering for the ADPE Rehost strings for ISTC (Integrated Software Test Center) 1 and ISTC 2 required for CD to continue participation in ground tests.</p> |            |            |            |
| <b>Accomplishments/Planned Programs Subtotals</b>   | 234.250    | 225.016    | 201.402    |

| <b>C. Other Program Funding Summary (\$ in Millions)</b> |                |                |                |                |                |                |                |                |                |                 |                   |
|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-------------------|
| <u>Line Item</u>   | <u>FY 2021</u> | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2023</u> | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Cost To</u>  | <u>Total Cost</u> |
|  |                |                | <u>Base</u>    | <u>OCO</u>     | <u>Total</u>   |                |                |                |                | <u>Complete</u> |                   |
| • 0208866C MD11:<br><i>MDS Procurement</i>               | 243.270        | 2.738          | 4.606          | -              | 4.606          | 8.962          | 6.682          | 13.382         | 27.475         | Continuing      | Continuing        |

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Missile Defense Agency **Date:** April 2022

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

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

| <u>Line Item</u>  | <u>FY 2021</u> | <u>FY 2022</u> | <u>FY 2023</u><br><u>Base</u> | <u>FY 2023</u><br><u>OCO</u> | <u>FY 2023</u><br><u>Total</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Cost To</u><br><u>Complete</u> | <u>Total Cost</u> |
|---|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
| • 0208866C MD11:<br><i>MDS Radars Program, Operation and Maintenance</i>                                | 255.708        | 190.674        | 200.207                       | -                            | 200.207                        | 236.382        | 230.788        | 258.747        | 259.955        | Continuing                        | Continuing        |
| • 0603882C: <i>Ballistic Missile Defense Midcourse Defense Segment</i>                                  | 1,195.853      | 724.028        | 667.524                       | -                            | 667.524                        | 870.817        | 802.617        | 781.973        | 765.733        | Continuing                        | Continuing        |
| • 0603890C: <i>BMD Enabling Programs</i>  | 607.167        | 623.644        | 591.847                       | -                            | 591.847                        | 613.589        | 625.761        | 635.633        | 640.374        | Continuing                        | Continuing        |
| • 0603896C: <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | 639.027        | 564.946        | 589.374                       | -                            | 589.374                        | 575.883        | 588.824        | 612.853        | 605.801        | Continuing                        | Continuing        |
| • 0603898C: <i>Ballistic Missile Defense Joint Warfighter Support</i>                                   | 49.261         | 50.594         | 50.269                        | -                            | 50.269                         | 51.849         | 55.960         | 56.488         | 54.980         | Continuing                        | Continuing        |
| • 0603904C: <i>Missile Defense Integration and Operations Center (MDIOC)</i>                            | 54.026         | 52.403         | 49.367                        | -                            | 49.367                         | 51.744         | 56.502         | 57.833         | 59.006         | Continuing                        | Continuing        |
| • 0603907C: <i>Sea Based X-Band Radar (SBX)</i>   | 120.063        | 147.241        | 164.668                       | -                            | 164.668                        | 174.934        | 215.367        | 198.956        | 179.622        | Continuing                        | Continuing        |
| • 0603914C: <i>Ballistic Missile Defense Test</i>   | 364.994        | 389.156        | 367.824                       | -                            | 367.824                        | 363.963        | 421.261        | 476.991        | 490.176        | Continuing                        | Continuing        |
| • 0604181C: <i>Hypersonic Defense</i>   | 267.589        | 287.796        | 225.477                       | -                            | 225.477                        | 108.540        | 110.220        | 287.535        | 449.590        | Continuing                        | Continuing        |
| • 0604672C: <i>Homeland Defense Radar-Hawaii</i>  | 133.000        | 75.000         | 0.000                         | -                            | 0.000                          | 0.000          | 0.000          | 0.000          | 0.000          | 0.000                             | 208.000           |
| • 0604873C: <i>Long Range Discrimination Radar (LRDR)</i>   | 135.088        | 133.335        | 75.120                        | -                            | 75.120                         | 103.451        | 95.712         | 71.715         | 76.316         | Continuing                        | Continuing        |
| • 0604879C: <i>Ballistic Missile Defense Sensor Test</i>  | 64.245         | 77.428         | 88.326                        | -                            | 88.326                         | 91.495         | 98.146         | 103.010        | 145.810        | Continuing                        | Continuing        |

**Remarks**

UNCLASSIFIED

|  |  |   |
|--|--|---|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency |  | <b>Date:</b> April 2022                                   |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603884C / <i>Ballistic Missile Defense Sensors</i> | <b>Project (Number/Name)</b><br>MD11 / <i>BMDS Radars</i> |

**D. Acquisition Strategy**

The Radar Development Contract (RDC) awarded on Nov 1, 2017 supports the Sensors Directorate's X-Band Radars (XBR). Missile Defense System (MDS) capability and performance requirements, which underpin continuing XBR development requirements include, but are not limited to, the Army/Navy Transportable Radar Surveillance and Control (AN/TPY-2) radar and the Sea-Based X-Band (SBX) radar. These requirements stem directly from formal Warfighter requirements as developed in the United States Strategic Command (USSTRATCOM)-led Warfighter Involvement Process (see USSTRATCOM Special Instruction (SI) 538-3, Missile Defense Warfighter Involvement Process, June 25, 2008). Achievable requirements documented in the Prioritized Capabilities List (PCL) and Modification and Fielding Requirements List (MFRL) are documented in MDA's Achievable Capabilities List (ACL) and translated via the MDS architecture and system specifications into flow-down requirements, characteristics, and capability needs for individual MDS program specifications, and ultimately are approved through the systems engineering and baseline change management process for MDS 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; MDS 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 (TM), and the SBX Radar to include the Weather Air Search Radar (WxASR) located on the SBX platform.

**UNCLASSIFIED**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency     |                        |  |             |   |            |         |            |                       |            |             |            | Date: April 2022 |                  |            |                          |
|--|------------------------|--|-------------|---|------------|---------|------------|-----------------------|------------|-------------|------------|------------------|------------------|------------|--------------------------|
| 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 2021   |            | FY 2022 |            | FY 2023 Base          |            | FY 2023 OCO |            | FY 2023 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 - X-Band Software Enhancements/ Development - CCDC | MIPR                   | DOD - USA - COMBAT CAPABILITIES DEVELOPMENT COMMAND (CCDC) AVIATION AND MISSILE CENTER (AVMC) : AL | 0.000       | 0.000   |            | 0.000   |            | 8.134                 | Nov 2022   | -           |            | 8.134            | Continuing       | Continuing | Continuing               |
| Basic Development Program - Material Release Get Well Plan - AMCOM           | MIPR                   | AMCOM : AL   | 0.568       | 0.012   | Nov 2020   | 0.133   | Nov 2021   | 0.133                 | Nov 2022   | -           |            | 0.133            | Continuing       | Continuing | Continuing               |
| Basic Development Program - Basic Development - SBX                          | SS/CPAF                | Raytheon : MA  | 2.000       | 1.971   | Nov 2020   | 1.500   | Nov 2021   | 2.000                 | Nov 2022   | -           |            | 2.000            | Continuing       | Continuing | Continuing               |
| 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  | 1.535       | 0.199   | Nov 2020   | 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   | SS/CPAF                | Raytheon : AL  | 144.939     | 23.821  | Nov 2020   | 20.681  | Nov 2021   | 14.940                | Nov 2022   | -           |            | 14.940           | Continuing       | Continuing | Continuing               |

**UNCLASSIFIED**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency                                    |                        |  |             |   |            |         |            |                       |            |             |            | Date: April 2022 |                  |            |                          |
|---|------------------------|--|-------------|---|------------|---------|------------|-----------------------|------------|-------------|------------|------------------|------------------|------------|--------------------------|
| 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 2021   |            | FY 2022 |            | FY 2023 Base          |            | FY 2023 OCO |            | FY 2023 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 |
| Software Enhancements/ Development  |                        |  |             |   |            |         |            |                       |            |             |            |                  |                  |            |                          |
| 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       | 0.000   |            | 27.200  | May 2022   | 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 : AL,MA, CO   | 178.697     | 20.693  | Jan 2021   | 33.741  | Jan 2022   | 21.456                | Jan 2023   | -           |            | 21.456           | 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 : NJ   | 6.043       | 5.700   | Nov 2020   | 3.144   | Nov 2021   | 9.178                 | Nov 2022   | -           |            | 9.178            | 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 | 0.000       | 3.600   | Nov 2020   | 0.000   |            | 9.203                 | Nov 2022   | -           |            | 9.203            | Continuing       | Continuing | Continuing               |

**UNCLASSIFIED**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency |                        |  |             |   |            |         |            |              |            |                       |            | Date: April 2022 |                  |            |                          |
|--|------------------------|--|-------------|---|------------|---------|------------|--------------|------------|-----------------------|------------|------------------|------------------|------------|--------------------------|
| 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 2021   |            | FY 2022 |            | FY 2023 Base |            | FY 2023 OCO           |            | FY 2023 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&A of Models                 | MIPR                   | DOD - USA - COMBAT CAPABILITIES DEVELOPMENT COMMAND (CCDC) AVIATION AND MISSILE CENTER (AVMC) : AL | 63.192      | 8.049   | Dec 2020   | 7.898   | Dec 2021   | 11.192       | Dec 2022   | -                     |            | 11.192           | Continuing       | Continuing | Continuing               |
| BMDS Radars Modeling & Simulation (M&S) - VV&A of Models - GTRI          | SS/CPFF                | GTRI (Georgia Tech Research Institute) : GA  | 0.126       | 0.400   | Oct 2020   | 0.796   | Oct 2021   | 0.000        |            | -                     |            | 0.000            | 0.000            | 1.322      | 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 - Electronic Protection - PRIME           | C/CPAF                 | Raytheon : MA  | 18.315      | 31.512  | Nov 2020   | 17.270  | Nov 2021   | 9.292        | Nov 2022   | -                     |            | 9.292            | Continuing       | Continuing | Continuing               |
| Capability Development Program - Enhanced Discrimination -M&S - CCDC     | MIPR                   | DOD - USA - COMBAT CAPABILITIES DEVELOPMENT COMMAND (CCDC) AVIATION AND MISSILE CENTER (AVMC) : AL | 12.800      | 3.019   | Nov 2020   | 0.500   | Nov 2021   | 1.000        | Nov 2022   | -                     |            | 1.000            | Continuing       | Continuing | Continuing               |
| Capability Development Program - Enhanced Discrimination - MITRE         | MIPR                   | MITRE : AL   | 3.930       | 0.433   | Jan 2021   | 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 | 20.798      | 9.642   | Nov 2020   | 4.977   | Nov 2021   | 0.000        |            | -                     |            | 0.000            | 0.000            | 35.417     | 0.000                    |

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency** **Date:** April 2022

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

| <b>Product Development (\$ in Millions)</b>                                 |                        |   |             | FY 2021 |            | FY 2022 |            | FY 2023 Base |            | FY 2023 OCO |            | FY 2023 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<br>Capability Development - GTRI  | SS/CPFF                | GTRI : GA   | 1.084       | 0.698   | Feb 2021   | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 1.782      | 0.000                    |
| Capability Development Program - AN/TPY-2<br>Capability Development - JHU   | SS/CPFF                | JOHNS HOPKINS UNIVERSITY<br>APPLIED PHYSICS LABORATORY LLC,<br>THE : MD                               | 5.341       | 1.358   | Dec 2020   | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 6.699      | 0.000                    |
| Capability Development Program - AN/TPY-2<br>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<br>Capability Development - PRIME | SS/CPAF                | Raytheon : MA   | 232.948     | 15.773  | Nov 2020   | 25.536  | Nov 2021   | 14.262       | Nov 2022   | -           |            | 14.262        | 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)<br>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 - Enhanced Discrimination                    | C/CPAF                 | Raytheon : MA   | 291.823     | 42.221  | Jan 2021   | 21.755  | Jan 2022   | 23.957       | Nov 2022   | -           |            | 23.957        | Continuing       | Continuing | Continuing               |
| Capability Development Program - Enhanced Discrimination - LM               | SS/CPIF                | Lockheed Martin : NJ  | 5.922       | 6.000   | Dec 2020   | 1.900   | Dec 2021   | 0.000        |            | -           |            | 0.000         | 0.000            | 13.822     | 0.000                    |

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency** **Date:** April 2022

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

| <b>Product Development (\$ in Millions)</b>                            |                        |  |             | FY 2021 |            | FY 2022 |            | FY 2023 Base |            | FY 2023 OCO |            | FY 2023 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 - Network and Infrastructure Services   | C/CPAF                 | Jacobs Engineering : AL, CO, MA, VA  | 6.086       | 6.130   | Nov 2020   | 6.176   | Nov 2021   | 6.213        | Nov 2022   | -           |            | 6.213         | Continuing       | Continuing | Continuing               |
| 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       | 0.000   |            | 4.417   | Nov 2021   | 1.548        | Nov 2022   | -           |            | 1.548         | 0.000            | 6.872      | 0.000                    |
| Capability Development Program - SBX Capability Development - Raytheon | SS/CPAF                | Raytheon : MA  | 19.581      | 3.323   | Jan 2021   | 0.000   |            | 14.387       | Nov 2022   | -           |            | 14.387        | Continuing       | Continuing | Continuing               |
| Capability Development Program - UEWR Capability Development - CCDC    | MIPR                   | CCDC AVMC : AL   | 6.145       | 0.200   | Jun 2021   | 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  | 0.617       | 1.220   | Nov 2020   | 0.619   | Oct 2021   | 0.000        |            | -           |            | 0.000         | 0.000            | 2.456      | 0.000                    |
| Sensors Directorate Operations - Army Hybrid Program Office            | MIPR                   | DOD - USA - AVIATION AND MISSILE COMMAND (AMCOM) LOGISTICS CENTER (ALC) : AL                       | 10.116      | 1.188   | Dec 2020   | 1.436   | Dec 2021   | 0.000        |            | -           |            | 0.000         | 0.000            | 12.740     | 0.000                    |
| Sensors Directorate Operations - Civilians/ Travel                     | Various                | MDA : AL, VA, MA   | 221.299     | 17.751  | Oct 2020   | 19.484  | Oct 2021   | 20.874       | Oct 2022   | -           |            | 20.874        | Continuing       | Continuing | Continuing               |

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency** **Date:** April 2022

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

| <b>Product Development (\$ in Millions)</b>   |                        |   |             | FY 2021 |            | FY 2022 |            | FY 2023 Base |            | FY 2023 OCO |            | FY 2023 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                              | C/CPFF                 | Various : Various                                 | 264.015     | 17.659  | Oct 2020   | 14.431  | Oct 2021   | 0.000        |            | -           |            | 0.000         | 0.000            | 296.105    | 0.000                    |
| Sensors Directorate Operations - FFRDC/ UARC  | SS/CPAF                | GTRI, JHU/APL, MITRE, MIT/LL : AL, GA, MA, MD, VA | 112.026     | 7.597   | Nov 2020   | 6.390   | Nov 2021   | 0.000        |            | -           |            | 0.000         | 0.000            | 126.013    | 0.000                    |
| Sensors Directorate Operations - Network and Infrastructure Services                      | C/CPAF                 | Jacobs Engineering : AL, AK, CA, CO, HI, NM, VA   | 48.362      | 0.535   | Jun 2021   | 0.298   | Jan 2022   | 0.000        |            | -           |            | 0.000         | 0.000            | 49.195     | 0.000                    |
| Sensors Directorate Operations - Network and Infrastructure Services - Network Management | C/FFP                  | Network Management Resources, Inc : VA            | 0.513       | 0.149   | Apr 2021   | 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   |            | 0.482   | Feb 2022   | 0.000        |            | -           |            | 0.000         | 0.000            | 38.545     | 0.000                    |
| Upgrade Clear Early Warning Radar - Facilities Site Activation/Admin Comms                | MIPR                   | Various : AL, MA, AK                              | 7.839       | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 7.839      | 0.000                    |
| Upgrade Clear Early Warning Radar - Radar Upgrade -- Prime Contractor                     | C/CPAF                 | Raytheon : MA                                     | 133.624     | 0.889   | Jan 2021   | 1.701   | Jan 2022   | 0.000        |            | -           |            | 0.000         | 0.000            | 136.214    | 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 -                                    | MIPR                   | DISA : VA   | 1.227       | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 1.227      | 0.000                    |

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency** **Date:** April 2022

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

| <b>Product Development (\$ in Millions)</b>   |                                   |   |                    | <b>FY 2021</b> |                   | <b>FY 2022</b> |                   | <b>FY 2023 Base</b> |                   | <b>FY 2023 OCO</b> |                   | <b>FY 2023 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>          |                         |                   |                                 |
| Hardened Transportable Terminal (HTT) Communications  |                                   |   |                    |                |                   |                |                   |                     |                   |                    |                   |                      |                         |                   |                                 |
| 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 (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>   |                                   |   | 2,129.581          | 231.742        |                   | 222.465        |                   | 167.769             |                   | -                  |                   | 167.769              | Continuing              | Continuing        | N/A                             |

**Remarks**  
N/A

| <b>Support (\$ in Millions)</b>                                 |                                   |   |                    | <b>FY 2021</b> |                   | <b>FY 2022</b> |                   | <b>FY 2023 Base</b> |                   | <b>FY 2023 OCO</b> |                   | <b>FY 2023 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>          |                         |                   |                                 |
| BMDS Radars Modeling & Simulation (M&S) - VV&A of Models - GTRI | SS/CPFF                           | GTRI (Georgia Tech Research Institute) : GA | 0.000              | 0.000          |                   | 0.000          |                   | 0.860               | Oct 2022          | -                  |                   | 0.860                | Continuing              | Continuing        | Continuing                      |

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency** **Date:** April 2022

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

| <b>Support (\$ in Millions)</b>  |                        |  |             | FY 2021 |            | FY 2022 |            | FY 2023 Base |            | FY 2023 OCO |            | FY 2023 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) - Warfighter Exercises                 | SS/CPIF                | RAYTHEON : CO  | 16.786      | 2.508   | Feb 2021   | 2.551   | Feb 2022   | 2.594        | Feb 2023   | -           |            | 2.594         | Continuing       | Continuing | Continuing               |
| Capability Development Program - AN/TPY-2 Capability Development - GTRI        | MIPR                   | GTRI (Georgia Tech Research Institute) : GA                                  | 0.000       | 0.000   |            | 0.000   |            | 1.888        | Nov 2022   | -           |            | 1.888         | Continuing       | Continuing | Continuing               |
| Capability Development Program - AN/TPY-2 Capability Development - JHU         | MIPR                   | JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY LLC, THE : MD            | 0.000       | 0.000   |            | 0.000   |            | 1.383        | Nov 2022   | -           |            | 1.383         | Continuing       | Continuing | Continuing               |
| Capability Development Program - Enhanced Discrimination - MITRE               | MIPR                   | DOD - USA - COMMUNICATIONS ELECTRONICS COMMAND (CECOM) : AL                  | 0.000       | 0.000   |            | 0.000   |            | 0.894        | Oct 2022   | -           |            | 0.894         | Continuing       | Continuing | Continuing               |
| Sensors Directorate Operations - AN/TPY-2 WSMR Support                         | MIPR                   | WSMR (White Sands Missile Range) : NM  | 0.000       | 0.000   |            | 0.000   |            | 0.975        | Oct 2022   | -           |            | 0.975         | Continuing       | Continuing | Continuing               |
| Sensors Directorate Operations - Army Hybrid Program Office                    | MIPR                   | DOD - USA - AVIATION AND MISSILE COMMAND (AMCOM) LOGISTICS CENTER (ALC) : AL | 0.000       | 0.000   |            | 0.000   |            | 1.100        | Dec 2022   | -           |            | 1.100         | Continuing       | Continuing | Continuing               |
| Sensors Directorate Operations - Contractor Support Services                   | C/CPFF                 | Various : Various  | 0.000       | 0.000   |            | 0.000   |            | 1.314        | Oct 2022   | -           |            | 1.314         | Continuing       | Continuing | Continuing               |
| Sensors Directorate Operations - Contractor Support Services - MDS Engineering | C/CPFF                 | PARSONS GOVERNMENT SERVICES INC. : Various                                   | 0.000       | 0.000   |            | 0.000   |            | 6.640        | Oct 2022   | -           |            | 6.640         | Continuing       | Continuing | Continuing               |
| Sensors Directorate Operations - Contractor                                    | C/CPFF                 | AI SOLUTIONS, INC. : Various   | 0.000       | 0.000   |            | 0.000   |            | 1.112        | Oct 2022   | -           |            | 1.112         | Continuing       | Continuing | Continuing               |

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency** **Date:** April 2022

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

| <b>Support (\$ in Millions)</b>   |                        |  |             | FY 2021 |            | FY 2022 |            | FY 2023 Base |            | FY 2023 OCO |            | FY 2023 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 - Quality and Mission Assurance  |                        |  |             |         |            |         |            |              |            |             |            |               |                  |            |                          |
| Sensors Directorate Operations - Contractor Support Services - Warfighter Integration     | C/CPFF                 | STRATEGIC ALLIANCE SOLUTIONS LLC : Various                             | 0.000       | 0.000   |            | 0.000   |            | 2.375        | Oct 2022   | -           |            | 2.375         | Continuing       | Continuing | Continuing               |
| Sensors Directorate Operations - FFRDC - MITRE  | MIPR                   | DOD - USA - COMMUNICATIONS ELECTRONICS COMMAND (CECOM) : Various       | 0.000       | 0.000   |            | 0.000   |            | 4.435        | Nov 2022   | -           |            | 4.435         | Continuing       | Continuing | Continuing               |
| Sensors Directorate Operations - Network and Infrastructure Services                      | C/CPAF                 | JACOBS TECHNOLOGY INC. : Various                                       | 0.000       | 0.000   |            | 0.000   |            | 0.832        | Jan 2023   | -           |            | 0.832         | Continuing       | Continuing | Continuing               |
| Sensors Directorate Operations - Network and Infrastructure Services - Network Management | C/FFP                  | NETWORK MANAGEMENT RESOURCES, INC. : VA                                | 0.000       | 0.000   |            | 0.000   |            | 0.168        | Apr 2023   | -           |            | 0.168         | Continuing       | Continuing | Continuing               |
| Sensors Directorate Operations - UARC - JHU/APL   | SS/CPFF                | JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY LLC, THE : Various | 0.000       | 0.000   |            | 0.000   |            | 2.441        | Nov 2022   | -           |            | 2.441         | 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   |            | 0.000   |            | 1.460        | Jan 2023   | -           |            | 1.460         | Continuing       | Continuing | Continuing               |
| <b>Subtotal</b>   |                        |  | 16.786      | 2.508   |            | 2.551   |            | 30.471       |            | -           |            | 30.471        | Continuing       | Continuing | N/A                      |

**Remarks**  
 Operations and sustainment of Upgraded Early Warning Radar (UEWR), 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.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency** **Date:** April 2022

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

| <b>Test and Evaluation (\$ in Millions)</b> |                        |                                |             | FY 2021 |            | FY 2022 |            | FY 2023 Base |            | FY 2023 OCO |            | FY 2023 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 2021 |            | FY 2022 |            | FY 2023 Base |            | FY 2023 OCO |            | FY 2023 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. : Various  | 0.000       | 0.000   |            | 0.000   |            | 1.554        | Oct 2022   | -           |            | 1.554         | Continuing       | Continuing | Continuing               |
| Sensors Directorate Operations - Contractor Support Services - Various     | C/CPFF                 | Various : Various              | 0.000       | 0.000   |            | 0.000   |            | 1.608        | Oct 2022   | -           |            | 1.608         | Continuing       | Continuing | Continuing               |
| <b>Subtotal</b>  |                        |                                | 0.000       | 0.000   |            | 0.000   |            | 3.162        |            | -           |            | 3.162         | Continuing       | Continuing | N/A                      |

**Remarks**  
N/A

|                            | Prior Years | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
| <b>Project Cost Totals</b> | 2,146.367   | 234.250 | 225.016 | 201.402      | -           | 201.402       | 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 2023 Missile Defense Agency** **Date:** April 2022

|  |  |   |
|--|--|---|
| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603884C / <i>Ballistic Missile Defense Sensors</i> | <b>Project (Number/Name)</b><br>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 2021                      | FY 2022 | FY 2023                       | FY 2024 | FY 2025                 | FY 2026 | FY 2027                      |   |                     |   |   |  |
| (EX) AIR AND MISSILE DEFENSE EXERCISE 21          | ◆◆◆                          |         |                               |         |                         |         |                              |   |                     |   |   |  |
| FS-21 E4 (AEGIS 5.1, DT Intercept Flight Test)    |                              | ▲       |                               |         |                         |         |                              |   |                     |   |   |  |
| TH CTV-01 (LTPO, DT Interceptor Only Flight Test) |                              |         | ▲                             |         |                         |         |                              |   |                     |   |   |  |
| GTI-ISR (21) (MDS Ground Test)                    |                              |         |                               | ◆       |                         |         |                              |   |                     |   |   |  |
| FTX-43 (OTHER, DT Tracking Exercise Flight Test)  |                              |         | ▲                             |         |                         |         |                              |   |                     |   |   |  |
| SICO-09-1   |                              |         |                               | ◇       |                         |         |                              |   |                     |   |   |  |
| SICO-09-2   |                              |         |                               | ◇       |                         |         |                              |   |                     |   |   |  |
| (EX) AIR AND MISSILE DEFENSE EXERCISE 22          |                              |         |                               | ◇◇◇     |                         |         |                              |   |                     |   |   |  |
| FTT-21 (TH, DT Intercept Flight Test)             |                              |         |                               | △       |                         |         |                              |   |                     |   |   |  |
| (EX) EAGLE RESOLVE 22                             |                              |         |                               | △       |                         |         |                              |   |                     |   |   |  |
| GTI-08a (N/I) (MDS Ground Test)                   |                              |         |                               |         | ◇                       |         |                              |   |                     |   |   |  |
| FTX-26 (OT) (SN, OT Target Only Flight Test)      |                              |         |                               |         |                         | △       |                              |   |                     |   |   |  |
| GTI-09 Sprint 1 (E/C) (MDS Ground Test)           |                              |         |                               |         |                         | ◇       |                              |   |                     |   |   |  |
| FTX-45  |                              |         |                               |         |                         | △       |                              |   |                     |   |   |  |
| GTD-08a (N/I) (MDS Ground Test)                   |                              |         |                               |         |                         |         | ◇                            |   |                     |   |   |  |
| (EX) AIR AND MISSILE DEFENSE EXERCISE 23          |                              |         |                               |         |                         |         | ◇◇◇                          |   |                     |   |   |  |
| GTI-09 Sprint 2 (E/C) (MDS Ground Test)           |                              |         |                               |         |                         |         | ◇                            |   |                     |   |   |  |
| SICO-8a2 (MDS Ground Test)                        |                              |         |                               |         |                         |         | ◇                            |   |                     |   |   |  |
| SICO-09-3 Ground Test                             |                              |         |                               |         |                         |         | ◇                            |   |                     |   |   |  |
| FTT-25 (TH, DT/OT Intercept Flight Test)          |                              |         |                               |         |                         |         |                              | △ |                     |   |   |  |
| SICO 9-4 Ground Test                              |                              |         |                               |         |                         |         |                              | ◇ |                     |   |   |  |
| GTI-ISR (23) (MDS Ground Test)                    |                              |         |                               |         |                         |         |                              |   | ◇                   |   |   |  |
| FTG-12 (GM, DT/OT Intercept Flight Test)          |                              |         |                               |         |                         |         |                              |   |                     | △ |   |  |
| GTI-08b (N/I)                                     |                              |         |                               |         |                         |         |                              |   |                     |   | ◇ |  |

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Missile Defense Agency** **Date:** April 2022

|  |  |   |
|--|--|---|
| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603884C / <i>Ballistic Missile Defense Sensors</i> | <b>Project (Number/Name)</b><br>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 2021 |  |  | FY 2022 |  |  | FY 2023 |  |  | FY 2024 |   |   | FY 2025 |   |   | FY 2026 |   |   | FY 2027 |   |   |
|--|---------|--|--|---------|--|--|---------|--|--|---------|---|---|---------|---|---|---------|---|---|---------|---|---|
|  |         |  |  |         |  |  |         |  |  |         |   |   |         |   |   |         |   |   |         |   |   |
| (EX) AIR AND MISSILE DEFENSE EXERCISE 24             |         |  |  |         |  |  |         |  |  | ◇       | ◇ | ◇ |         |   |   |         |   |   |         |   |   |
| GTI-ASI (24) (MDS Ground Test)                       |         |  |  |         |  |  |         |  |  | ◇       |   |   |         |   |   |         |   |   |         |   |   |
| 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)  |         |  |  |         |  |  |         |  |  | △       |   |   |         |   |   |         |   |   |         |   |   |
| GTD-08b (N/I)  |         |  |  |         |  |  |         |  |  | ◇       |   |   |         |   |   |         |   |   |         |   |   |
| GTI-13 Sprint 1 (N/I) (MDS Ground Test)              |         |  |  |         |  |  |         |  |  |         |   |   | ◇       |   |   |         |   |   |         |   |   |
| JFTX-01 E1 (JAPAN, DT Tracking Exercise Flight Test) |         |  |  |         |  |  |         |  |  |         |   |   | △       |   |   |         |   |   |         |   |   |
| JFTX-01 E2 (JAPAN, DT Tracking Exercise Flight Test) |         |  |  |         |  |  |         |  |  |         |   |   | △       |   |   |         |   |   |         |   |   |
| GTI-ISR (25) (MDS Ground Test)                       |         |  |  |         |  |  |         |  |  |         |   |   |         | ◇ |   |         |   |   |         |   |   |
| GTI-12 Sprint 1 (E/C) (MDS Ground Test)              |         |  |  |         |  |  |         |  |  |         |   |   |         | ◇ |   |         |   |   |         |   |   |
| GTI-13 Sprint 2 (N/I) (MDS Ground Test)              |         |  |  |         |  |  |         |  |  |         |   |   |         | ◇ |   |         |   |   |         |   |   |
| GTD-13 (N/I) (MDS Ground Test)                       |         |  |  |         |  |  |         |  |  |         |   |   |         |   | ◇ |         |   |   |         |   |   |
| GTI-10 (E/C) (MDS Ground Test)                       |         |  |  |         |  |  |         |  |  |         |   |   |         |   |   | ◇       |   |   |         |   |   |
| GTI-12 Sprint 2 (E/C) (MDS Ground Test)              |         |  |  |         |  |  |         |  |  |         |   |   |         |   |   | ◇       |   |   |         |   |   |
| GTD-10 (E/C) (MDS Ground Test)                       |         |  |  |         |  |  |         |  |  |         |   |   |         |   |   |         | ◇ |   |         |   |   |
| GTD-12 (E/C) (MDS Ground Test)                       |         |  |  |         |  |  |         |  |  |         |   |   |         |   |   |         | ◇ |   |         |   |   |
| GTI-ASI (26) (MDS Ground Test)                       |         |  |  |         |  |  |         |  |  |         |   |   |         |   |   |         |   | ◇ |         |   |   |
| TH CTV-03 (TH, DT Interceptor Only Flight Test)      |         |  |  |         |  |  |         |  |  |         |   |   |         |   |   |         |   |   | △       |   |   |
| GTI-14 Sprint 1 (N/I)                                |         |  |  |         |  |  |         |  |  |         |   |   |         |   |   |         |   |   | ◇       |   |   |
| FTG-16 (GM, DT Intercept Flight Test)                |         |  |  |         |  |  |         |  |  |         |   |   |         |   |   |         |   |   |         |   | △ |
| GTI-14 (N/I) Sprint 2 (MDS Ground Test)              |         |  |  |         |  |  |         |  |  |         |   |   |         |   |   |         |   |   |         | ◇ |   |
| GTI-15 Sprint 1 (E/C) (MDS Ground Test)              |         |  |  |         |  |  |         |  |  |         |   |   |         |   |   |         |   |   |         |   | ◇ |
| FTT-22 (TH, DT/OT Intercept Flight Test)             |         |  |  |         |  |  |         |  |  |         |   |   |         |   |   |         |   |   |         |   | △ |

**UNCLASSIFIED**

**Exhibit R-4, RDT&E Schedule Profile: PB 2023 Missile Defense Agency** **Date:** April 2022

|  |  |   |
|--|--|---|
| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603884C / <i>Ballistic Missile Defense Sensors</i> | <b>Project (Number/Name)</b><br>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 2021                      |  | FY 2022                       |  | FY 2023                 |  | FY 2024                      |  | FY 2025             |  | FY 2026 |  | FY 2027 |   |
| FTG-17 (GM, DT/OT Intercept Flight Test) |                              |  |                               |  |                         |  |                              |  |                     |  |         |  |         | △ |
| GTD-14 (N/I) (MDS Ground Test)           |                              |  |                               |  |                         |  |                              |  |                     |  |         |  |         | ◇ |
| GTI-ISR (27) (MDS Ground Test)           |                              |  |                               |  |                         |  |                              |  |                     |  |         |  |         | ◇ |

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2023 Missile Defense Agency **Date:** April 2022

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

**Schedule Details**

| Events  | Start   |      | End     |      |
|---|---------|------|---------|------|
|   | Quarter | Year | Quarter | Year |
| (EX) AIR AND MISSILE DEFENSE EXERCISE 21          | 1       | 2021 | 3       | 2021 |
| FS-21 E4 (AEGIS 5.1, DT Intercept Flight Test)    | 3       | 2021 | 3       | 2021 |
| TH CTV-01 (LTPO, DT Interceptor Only Flight Test) | 4       | 2021 | 4       | 2021 |
| GTI-ISR (21) (MDS Ground Test)                    | 1       | 2022 | 1       | 2022 |
| FTX-43 (OTHER, DT Tracking Exercise Flight Test)  | 1       | 2022 | 1       | 2022 |
| SICO-09-1   | 1       | 2022 | 1       | 2022 |
| SICO-09-2   | 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) (MDS Ground Test)                   | 3       | 2022 | 3       | 2022 |
| FTX-26 (OT) (SN, OT Target Only Flight Test)      | 4       | 2022 | 4       | 2022 |
| GTI-09 Sprint 1 (E/C) (MDS Ground Test)           | 4       | 2022 | 4       | 2022 |
| FTX-45  | 4       | 2022 | 4       | 2022 |
| GTD-08a (N/I) (MDS Ground Test)                   | 1       | 2023 | 1       | 2023 |
| (EX) AIR AND MISSILE DEFENSE EXERCISE 23          | 1       | 2023 | 3       | 2023 |
| GTI-09 Sprint 2 (E/C) (MDS Ground Test)           | 2       | 2023 | 2       | 2023 |
| SICO-8a2 (MDS 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 |
| GTI-ISR (23) (MDS Ground Test)                    | 4       | 2023 | 4       | 2023 |

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2023 Missile Defense Agency **Date:** April 2022

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

| Events   | Start   |      | End     |      |
|--|---------|------|---------|------|
|  | Quarter | Year | Quarter | Year |
| FTG-12 (GM, DT/OT Intercept Flight Test)             | 4       | 2023 | 4       | 2023 |
| GTI-08b (N/I)  | 4       | 2023 | 4       | 2023 |
| (EX) AIR AND MISSILE DEFENSE EXERCISE 24             | 1       | 2024 | 3       | 2024 |
| GTI-ASI (24) (MDS Ground Test)                       | 2       | 2024 | 2       | 2024 |
| FTX-28 E2 (TH, DT/OT Tracking Exercise Flight Test)  | 2       | 2024 | 2       | 2024 |
| FTX-28 E1 (TH, DT/OT Tracking Exercise Flight Test)  | 2       | 2024 | 2       | 2024 |
| FTX-28 E3 (TH, DT/OT Tracking Exercise Flight Test)  | 2       | 2024 | 2       | 2024 |
| GTD-08b (N/I)  | 2       | 2024 | 2       | 2024 |
| GTI-13 Sprint 1 (N/I) (MDS Ground Test)              | 1       | 2025 | 1       | 2025 |
| JFTX-01 E1 (JAPAN, DT Tracking Exercise Flight Test) | 1       | 2025 | 1       | 2025 |
| JFTX-01 E2 (JAPAN, DT Tracking Exercise Flight Test) | 1       | 2025 | 1       | 2025 |
| GTI-ISR (25) (MDS Ground Test)                       | 2       | 2025 | 2       | 2025 |
| GTI-12 Sprint 1 (E/C) (MDS Ground Test)              | 3       | 2025 | 3       | 2025 |
| GTI-13 Sprint 2 (N/I) (MDS Ground Test)              | 3       | 2025 | 3       | 2025 |
| GTD-13 (N/I) (MDS Ground Test)                       | 4       | 2025 | 4       | 2025 |
| GTI-10 (E/C) (MDS Ground Test)                       | 1       | 2026 | 1       | 2026 |
| GTI-12 Sprint 2 (E/C) (MDS Ground Test)              | 1       | 2026 | 1       | 2026 |
| GTD-10 (E/C) (MDS Ground Test)                       | 2       | 2026 | 2       | 2026 |
| GTD-12 (E/C) (MDS Ground Test)                       | 2       | 2026 | 2       | 2026 |
| GTI-ASI (26) (MDS Ground Test)                       | 3       | 2026 | 3       | 2026 |
| TH CTV-03 (TH, DT Interceptor Only Flight Test)      | 4       | 2026 | 4       | 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 (MDS Ground Test)              | 2       | 2027 | 2       | 2027 |
| GTI-15 Sprint 1 (E/C) (MDS Ground Test)              | 3       | 2027 | 3       | 2027 |

**UNCLASSIFIED**

**Exhibit R-4A, RDT&E Schedule Details:** PB 2023 Missile Defense Agency **Date:** April 2022

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

| Events                                   | Start   |      | End     |      |
|--|---------|------|---------|------|
|  | Quarter | Year | Quarter | Year |
| 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) (MDS Ground Test)           | 4       | 2027 | 4       | 2027 |
| GTI-ISR (27) (MDS Ground Test)           | 4       | 2027 | 4       | 2027 |

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Missile Defense Agency **Date:** April 2022

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

| COST (\$ in Millions)         | Prior Years | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total | FY 2024 | FY 2025 | FY 2026 | FY 2027 | Cost To Complete | Total Cost |
|-------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| MC11: <i>Cyber Operations</i> | 43.344      | 11.255  | 20.215  | 21.339       | -           | 21.339        | 20.724  | 20.416  | 21.689  | 20.704  | 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 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 (DOT&E) directives and the Integrated Master Test Plan (IMTP). 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. 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 (SISO)/Security Control Assessor (SCA) and Authorizing Official (AO). Independent Verification and Validation (IV&V) 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 (FISMA).

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

|  | FY 2021 | FY 2022 | FY 2023 |
|--|---------|---------|---------|
| <b>Title:</b> Network / System Certification and Accreditation (C&A)   | 11.255  | 20.215  | 21.339  |
| <b>Articles:</b>   | -       | -       | -       |
| <b>Description:</b> Cyber Operations funds Ground Sensors Directorate Information System Security Manager (ISSM) and Information System Security Officer (ISSO) 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 (MDS) and maintains Risk Management Framework (RMF) authorizations for Ground Sensors managed information systems, conducts Controls Validation Testing (CVT)/ Security Controls Assessment (SCA) of Ground Sensors mission and support systems, and provides and maintains Plans of Action and Milestones (POA&M) to mitigate cybersecurity deficiencies. Cyber Operations conducts annual cybersecurity program reviews on the Sensors enclaves to assess compliance in implementing and maintaining |         |         |         |

**UNCLASSIFIED**

|  |  |  |
|--|--|--|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency |  | <b>Date:</b> April 2022  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603884C / <i>Ballistic Missile Defense Sensors</i> | <b>Project (Number/Name)</b><br>MC11 / <i>Cyber Operations</i> |

| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>   | <b>FY 2021</b> | <b>FY 2022</b> | <b>FY 2023</b> |
|---|----------------|----------------|----------------|
| <p>controls. This effort 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.</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p><b>FY 2022 Plans:</b></p> <ul style="list-style-type: none"> <li>-Increase scope and complexity of portfolio of systems/networks managed, including implementation of RMF requirements for Hardware in the Loop (HWIL) and lab architectures and flight and ground test support architectures. Additional RMF compliance efforts for critical modeling and simulation/stimulation capabilities for both software-based modeling and HWIL testing.</li> <li>-Conduct assessment and authorizations for current SN portfolio of systems, improves Risk Management Framework (RMF) reporting and compliance, and reduces overall cybersecurity risk.</li> <li>-Conduct required cybersecurity testing for AN/TPY-2, XBR, and LRDR mission &amp; supporting systems.</li> <li>-Provide subject matter expertise and cyber engineering manpower support for operational cybersecurity test execution (e.g., CVPA, AA, etc).</li> </ul> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"> <li>-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.</li> <li>-Execution of four (4) developmental cybersecurity test events for AN/TPY-2 (2), XBR (1), and LRDR (1).</li> </ul> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b><br/>N/A</p> |                |                |                |
| <b>Accomplishments/Planned Programs Subtotals</b>   | 11.255         | 20.215         | 21.339         |

| <b>C. Other Program Funding Summary (\$ in Millions)</b>  |                |                |                         |                        |                          |                |                |                |                |                             |                   |
|---|----------------|----------------|-------------------------|------------------------|--------------------------|----------------|----------------|----------------|----------------|-----------------------------|-------------------|
| <b>Line Item</b>  | <b>FY 2021</b> | <b>FY 2022</b> | <b>FY 2023<br/>Base</b> | <b>FY 2023<br/>OCO</b> | <b>FY 2023<br/>Total</b> | <b>FY 2024</b> | <b>FY 2025</b> | <b>FY 2026</b> | <b>FY 2027</b> | <b>Cost To<br/>Complete</b> | <b>Total Cost</b> |
| • 0603896C: <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | 639.027        | 564.946        | 589.374                 | -                      | 589.374                  | 575.883        | 588.824        | 612.853        | 605.801        | Continuing                  | Continuing        |
| • 0603898C: <i>Ballistic Missile Defense Joint Warfighter Support</i>                                   | 49.261         | 50.594         | 50.269                  | -                      | 50.269                   | 51.849         | 55.960         | 56.488         | 54.980         | Continuing                  | Continuing        |

**UNCLASSIFIED**

**Exhibit R-2A, RDT&E Project Justification:** PB 2023 Missile Defense Agency **Date:** April 2022

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

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

| <b>Line Item</b>   | <b>FY 2021</b> | <b>FY 2022</b> | <b>FY 2023<br/>Base</b> | <b>FY 2023<br/>OCO</b> | <b>FY 2023<br/>Total</b> | <b>FY 2024</b> | <b>FY 2025</b> | <b>FY 2026</b> | <b>FY 2027</b> | <b>Cost To<br/>Complete</b> | <b>Total Cost</b> |
|--|----------------|----------------|-------------------------|------------------------|--------------------------|----------------|----------------|----------------|----------------|-----------------------------|-------------------|
| • 0603904C: <i>Missile Defense Integration and Operations Center (MDIOC)</i> | 54.026         | 52.403         | 49.367                  | -                      | 49.367                   | 51.744         | 56.502         | 57.833         | 59.006         | Continuing                  | Continuing        |
| • 0603907C: <i>Sea Based X-Band Radar (SBX)</i>                              | 120.063        | 147.241        | 164.668                 | -                      | 164.668                  | 174.934        | 215.367        | 198.956        | 179.622        | Continuing                  | Continuing        |
| • 0604672C: <i>Homeland Defense Radar-Hawaii</i>                             | 133.000        | 75.000         | 0.000                   | -                      | 0.000                    | 0.000          | 0.000          | 0.000          | 0.000          | 0.000                       | 208.000           |
| • 0604873C: <i>Long Range Discrimination Radar (LRDR)</i>                    | 135.088        | 133.335        | 75.120                  | -                      | 75.120                   | 103.451        | 95.712         | 71.715         | 76.316         | Continuing                  | Continuing        |
| • 0604879C: <i>Ballistic Missile Defense Sensor Test</i>                     | 64.245         | 77.428         | 88.326                  | -                      | 88.326                   | 91.495         | 98.146         | 103.010        | 145.810        | Continuing                  | Continuing        |
| • 0901598C: <i>Management HQ - MDA</i>                                       | 26.902         | 24.102         | 25.259                  | -                      | 25.259                   | 25.836         | 26.438         | 26.984         | 27.524         | Continuing                  | Continuing        |

**Remarks**

**D. Acquisition Strategy**

The Ground Sensors Directorate will execute the Department of Defense Instruction (DoDI) 8510.01 Risk Management Framework (RMF) for DoD Information Technology (IT) requirement on several existing Radar Prime Contracts to include the Radar Development Contract, the Radar Test Contract, Long Range Discrimination Radar, 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 (FFRDC, MITRE) support, and via Military Interdepartmental Purchase Request (MIPR) through Military Sealift Command. Ground Sensors will conduct Security Control Assessments (SCA) activities, developmental and operational cybersecurity testing, analyze validation results, accomplish risk assessments, and perform 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.

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency** **Date:** April 2022

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

| <b>Product Development (\$ in Millions)</b>   |                        |                                  |             | FY 2021 |            | FY 2022 |            | FY 2023 Base |            | FY 2023 OCO |            | FY 2023 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       | 0.000   |            | 0.000   |            | 3.057        | Oct 2022   | -           |            | 3.057         | Continuing       | Continuing | Continuing               |
| Network / System Certification and Accreditation (C&A) - LRDR Cybersecurity Compliance        | SS/FPIF                | LOCKHEED MARTIN CORPORATION : NJ | 0.000       | 0.000   |            | 0.000   |            | 1.739        | Oct 2022   | -           |            | 1.739         | Continuing       | Continuing | Continuing               |
| Network / System Certification and Accreditation (C&A) - SBX Cybersecurity Compliance - PRIME | SS/CPAF                | RAYTHEON : Various               | 0.000       | 0.000   |            | 0.000   |            | 0.107        | Nov 2022   | -           |            | 0.107         | Continuing       | Continuing | Continuing               |
| Network / System Certification and Accreditation (C&A) - Systems Engineering Cybersecurity    | SS/CPAF                | RAYTHEON : Various               | 0.000       | 0.000   |            | 0.000   |            | 0.321        | Oct 2022   | -           |            | 0.321         | Continuing       | Continuing | Continuing               |
| <b>Subtotal</b>   |                        |                                  | 0.000       | 0.000   |            | 0.000   |            | 5.224        |            | -           |            | 5.224         | Continuing       | Continuing | N/A                      |

**Remarks**  
N/A

| <b>Support (\$ in Millions)</b>   |                        |                                |             | FY 2021 |            | FY 2022 |            | FY 2023 Base |            | FY 2023 OCO |            | FY 2023 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                  | 8.680       | 4.967   | Oct 2020   | 0.470   | Oct 2021   | 0.000        |            | -           |            | 0.000         | 0.000            | 14.117     | 0.000                    |

**UNCLASSIFIED**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency  |                        |                                    |             |         |   |         |            |              |            |                         |            | Date: April 2022 |                  |            |                          |
|---|------------------------|------------------------------------|-------------|---------|---|---------|------------|--------------|------------|-------------------------|------------|------------------|------------------|------------|--------------------------|
| 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 2021 |   | FY 2022 |            | FY 2023 Base |            | FY 2023 OCO             |            | FY 2023 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                      | 6.345       | 2.657   | Oct 2020  | 6.087   | Oct 2021   | 1.643        | Oct 2022   | -                       |            | 1.643            | 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   | Various                | MDA : AL, CO, VA                   | 1.626       | 0.456   | Oct 2020  | 0.466   | Oct 2021   | 0.483        | Oct 2022   | -                       |            | 0.483            | Continuing       | Continuing | Continuing               |
| Network / System Certification and Accreditation (C&A) - Contract Support Services  | Various                | MDA : Various                      | 4.522       | 1.075   | Oct 2020  | 4.535   | Nov 2021   | 0.000        |            | -                       |            | 0.000            | 0.000            | 10.132     | 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   |   | 0.000   |            | 2.850        | Nov 2022   | -                       |            | 2.850            | Continuing       | Continuing | Continuing               |
| Network / System Certification and Accreditation (C&A) - Contract Support Services - Cybersecurity Engineering - BAH  | C/CPFF                 | DECISIVE ANALYTICS                 | 0.000       | 0.000   |   | 0.000   |            | 1.112        | Nov 2022   | -                       |            | 1.112            | Continuing       | Continuing | Continuing               |

**UNCLASSIFIED**

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency   |                        |  |             |   |            |         |            |              |                         |             |            | Date: April 2022 |                  |            |                          |
|--|------------------------|--|-------------|---|------------|---------|------------|--------------|-------------------------|-------------|------------|------------------|------------------|------------|--------------------------|
| 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 2021   |            | FY 2022 |            | FY 2023 Base |                         | FY 2023 OCO |            | FY 2023 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 |
| Accreditation (C&A) - Contract Support Services - Cybersecurity Engineering - DAC  |                        | CORPORATION : Various                      |             |   |            |         |            |              |                         |             |            |                  |                  |            |                          |
| Network / System Certification and Accreditation (C&A) - Contract Support Services - Cybersecurity Engineering - Parsons | C/CPFF                 | PARSONS GOVERNMENT SERVICES INC. : Various | 0.000       | 0.000   |            | 0.000   |            | 1.959        | Nov 2022                | -           |            | 1.959            | Continuing       | Continuing | Continuing               |
| 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                       | 3.221       | 2.100   | Mar 2021   | 1.186   | Oct 2021   | 0.000        |                         | -           |            | 0.000            | 0.000            | 6.507      | 0.000                    |
| Network / System Certification and Accreditation (C&A) - SBX Cybersecurity Compliance                                    | MIPR                   | Military Sealift Command : VA              | 1.326       | 0.000   |            | 3.430   | Oct 2021   | 0.000        |                         | -           |            | 0.000            | 0.000            | 4.756      | 0.000                    |
| Network / System Certification and Accreditation (C&A) - SBX Cybersecurity Compliance - Gryphon                          | C/CPIF                 | GRYPHON TECHNOLOGIES, L.C. : Various       | 0.000       | 0.000   |            | 0.000   |            | 1.293        | Nov 2022                | -           |            | 1.293            | Continuing       | Continuing | Continuing               |
| Network / System Certification and Accreditation (C&A) - SBX Cybersecurity Compliance - PRIME                            | SS/CPAF                | RAYTHEON : Various                         | 0.000       | 0.000   |            | 0.000   |            | 3.253        | Nov 2022                | -           |            | 3.253            | Continuing       | Continuing | Continuing               |
| Network / System Certification and Accreditation (C&A) - SBX Cybersecurity Compliance                                    | Various                | Various : AK, AL, CO, VA                   | 0.000       | 0.000   |            | 0.986   | Oct 2021   | 1.874        | Nov 2022                | -           |            | 1.874            | Continuing       | Continuing | Continuing               |

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2023 Missile Defense Agency **Date:** April 2022

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

| <b>Support (\$ in Millions)</b>  |                        |  |             | FY 2021 |            | FY 2022 |            | FY 2023 Base |            | FY 2023 OCO |            | FY 2023 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          |                  |            |                          |
| Accreditation (C&A) - Sensors Test Cybersecurity Compliance  |                        |  |             |         |            |         |            |              |            |             |            |               |                  |            |                          |
| Network / System Certification and Accreditation (C&A) - Systems Engineering Cybersecurity         | MIPR                   | Various : AL, CO, VA   | 0.000       | 0.000   |            | 3.055   | Oct 2021   | 1.158        | Nov 2022   | -           |            | 1.158         | Continuing       | Continuing | Continuing               |
| Network / System Certification and Accreditation (C&A) - Systems Engineering Cybersecurity - MITRE | MIPR                   | DOD - USA - COMMUNICATIONS ELECTRONICS COMMAND (CECOM) : Various | 0.000       | 0.000   |            | 0.000   |            | 0.490        | Nov 2022   | -           |            | 0.490         | Continuing       | Continuing | Continuing               |
| <b>Subtotal</b>  |                        |  | 43.344      | 11.255  |            | 20.215  |            | 16.115       |            | -           |            | 16.115        | Continuing       | Continuing | N/A                      |

**Remarks**  
N/A

|                            | Prior Years | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total | Cost To Complete | Total Cost | Target Value of Contract |     |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|-----|
| <b>Project Cost Totals</b> |             | 43.344  | 11.255  | 20.215       | 21.339      | -             | 21.339           | 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 2023 Missile Defense Agency** **Date:** April 2022

|  |  |  |
|--|--|--|
| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603884C / <i>Ballistic Missile Defense Sensors</i> | <b>Project (Number/Name)</b><br>MC11 / <i>Cyber Operations</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 2021                      |   |   |   | FY 2022                       |   |   |   | FY 2023                 |   |   |   | FY 2024                      |   |   |   | FY 2025             |   |   |   | FY 2026 |   |   |   | FY 2027 |   |   |   |   |   |   |   |
| 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   | ◇                            | ◇ | ◇ | ◇ | ◇                             | ◇ | ◇ | ◇ | ◇                       | ◇ | ◇ | ◇ | ◇                            | ◇ | ◇ | ◇ | ◇                   | ◇ | ◇ | ◇ | ◇       | ◇ | ◇ | ◇ | ◇       | ◇ | ◇ | ◇ | ◇ | ◇ | ◇ | ◇ |
| BMDS Cyber Security Policy Development  | ◇                            | ◇ | ◇ | ◇ | ◇                             | ◇ | ◇ | ◇ | ◇                       | ◇ | ◇ | ◇ | ◇                            | ◇ | ◇ | ◇ | ◇                   | ◇ | ◇ | ◇ | ◇       | ◇ | ◇ | ◇ | ◇       | ◇ | ◇ | ◇ | ◇ | ◇ | ◇ | ◇ |
| Integrated Cyber Security Service Provider  | ◇                            | ◇ | ◇ | ◇ | ◇                             | ◇ | ◇ | ◇ | ◇                       | ◇ | ◇ | ◇ | ◇                            | ◇ | ◇ | ◇ | ◇                   | ◇ | ◇ | ◇ | ◇       | ◇ | ◇ | ◇ | ◇       | ◇ | ◇ | ◇ | ◇ | ◇ | ◇ | ◇ |

**UNCLASSIFIED**

|   |  |  |
|---|--|--|
| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Missile Defense Agency |  | <b>Date:</b> April 2022  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                | <b>R-1 Program Element (Number/Name)</b><br>PE 0603884C / <i>Ballistic Missile Defense Sensors</i> | <b>Project (Number/Name)</b><br>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       | 2021 | 4       | 2027 |
| Cyber Security Program Policy / Risk Management   | 1       | 2021 | 4       | 2027 |
| Cyber Security Mitigation Monitoring and Tracking   | 1       | 2021 | 4       | 2027 |
| BMDS Cyber Security Policy Development  | 1       | 2021 | 4       | 2027 |
| Integrated Cyber Security Service Provider  | 1       | 2021 | 4       | 2027 |

**UNCLASSIFIED**

|  |                    |                |                |                     |  |                      |                |                |  |                         |                         |                   |
|--|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|----------------|--|-------------------------|-------------------------|-------------------|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency |                    |                |                |                     |  |                      |                |                |  | <b>Date:</b> April 2022 |                         |                   |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                     |                    |                |                |                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603884C / <i>Ballistic Missile Defense Sensors</i> |                      |                |                | <b>Project (Number/Name)</b><br>MD40 / <i>Program-Wide Support</i> |                         |                         |                   |
| <b>COST (\$ in Millions)</b>   | <b>Prior Years</b> | <b>FY 2021</b> | <b>FY 2022</b> | <b>FY 2023 Base</b> | <b>FY 2023 OCO</b>   | <b>FY 2023 Total</b> | <b>FY 2024</b> | <b>FY 2025</b> | <b>FY 2026</b>   | <b>FY 2027</b>          | <b>Cost To Complete</b> | <b>Total Cost</b> |
| MD40: <i>Program-Wide Support</i>  | 122.703            | 14.100         | 9.731          | 8.393               | -  | 8.393                | 8.799          | 7.852          | 10.377   | 9.738                   | 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 MDS. These functions include Government Civilians and Contract Support Services. This effort provides integrity and oversight of the MDS 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 2021</b> | <b>FY 2022</b> | <b>FY 2023</b> |
|---|----------------|----------------|----------------|
| <b>Title:</b> Program Wide Support  | 14.100         | 9.731          | 8.393          |
| <b>Articles:</b>  | -              | -              | -              |
| <b>Description:</b> PWS contains non-headquarters management costs in support of MDA functions and activities across the entire MDS. These functions include Government Civilians and Contract Support Services. This effort provides integrity and oversight of the MDS 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, |                |                |                |

**UNCLASSIFIED**

|  |  |  |                |                |
|--|--|--|----------------|----------------|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2023 Missile Defense Agency   |  | <b>Date:</b> April 2022  |                |                |
| <b>Appropriation/Budget Activity</b><br>0400 / 4   | <b>R-1 Program Element (Number/Name)</b><br>PE 0603884C / <i>Ballistic Missile Defense Sensors</i> | <b>Project (Number/Name)</b><br>MD40 / <i>Program-Wide Support</i> |                |                |
| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>  |  | <b>FY 2021</b>   | <b>FY 2022</b> | <b>FY 2023</b> |
| <p>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 2022 Plans:</b><br/>- SEE ABOVE.</p> <p><b>FY 2023 Plans:</b><br/>- SEE ABOVE.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b><br/>Decrease from FY 2022 to FY 2023 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>  |  | 14.100   | 9.731          | 8.393          |
| <b>C. Other Program Funding Summary (\$ in Millions)</b>   |  |  |                |                |
| N/A  |  |  |                |                |
| <b>Remarks</b>   |  |  |                |                |
| <b>D. Acquisition Strategy</b>   |  |  |                |                |
| N/A  |  |  |                |                |

**UNCLASSIFIED**

**Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Missile Defense Agency** **Date:** April 2022

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

| <b>Support (\$ in Millions)</b>  |                        |   |             | FY 2021 |            | FY 2022 |            | FY 2023 Base |            | FY 2023 OCO |            | FY 2023 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 Facilities and Maintenance                   | MIPR                   | Various Multi: : AL, CO, CA, VA             | 0.000       | 14.100  | Nov 2020   | 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                 | Various : Multi: AK, AL, CO, CA, HI, MD, VA | 85.491      | 0.000   |            | 9.731   | Nov 2021   | 8.393        | Nov 2022   | -           |            | 8.393         | 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>  |                        |   | 122.703     | 14.100  |            | 9.731   |            | 8.393        |            | -           |            | 8.393         | Continuing       | Continuing | N/A                      |

**Remarks**  
N/A

|                            | Prior Years | FY 2021 | FY 2022 | FY 2023 Base | FY 2023 OCO | FY 2023 Total | Cost To Complete | Total Cost | Target Value of Contract |     |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|-----|
| <b>Project Cost Totals</b> |             | 122.703 | 14.100  | 9.731        | 8.393       | -             | 8.393            | Continuing | Continuing               | N/A |

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



**UNCLASSIFIED**

|   |  |  |
|---|--|--|
| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2023 Missile Defense Agency |  | <b>Date:</b> April 2022  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                | <b>R-1 Program Element (Number/Name)</b><br>PE 0603884C / <i>Ballistic Missile Defense Sensors</i> | <b>Project (Number/Name)</b><br>MD40 / <i>Program-Wide Support</i> |

Schedule Details

| Events                    | Start   |      | End     |      |
|---------------------------|---------|------|---------|------|
|                           | Quarter | Year | Quarter | Year |
| MD40 Program-Wide Support | 1       | 2021 | 4       | 2027 |