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

|   |   |
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| <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 0603896C <i>I Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> |
|---|---|

| COST (\$ in Millions)   | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element   | 4,740.052   | 556.914 | 589.374 | 554.201      | -           | 554.201       | 574.275 | 585.966 | 598.896 | 582.156 | Continuing       | Continuing |
| MD01: <i>Command &amp; Control, Battle Management, Communications (C2BMC)</i>                     | 3,016.103   | 335.045 | 368.950 | 336.417      | -           | 336.417       | 349.481 | 353.905 | 357.466 | 334.643 | Continuing       | Continuing |
| MC01: <i>Cyber Operations</i>   | 79.987      | 12.068  | 8.504   | 8.261        | -           | 8.261         | 8.512   | 8.672   | 8.847   | 9.025   | Continuing       | Continuing |
| MT01: <i>C2BMC Test</i>   | 478.147     | 65.341  | 58.616  | 51.849       | -           | 51.849        | 57.628  | 59.930  | 64.674  | 65.120  | Continuing       | Continuing |
| MX01: <i>Command &amp; Control, Battle Management, Communications (C2BMC) Development Support</i> | 971.762     | 122.194 | 131.903 | 138.665      | -           | 138.665       | 139.480 | 142.259 | 145.342 | 148.249 | Continuing       | Continuing |
| MD40: <i>Program-Wide Support</i>   | 194.053     | 22.266  | 21.401  | 19.009       | -           | 19.009        | 19.174  | 21.200  | 22.567  | 25.119  | Continuing       | Continuing |

**Program MDAP/MAIS Code: 362**

**Note**

Decrease from FY 2023 to FY 2024 reflects realignment of Space Command and Control (C2) Integration funding from C2BMC, PE 0603896C to Special Programs - MDA, PE 0603891C to consolidate the funds and provide an integrated justification in the Special Programs budget exhibits and completion of integration activities for Spiral 8.2-5.

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

The C2BMC program is the integrating element of the Missile Defense System. It is a vital operational system that enables the U.S. President, Secretary of Defense and Combatant Commanders at strategic, regional and operational levels to systematically plan missile defense operations, to collectively see the battle develop, and to dynamically manage designated networked sensors and weapons systems to achieve global and regional mission objectives. Systems linked through C2BMC include Patriot, Terminal High Altitude Area Defense, Aegis Ballistic Missile Defense, Aegis Ashore, Ground-based Midcourse Defense, Army Integrated Air and Missile Defense Battle Command System, and sensors such as the Army Navy/Transportable Radar Surveillance and Control-2 Radar, Sea-Based X-Band Radar, Long Range Discrimination Radar, Homeland Defense, Space-Based Infrared System, and Ballistic Missile Defense Systems Overhead Persistent Infrared Architecture. The C2BMC program also works to increase coalition partners' capabilities and investigates concepts and explores system engineering issues associated with innovative space applications for a missile defense intercept and defeat system. C2BMC begins support to integrate existing sensor elements within Missile Defense Agency and the Services into the Ballistic Missile Defense System Communications Network to establish a globally integrated sensor architecture to provide enhanced, dynamic space capabilities, and extend existing BCN network and cybersecurity management to cover the expanded architecture. Under the Missile Defense Agency's Defense of Guam Program, the C2BMC program is integrating Missile Defense and Joint systems, establishing an expeditionary and permanent Command Center and providing required communication support throughout the island.

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| <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 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> |
|---|---|

| <b>B. Program Change Summary (\$ in Millions)</b> | <b>FY 2022</b> | <b>FY 2023</b> | <b>FY 2024 Base</b> | <b>FY 2024 OCO</b> | <b>FY 2024 Total</b> |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget                       | 564.946        | 589.374        | 575.883             | -                  | 575.883              |
| Current President's Budget                        | 556.914        | 589.374        | 554.201             | -                  | 554.201              |
| Total Adjustments                                 | -8.032         | 0.000          | -21.682             | -                  | -21.682              |
| • Congressional General Reductions                | 0.000          | 0.000          |                     |                    |                      |
| • Congressional Directed Reductions               | 0.000          | 0.000          |                     |                    |                      |
| • Congressional Rescissions                       | 0.000          | 0.000          |                     |                    |                      |
| • Congressional Adds                              | 0.000          | 0.000          |                     |                    |                      |
| • Congressional Directed Transfers                | 0.000          | 0.000          |                     |                    |                      |
| • Reprogrammings                                  | 0.000          | 0.000          |                     |                    |                      |
| • SBIR/STTR Transfer                              | -8.032         | 0.000          |                     |                    |                      |
| • Other Adjustment                                | 0.000          | 0.000          | -21.682             | -                  | -21.682              |

**Change Summary Explanation**

The decrease in FY 2024 reflects a realignment of Space C2 Integration funding the from C2BMC, PE 0603896C to Special Programs - MDA, PE 0603891C to consolidate the funds and provide an integrated justification in the Special Programs budget exhibits.

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Missile Defense Agency |                    |                |                |                     |   |                      |                |                |  | <b>Date:</b> March 2023 |                         |                   |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                     |                    |                |                |                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> |                      |                |                | <b>Project (Number/Name)</b><br>MD01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC)</i> |                         |                         |                   |
| <b>COST (\$ in Millions)</b>   | <b>Prior Years</b> | <b>FY 2022</b> | <b>FY 2023</b> | <b>FY 2024 Base</b> | <b>FY 2024 OCO</b>  | <b>FY 2024 Total</b> | <b>FY 2025</b> | <b>FY 2026</b> | <b>FY 2027</b>   | <b>FY 2028</b>          | <b>Cost To Complete</b> | <b>Total Cost</b> |
| MD01: <i>Command &amp; Control, Battle Management, Communications (C2BMC)</i>        | 3,016.103          | 335.045        | 368.950        | 336.417             | -   | 336.417              | 349.481        | 353.905        | 357.466  | 334.643                 | Continuing              | Continuing        |
| Quantity of RDT&E Articles   | -                  | -              | -              | -                   | -   | -                    | -              | -              | -  | -                       |                         |                   |

**Note**

Decrease from FY 2023 to FY 2024 reflects realignment of Space C2 Integration funding from C2BMC, PE 0603896C to Special Programs - MDA, PE 0603891C to consolidate the funds and provide an integrated justification in the Special Programs budget exhibits and completion of integration activities for Spiral 8.2-5.

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

Provides incremental development, deployment, and operational support of C2BMC capabilities required for Missile Defense System planning, situational awareness, sensor management, and engagement coordination. The FY 2019 National Defense Authorization Act section 869 recognized C2BMC for its implementation of this iterative practice and directed C2BMC's inclusion in a Community of Practice to advise on agile or iterative development.

C2BMC delivers capabilities incrementally with each software build (named as a Spiral), adding to or enhancing the capability of the previous build. C2BMC incremental delivery of Spiral 8.2 provides critical Homeland Defense for increased Ground-Based Missile Defense (GMD) battlespace, improved threat tracking using multiple sensors communicating via Link 16, enhanced sensor tasking to meet track quality and discrimination timeliness requirements, Space Domain Awareness (SDA) tasking support, and improved cyber capabilities. Enhanced Homeland Defense also integrates the Ballistic Missile Defense System (BMDS) Overhead Persistent Infrared (OPIR) Architecture (BOA) with the Missile Defense System to enhance system level missile-tracking capabilities through earlier cueing of radars and weapon systems.

European Phased Adaptive Approach Phase 3/Engage-on-Remote (EOR) (Spiral 8.2-3) provides critical sensor management capability, greater engagement flexibility, improved OPIR-based cueing, and enhanced Aegis Ballistic Missile Defense (BMD) defended area by enabling Aegis to use Army Navy/Transportable Radar Surveillance and Control-2 (AN/TPY-2) data for EOR engagements, providing a five-fold increase in defended area coverage in the US Central Command (USCENTCOM) and US European Command (USEUCOM) area of responsibility compared to individual weapon system organic capability. Spiral 8.2-3 also includes SDA and integrates Mobile Sensor Integration Phase 1 and BOA data into the Missile Defense System.

Long Range Discrimination Radar (LRDR) Control for Homeland Defense (Spiral 8.2-5) enables increased homeland and regional defense by providing LRDR sensor management, creation and dissemination of a BMD System track inclusive of LRDR sensor data, hypersonic threat tracking, significant capability expansion of track and reporting Advance Threats for warfighter SDA; implements Link-16 reporting, integration of system level discrimination data, transmission of LRDR-based information to GMD Fire Control (GFC) and other Missile Defense System elements; and operationalization of Space-based Kill Assessment (SKA) hit assessment for Homeland Defense.

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| <b>Appropriation/Budget Activity</b><br>0400 / 4  | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MD01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC)</i> |
| <p>Expanded Regional and Homeland Defense Increment 7 (Spiral 8.2-7) will provide BMDS System Track (BST) with System Level Discrimination Integration for GMD engagements; Expanded Active Sensor Bias Monitoring and Full Reporting; Refined Space and Intelligence Data; Expanded Hypersonic Tracking and Link-16 Reporting.</p> <p>Expanded Defense of Guam Increment 9A will provide C2BMC and BOA support to Guam including a C2BMC Downloadable Unified Client (DUC) on Island and Cruise Missile Indications and Warnings while preparing for Enhanced Integrated Air and Missile Defense upgrades for Guam defense.</p> <p>Integration of GMD Next Generation Interceptor (NGI) and Initial Homeland Defense Threat Space (C2BMC Increment 10) will support GMD with BST, Sensor Resource Management, Battle Management, and System Level Discrimination to support integration of new GMD interceptor with initial updated homeland ballistic missile threat space for GMD engagements.</p> <p>C2BMC continues to develop incremental improvements to the Missile Defense System to keep pace with emerging threats worldwide by investing in the development, integration, and testing of advanced algorithms to improve track and discrimination capabilities and enhancing use of space based sensor data from sources such as the Space Based Infrared System, using the BMDS OPIR architecture. Related disciplines provide development and deployment support to C2BMC system capabilities. In support of Hypersonic Defense, C2BMC will provide contingency capability to demonstrate, develop and deploy a detection and warning for advanced threats. C2BMC continues Protected Anti-Jam/Anti-Scintillation Wideband Net-Centric System (PAAWNS) modem integration, installations, and technical refresh globally of the threat based communication network modernization against the advanced threat, while maintaining efficiencies in cost.</p> <p>C2BMC International Partner system engineering ensures allies and partners are integrated to the fullest extent possible with U.S. Missile Defense System capabilities. Collaborative system engineering, testing, and fielding facilitate interoperability with North Atlantic Treaty Organization (NATO) and partner nations such as Israel and Japan. C2BMC works with these nations to define and document international interfaces that are compatible with international standards and traceable to U.S. Missile Defense System requirements. C2BMC participates in test events and live fire exercises hosted by international partners to ensure U.S. missile defense weapons, sensors, and C2 systems are interoperable with international systems. C2BMC maintains and upgrades the U.S./NATO secure data sharing gateways located at Ramstein Air Base, Germany, for missile defense operations and training. C2BMC also supports development of Japan's BMD requirements to ensure interoperability of Japanese and U.S. BMD systems (sensors, shooters, C2) resulting in an integrated regional, operational, and strategic defense of Japan.</p> <p>C2BMC Modeling and Simulation (M&amp;S) maintains Missile Defense System simulation/stimulation tools and federated models to support development and verification of deployed C2BMC and BOA Spirals. The BMDS C2BMC Model (BCM) is used for Flight Test pre-mission analysis and exercises to represent a second C2 Suite for Cross-Area of Responsibility functionality, Early Digital Product for C2BMC performance assessment, and supports development and integration of GMD, AN/TPY-2, and Aegis software and models. The OPIR sensor M&amp;S is used in the Ground Test Integrated System-level Simulation (GTISS) as the stimulus for BOA. The BCM program provides a cost effective means to assess and explore the performance space of the Missile Defense System beyond what can be physically tested via Flight Tests and Target of Opportunity collections.</p> |   |  |

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

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| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MD01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC)</i> |
|--|---|--|

C2BMC develops, integrates, and tests advanced algorithms to improve discrimination capabilities and enhance the use of space-based sensor data. In support of MDA discrimination improvements effort, C2BMC demonstrates, develops, and deploys multiple techniques to improve BMD System ability to identify lethal and non-lethal objects.

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

|  | FY 2022      | FY 2023      | FY 2024      |
|--|--------------|--------------|--------------|
| <p><b>Title:</b> C2BMC Development and Deployment</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Provides funding for incremental development and deployment of C2BMC capabilities that link sensors and shooters to enable integrated Missile Defense System capabilities, integrate BOA with the Missile Defense System architecture to enhance missile tracking capabilities and enable much earlier cueing of radars and shooters, and fulfill Cybersecurity requirements. The Enterprise Sensors Laboratory (ESL) and Experimentation Laboratory produce key prototypes for further maturation in the C2BMC capability Spiral development process and enable integrated experimentation for C2BMC, ESL, OPIR products, and other Missile Defense System elements through robust connectivity to simulation frameworks, weapon systems, sensors, and operational assets. Expand capability to track and report Advanced Threats for warfighter Situational Awareness. Expanding SDA tasking and reporting to include AN/TPY-2, LRDR, and Aegis sensors.</p> <p>Recurring accomplishments include iterative development and procurement cycles for hardware, software, network capability system engineering tasks, and artifacts for technical engineering reviews; participation in test readiness reviews, pre-test engineering, and analysis of ground and flight test results, wargames, and exercises in accordance with the Missile Defense System Integrated Master Test Plan (IMTP); site planning, scheduling, and hardware acquisition to support planned deployment of C2BMC Spirals and BOA capabilities; updates and maintenance for C2BMC Model (BCM) Missile Defense System simulation/stimulation (federated model) and verification scenarios for all C2BMC Spirals deployed and under development; Discrimination, operationalization of SKA Hit Assessment, and C2BMC capabilities; design and installation of operational sharing gateways; and collaboration with international partners to ensure future interoperability; and maintain Verification and Validation in support of Missile Defense System capability ground testing and participation in Missile Defense System ground tests. C2BMC will continue to design and prototype the next incremental capability addressing Additional Homeland Defense and Mid-Term Discrimination requirements, inclusive of C2BMC Generation of BMD System Track (with System Level Discrimination Data Integration) for GMD Homeland Defense Engagements and Expanded Regional and Homeland Defense, and an expanded interface with the OPIR enterprise, which yields additional raid handling capacity, enhanced Aegis BMD engage on capability, and expanded hypersonic defense tracking and reporting.</p> <p>C2BMC will begin to integrate existing MDA and Service elements with C2BMC and the Ballistic Missile Defense System Communications Network (BCN) to establish a globally integrated sensor architecture to provide enhanced, dynamic space capabilities, and extend existing BCN network and cybersecurity management to cover the expanded architecture. The</p> | 260.119<br>- | 313.489<br>- | 262.715<br>- |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Missile Defense Agency |   | <b>Date:</b> March 2023  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MD01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC)</i> |

| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>  | <b>FY 2022</b> | <b>FY 2023</b> | <b>FY 2024</b> |
|--|----------------|----------------|----------------|
| <p>expanded sensor architecture will integrate ground-based radars from the U.S. Space Force Space Surveillance Network (SSN), orchestrated by C2BMC, and develop algorithms to fuse and/or correlate the data provided by these sensors in support of missile defense and space C2 missions.</p> <p>Specific and/or unique accomplishments for each FY are as follows:</p> <p><b>FY 2023 Plans:</b><br/>LRDR for Homeland Defense (Spiral 8.2-5), homeland defense focus:<br/>- Continue sustainment of S8.2-5 capabilities</p> <p>C2BMC Additional and Expanded Regional and Homeland Defense focus:<br/>- Continue development of next iteration of BOA which will include addition of new sensors and expanded Advanced Threat Performance<br/>- Continue development to integrate additional advanced sensors into BOA to expand coverage and increase custody of emerging threats</p> <p>Space C2 Integration<br/>- Continue development and test of source and system track algorithms in support of Space C2 sensor orchestration<br/>- Continue development, integration, and test of the Eglin C-Band Radar, Millstone, ARPA Long-Range Tracking and Instrumentation Radar (ALTAIR), Space Fence, and Ground-Based Radar-Kwajalein sensors into C2BMC<br/>- Continue development of SDA sensor integration of a Upgraded Early Warning Radar (UEWR) sensor in support of Joint Space C2/Missile Defense (MD) missions<br/>- Support interface development and test for the Millstone, ALTAIR, Space Fence, Eglin C-Band, and UEWR radars as their U.S. Space Force upgrade paths near initial operational capability<br/>- Continue early operational testing of the above SSN sensors with C2BMC serving as the sensor orchestrator and track processor<br/>- Conduct studies to evaluate and optimize trades in support of delivering integrated Space C2 and missile defense capabilities</p> <p><b>FY 2024 Plans:</b><br/>LRDR for Homeland Defense (Spiral 8.2-5), homeland defense focus:<br/>- Continue operations and sustainment of Spiral 8.2-5 capabilities</p> <p>C2BMC Additional and Expanded Regional and Homeland Defense focus:</p> |                |                |                |

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| <b>Appropriation/Budget Activity</b><br>0400 / 4                                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MD01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC)</i> |

| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>  | <b>FY 2022</b> | <b>FY 2023</b> | <b>FY 2024</b> |
|--|----------------|----------------|----------------|
| <ul style="list-style-type: none"> <li>- Continue development of next iteration BOA in support of updated raid performance needed for Increment 8/9</li> <li>- Initiate development of next iteration of C2BMC to include integration with NGI and incorporation of new algorithms and performance needed for updated ballistic missile threat space for GMD engagements</li> </ul> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b><br/>Decrease from FY 2023 to FY 2024 reflects realignment of Space C2 Integration funding from C2BMC, PE 0603896C to Special Programs - MDA, PE 0603891C to consolidate the funds and provide an integrated justification in the Special Programs budget exhibits and completion of integration activities for Spiral 8.2-5.</p>   |                |                |                |
| <p><b>Title:</b> C2BMC Communications</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> The BCN ties together an expanding set of sensors and weapons systems to enable the National Command Authority and the commanders at the strategic, theater, and tactical levels to optimally engage missile threats. Recurring accomplishments include the following:</p> <ul style="list-style-type: none"> <li>- Provide GMD Communications Network (GCN) Long Haul Communications Transport services and a robust, end-to-end, high availability, operational communications network infrastructure with diverse paths that quickly and unambiguously share information across the global Missile Defense System</li> <li>- Participate in and analyze results from events scheduled in the Missile Defense System IMTP</li> <li>- Provide Missile Defense System communications via leased Defense Information Service Agency (DISA) circuits, and resolve real-time operational issues through DISA's Network Operations and Security Center</li> <li>- Provide effective network management to coordinate and integrate information across diverse equipment platforms, interface with other Department of Defense (DoD) communications systems, evolve information standards and capabilities, and adhere to the DoD Risk Management Framework</li> <li>- Continue upgrade and technical refresh of the PAAWNS threat based communication network against the advanced threat of nuclear capabilities, while maintaining efficiencies in cost</li> <li>- Upgrade BCN capability by supporting all DoD teleports to enhance satellite communications</li> <li>- Continue technical refresh for End-of-Life Satellite Communication terminals on Sea-Based X-Band Radar (SBX) by transitioning to Military Satellite Communications terminals</li> <li>- Continue acquiring additional network circuits to support the threat based communication network modernization</li> <li>- Continue PAAWNS modem testing integration and installations globally</li> </ul> <p>Specific and/or unique accomplishments for each FY are as follows:</p> <p><b>FY 2023 Plans:</b></p> | 37.061         | 35.461         | 35.212         |
|  | -              | -              | -              |

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| <b>Appropriation/Budget Activity</b><br>0400 / 4                                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MD01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC)</i> |

| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>  | <b>FY 2022</b> | <b>FY 2023</b> | <b>FY 2024</b> |
|--|----------------|----------------|----------------|
| <p>- Continue upgrade and integration of AN-TPY/2 High-Altitude Electromagnetic Pulse Hardened Transport Terminals (HEMPHTTs) for increased protection of satellite communication systems at relevant sites</p> <p>- Provide SBX terminal and cyber upgrades</p> <p><b>FY 2024 Plans:</b></p> <p>- Complete upgrade and integration of AN-TPY/2 HEMPHTTs for increased protection of satellite communication systems at relevant sites</p> <p>- Continue GCN refresh from legacy to Optical equipment</p> <p>- Continue to support buildout of C2BMC nodes</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b><br/>N/A</p> |                |                |                |
| <p><b>Title:</b> Classified</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Provides for the development of innovative command and control techniques and technology to accelerate integration of non-traditional sensors for missile defense. Leverage advanced processing nodes, innovative fusion techniques, and advanced capabilities for enhanced tracking and reporting.</p> <p>Specific and/or unique accomplishments for each FY are as follows:</p> <p><b>FY 2023 Plans:</b><br/>N/A</p> <p><b>FY 2024 Plans:</b><br/>N/A</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b><br/>N/A</p>       | 37.865         | 0.000          | 0.000          |
|  | -              | -              | -              |
| <p><b>Title:</b> Guam Defense C2BMC</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> Deploy C2BMC BCN to support Guam defense to provide ballistic and hypersonic threat typing and tracking, battle management decision aids and regional radar support while integrating with IBCS and Aegis Weapon System. BOA updates to support regional raid tracking. Enterprise Sensor Processing Node (ESPN) to provide cruise missile typing, warning, and tracking.</p>   | 0.000          | 20.000         | 38.490         |
|  | -              | -              | -              |

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| <b>Appropriation/Budget Activity</b><br>0400 / 4                                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MD01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC)</i> |

| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>  | <b>FY 2022</b> | <b>FY 2023</b> | <b>FY 2024</b> |
|--|----------------|----------------|----------------|
| Integrate requirements for the Command Center and provide its common equipment. This project supports the Pacific Deterrence Initiative.   |                |                |                |
| <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"> <li>-Initiate ESPN Cruise Missile development at ESL</li> <li>-Initiate Site Surveys, procure and install Type 1 Defense Information System Agency Nodes</li> <li>-Initiate Command Center Planning and Design</li> </ul> <p><b>FY 2024 Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue Initial Deployment including a C2BMC DUC on island and ESPN Cruise Missile Indications and Warnings</li> <li>- Continue to upgrade C2BMC and BOA to include support of a C2BMC Mission Node on Island and enhanced BOA Raid capacity with traditional and advanced threats</li> <li>- Continue Command Center planning and design, to include outfitting of common equipment for Initial Deployment Expeditionary Command Center and permanent Command Center</li> <li>- Continue planning and establishment of secure and redundant networks/communications connections for identified tactical and off-island sites</li> <li>- Initiate simulation/stimulation enablers and associated training capabilities</li> </ul> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b></p> <p>FY 2024 Pacific Deterrence Initiative funding has increased by \$18.490 million for network/communication connections and command center infrastructure support that enables and supports Initial Deployment and Enhanced Integrated Air and Missile Defense capabilities.</p> |                |                |                |
| <b>Accomplishments/Planned Programs Subtotals</b>  | 335.045        | 368.950        | 336.417        |

| <b>C. Other Program Funding Summary (\$ in Millions)</b>               |                |                |                         |                        |                          |                |                |                |                |                             |                   |
|--|----------------|----------------|-------------------------|------------------------|--------------------------|----------------|----------------|----------------|----------------|-----------------------------|-------------------|
| <b>Line Item</b>   | <b>FY 2022</b> | <b>FY 2023</b> | <b>FY 2024<br/>Base</b> | <b>FY 2024<br/>OCO</b> | <b>FY 2024<br/>Total</b> | <b>FY 2025</b> | <b>FY 2026</b> | <b>FY 2027</b> | <b>FY 2028</b> | <b>Cost To<br/>Complete</b> | <b>Total Cost</b> |
| • 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>  | 209.004        | 195.216        | 220.311                 | -                      | 220.311                  | 239.705        | 334.977        | 384.992        | 292.629        | Continuing                  | Continuing        |
| • 0603882C: <i>Ballistic Missile Defense Midcourse Defense Segment</i> | 707.632        | 689.018        | 903.633                 | -                      | 903.633                  | 852.567        | 906.634        | 930.538        | 875.198        | Continuing                  | Continuing        |
| • 0603884C: <i>Ballistic Missile Defense Sensors</i>                   | 250.123        | 230.502        | 239.159                 | -                      | 239.159                  | 212.191        | 233.877        | 242.623        | 251.226        | Continuing                  | Continuing        |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Missile Defense Agency |   | <b>Date:</b> March 2023  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MD01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC)</i> |

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

| Line Item  | FY 2022 | FY 2023 | FY 2024 | FY 2024 | FY 2024 | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To    |            |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|------------|------------|
|  |         |         | Base    | OCO     | Total   |         |         |         |         | Complete   | Total Cost |
| • 0603890C: <i>BMD Enabling Programs</i>                                     | 616.800 | 588.847 | 597.720 | -       | 597.720 | 620.823 | 639.398 | 648.954 | 650.432 | Continuing | Continuing |
| • 0603892C: <i>AEGIS BMD</i>   | 628.014 | 595.572 | 693.727 | -       | 693.727 | 639.678 | 706.974 | 699.611 | 733.909 | Continuing | Continuing |
| • 0603904C: <i>Missile Defense Integration and Operations Center (MDIOC)</i> | 44.188  | 49.367  | 50.549  | -       | 50.549  | 56.624  | 58.020  | 59.193  | 60.615  | Continuing | Continuing |
| • 0603907C: <i>Sea Based X-Band Radar (SBX)</i>                              | 147.241 | 164.668 | 177.868 | -       | 177.868 | 196.952 | 176.633 | 162.632 | 162.578 | Continuing | Continuing |
| • 0603914C: <i>Ballistic Missile Defense Test</i>                            | 388.956 | 366.824 | 360.455 | -       | 360.455 | 430.281 | 436.921 | 465.074 | 375.256 | Continuing | Continuing |
| • 0603915C: <i>Ballistic Missile Defense Targets</i>                         | 560.445 | 579.075 | 570.258 | -       | 570.258 | 583.747 | 642.329 | 664.683 | 510.063 | Continuing | Continuing |
| • 0604102C: <i>Guam Defense Development</i>                                  | 110.611 | 393.201 | 397.578 | -       | 397.578 | 291.301 | 272.227 | 238.348 | 232.115 | Continuing | Continuing |
| • 0604181C: <i>Hypersonic Defense</i>  | 281.886 | 517.977 | 208.997 | -       | 208.997 | 218.939 | 294.326 | 366.951 | 644.996 | Continuing | Continuing |
| • 0604672C: <i>Homeland Defense Radar-Hawaii</i>                             | 75.000  | 0.000   | 0.000   | -       | 0.000   | 0.000   | 0.000   | 0.000   | 0.000   | 0.000      | 75.000     |
| • 0604873C: <i>Long Range Discrimination Radar (LRDR)</i>                    | 129.552 | 75.120  | 103.517 | -       | 103.517 | 100.114 | 68.815  | 69.219  | 65.521  | Continuing | Continuing |

**Remarks**

**D. Acquisition Strategy**

A sole source C2BMC contract to Lockheed Martin was awarded 1st quarter FY 2012. The current ordering period is through 4th quarter FY 2026. Major team members to Lockheed are Northrop Grumman, Boeing, Raytheon, and General Dynamics. They are charged with the systems engineering, modeling & simulation, development, testing, fielding, and cybersecurity development support of the C2BMC system. The sole source C2BMC Follow-on contract is planned to be awarded in 1st quarter FY 2024 to continue support of the C2BMC system. Additionally, other government agencies provide support to include DISA for C2BMC worldwide long-haul communications and various performers for modeling & simulation and independent verification and validation. C2BMC Program Office government, Federally Funded Research and Development Center/University Affiliated Research Center, and Contract Support Services personnel are also fully integrated as part of the Prime contractor's team to function in an Integrated Product Team environment. Furthermore, a sole source Specialized Warfighter Development Contract was awarded to Northrop Grumman in March 2018 (3-year base and 2 one-year option periods) for continuation of the systems engineering, development, test and integration for BOA. The BOA Follow-on sole source contract is planned to be awarded in 3rd quarter FY 2023 with a 5-year period of performance.

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| <b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2024 Missile Defense Agency</b> |  |  |  |  |  |   |  |  |  |  |  | <b>Date:</b> March 2023  |  |  |  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                    |  |  |  |  |  | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> |  |  |  |  |  | <b>Project (Number/Name)</b><br>MD01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC)</i> |  |  |  |

| <b>Product Development (\$ in Millions)</b>  |                                   |  |                    | <b>FY 2022</b> |                   | <b>FY 2023</b> |                   | <b>FY 2024 Base</b> |                   | <b>FY 2024 OCO</b> |                   | <b>FY 2024 Total</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>          | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |
| C2BMC Development and Deployment - Aggregated Discrim  | Various                           | TBD : Various  | 70.939             | 1.329          | Oct 2021          | 6.598          | Nov 2022          | 6.634               | Nov 2023          | -                  |                   | 6.634                | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - BMDS C2BMC Model (BCM) - EDISS Integration                    | SS/CPIF                           | LOCKHEED MARTIN CORPORATION : Various  | 12.713             | 2.852          | Oct 2021          | 0.933          | Oct 2022          | 0.498               | Oct 2023          | -                  |                   | 0.498                | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - BOA OPIR Stimulation M&S - EDISS/GTISS                        | C/CPAF                            | SCITEC INC : NJ  | 0.583              | 2.990          | Oct 2021          | 1.676          | Nov 2022          | 1.562               | Nov 2023          | -                  |                   | 1.562                | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - BOA OPIR Stimulation M&S - EDISS/GTISS -GOV                   | MIPR                              | Sandia National Laboratories, New Mexico (SNL) : NM  | 3.208              | 0.793          | Dec 2021          | 0.000          |                   | 0.000               |                   | -                  |                   | 0.000                | 4.001                   | 8.002             | 0.000                           |
| C2BMC Development and Deployment - BOA Simulation Development and Integration- EDISS             | SS/CPAF                           | NORTHROP GRUMMAN : CO  | 1.451              | 2.426          | Dec 2021          | 0.000          |                   | 0.000               |                   | -                  |                   | 0.000                | 3.877                   | 7.754             | 0.000                           |
| C2BMC Development and Deployment - C2BMC Hardware/Software Development, Integration & Test (I&T) | SS/CPIF                           | LOCKHEED MARTIN CORPORATION : Various  | 1,113.047          | 132.536        | Dec 2021          | 137.805        | Dec 2022          | 84.012              | Dec 2023          | -                  |                   | 84.012               | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - C2BMC Integration   | MIPR                              | DOD - USA - COMBAT CAPABILITIES DEVELOPMENT COMMAND (CCDC) AVIATION AND MISSILE CENTER (AVMC) : AL | 186.155            | 7.065          | Nov 2021          | 8.673          | Nov 2022          | 8.716               | Nov 2023          | -                  |                   | 8.716                | Continuing              | Continuing        | Continuing                      |

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| <b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2024 Missile Defense Agency</b> |  |  |  |   |  |  |  |  |  |  | <b>Date: March 2023</b> |  |  |  |  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                    |  |  |  | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> |  |  |  | <b>Project (Number/Name)</b><br>MD01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC)</i> |  |  |                         |  |  |  |  |

| <b>Product Development (\$ in Millions)</b>   |                                   |   |                    | <b>FY 2022</b> |                   | <b>FY 2023</b> |                   | <b>FY 2024 Base</b> |                   | <b>FY 2024 OCO</b> |                   | <b>FY 2024 Total</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>          | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |
| C2BMC Development and Deployment - C2BMC Prior Year   | Various                           | Various : Various   | 101.381            | 0.000          |                   | 0.000          |                   | 0.000               |                   | -                  |                   | 0.000                | 101.381                 | 202.762           | 0.000                           |
| C2BMC Development and Deployment - ESL/BOA Development  | SS/CPAF                           | NORTHROP GRUMMAN : CO   | 72.208             | 30.513         | Oct 2021          | 56.679         | Oct 2022          | 46.429              | Oct 2023          | -                  |                   | 46.429               | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - Federally Funded Research & Development Centers / University Affiliated Research Center- Aerospace | MIPR                              | DOD - USSF - SPACE AND MISSILE SYSTEMS CENTER (SMC) : Various                       | 15.679             | 0.980          | Sep 2022          | 0.785          | Oct 2022          | 0.984               | Oct 2023          | -                  |                   | 0.984                | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - Federally Funded Research & Development Centers / University Affiliated Research Center-GTRI       | MIPR                              | GTRI (Georgia Tech Research Institute) : TBD  | 0.000              | 0.000          |                   | 3.933          | Oct 2022          | 4.013               | Oct 2023          | -                  |                   | 4.013                | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - Federally Funded Research & Development Centers / University Affiliated Research Center-IDA        | MIPR                              | DOD - WASHINGTON HEADQUARTERS SERVICES (WHS) ACQUISITION DIRECTORATE (AD) : Various | 31.908             | 1.995          | Oct 2021          | 1.938          | Oct 2022          | 2.555               | Oct 2023          | -                  |                   | 2.555                | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - Federally Funded Research & Development Centers / University Affiliated Research Center-JHU/APL    | MIPR                              | JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY LLC, THE : Various              | 88.541             | 5.534          | Oct 2021          | 4.019          | Oct 2022          | 3.832               | Oct 2023          | -                  |                   | 3.832                | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - Federally  | MIPR                              | DOD - USAF - AIR FORCE LIFE CYCLE   | 12.320             | 0.770          | Oct 2021          | 0.744          | Oct 2022          | 3.134               | Oct 2023          | -                  |                   | 3.134                | Continuing              | Continuing        | Continuing                      |

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| <b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2024 Missile Defense Agency</b> |  |  |  |   |  |  |  |  |  |  | <b>Date: March 2023</b> |  |  |  |  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                    |  |  |  | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> |  |  |  | <b>Project (Number/Name)</b><br>MD01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC)</i> |  |  |                         |  |  |  |  |

| <b>Product Development (\$ in Millions)</b>   |                                   |   |                    | <b>FY 2022</b> |                   | <b>FY 2023</b> |                   | <b>FY 2024 Base</b> |                   | <b>FY 2024 OCO</b> |                   | <b>FY 2024 Total</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>          | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |
| Funded Research & Development Centers / University Affiliated Research Center-MIT/LL  |                                   | MANAGEMENT CENTER (AFLCMC) : Various  |                    |                |                   |                |                   |                     |                   |                    |                   |                      |                         |                   |                                 |
| C2BMC Development and Deployment - Federally Funded Research & Development Centers / University Affiliated Research Center-NSEC | MIPR                              | DOD - USA - COMMUNICATIONS ELECTRONICS COMMAND (CECOM) : Various                                    | 86.388             | 5.399          | Oct 2021          | 3.127          | Oct 2022          | 3.203               | Oct 2023          | -                  |                   | 3.203                | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - IT User Services - IRES  | C/CPAF                            | JACOBS TECHNOLOGY INC. : Various  | 13.976             | 6.271          | Mar 2022          | 6.132          | Mar 2023          | 6.341               | Nov 2023          | -                  |                   | 6.341                | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - Independent Performance Assessment and Analysis  | MIPR                              | DOD - USA - COMBAT CAPABILITIES DEVELOPMENT COMMAND (CCDC) AVIATION AND MISSILE CENTER (AVMC) : TBD | 12.063             | 1.610          | Nov 2021          | 7.654          | Nov 2022          | 7.368               | Nov 2023          | -                  |                   | 7.368                | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - Independent Performance Assessment and Analysis - NSWC                                       | MIPR                              | DOD - USN - NAVAL SURFACE WARFARE CENTER (NSWC) DAHLGREN DIVISION (NSWCDD) : VA                     | 0.000              | 0.000          |                   | 0.000          |                   | 2.102               | Oct 2023          | -                  |                   | 2.102                | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - Independent Performance Assessment and Analysis - SAF/FMBI                                   | MIPR                              | DOD - USAF - SECRETARY OF THE AIR FORCE, DIRECTOR FOR BUDGET INVESTMENT (SAF/FMBI) : TBD            | 0.000              | 0.000          |                   | 0.000          |                   | 1.147               | Oct 2023          | -                  |                   | 1.147                | Continuing              | Continuing        | Continuing                      |

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| <b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2024 Missile Defense Agency</b> |  |  |  |  |  |   |  |  |  |  |  | <b>Date: March 2023</b>  |  |  |  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                    |  |  |  |  |  | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> |  |  |  |  |  | <b>Project (Number/Name)</b><br>MD01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC)</i> |  |  |  |

| <b>Product Development (\$ in Millions)</b>   |                                   |  |                    | <b>FY 2022</b> |                   | <b>FY 2023</b> |                   | <b>FY 2024 Base</b> |                   | <b>FY 2024 OCO</b> |                   | <b>FY 2024 Total</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>          | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |
| C2BMC Development and Deployment - Independent Performance Assessment and Analysis -Various | Various                           | Various : Various  | 14.590             | 1.808          | Oct 2021          | 4.455          | Oct 2022          | 1.246               | Oct 2023          | -                  |                   | 1.246                | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - Joint Early Warning Lab (JEWL) and C2BMC Lab Build Out   | C/CPAF                            | JACOBS TECHNOLOGY INC. : CO                              | 9.318              | 0.988          | Mar 2022          | 2.179          | Mar 2023          | 8.803               | Nov 2023          | -                  |                   | 8.803                | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - MDA Civilian, Travel & PCS                               | Allot                             | Various : Various  | 228.848            | 20.237         | Oct 2021          | 23.151         | Oct 2022          | 24.081              | Oct 2023          | -                  |                   | 24.081               | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - Models & Simulation                                      | SS/CPPIF                          | LOCKHEED MARTIN CORPORATION : Various                    | 18.534             | 1.020          | Oct 2021          | 1.309          | Oct 2022          | 1.462               | Oct 2023          | -                  |                   | 1.462                | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - Spiral Development                                       | MIPR                              | Sandia National Laboratories, New Mexico (SNL) : Various | 13.068             | 0.717          | Oct 2021          | 2.617          | Oct 2022          | 4.342               | Oct 2023          | -                  |                   | 4.342                | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - X Lab  | SS/CPPIF                          | LOCKHEED MARTIN CORPORATION : TBD                        | 14.237             | 3.102          | Oct 2021          | 5.485          | Oct 2022          | 6.734               | Oct 2023          | -                  |                   | 6.734                | Continuing              | Continuing        | Continuing                      |
| C2BMC Communications - C2BMC Prior Year   | Various                           | Various : Various  | 145.517            | 0.000          |                   | 0.000          |                   | 0.000               |                   | -                  |                   | 0.000                | 145.517                 | 291.034           | 0.000                           |
| C2BMC Communications - Communication Equipment and Fielding - DISA                          | MIPR                              | DOD - DEFENSE INFORMATION SYSTEMS AGENCY (DISA) : VA     | 83.386             | 11.345         | Jan 2022          | 9.124          | Jan 2023          | 7.339               | Jan 2024          | -                  |                   | 7.339                | Continuing              | Continuing        | Continuing                      |
| C2BMC Communications - Communication Equipment and Fielding - Harris                        | MIPR                              | DOD - USA - PROGRAM MANAGER, DEFENSE COMMUNICATIONS      | 51.221             | 8.145          | Jan 2022          | 4.375          | Jan 2023          | 4.508               | Jan 2024          | -                  |                   | 4.508                | Continuing              | Continuing        | Continuing                      |

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| <b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2024 Missile Defense Agency</b> |  |  |  |  |  |   |  |  |  |  | <b>Date: March 2023</b>  |  |  |  |  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                    |  |  |  |  |  | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> |  |  |  |  | <b>Project (Number/Name)</b><br>MD01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC)</i> |  |  |  |  |

| <b>Product Development (\$ in Millions)</b>                                   |                                   |   |                    | <b>FY 2022</b> |                   | <b>FY 2023</b> |                   | <b>FY 2024 Base</b> |                   | <b>FY 2024 OCO</b> |                   | <b>FY 2024 Total</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>          | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |
|   |                                   | AND ARMY TRANSMISSION SYSTEMS (PM DCATS) : VA   |                    |                |                   |                |                   |                     |                   |                    |                   |                      |                         |                   |                                 |
| C2BMC Communications - Communication Equipment and Fielding - JHU/APL         | C/CPIF                            | JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY LLC, THE : VA                                 | 19.316             | 2.455          | Jan 2022          | 1.275          | Jan 2023          | 1.700               | Jan 2024          | -                  |                   | 1.700                | Continuing              | Continuing        | Continuing                      |
| C2BMC Communications - Communication Equipment and Fielding - Lockheed Martin | C/CPAF                            | LOCKHEED MARTIN CORPORATION : Various   | 0.000              | 0.000          |                   | 8.732          | Jan 2023          | 9.333               | Jan 2024          | -                  |                   | 9.333                | Continuing              | Continuing        | Continuing                      |
| C2BMC Communications - Communication Equipment and Fielding - PAAWNS          | MIPR                              | DOD - USA - PROGRAM MANAGER, DEFENSE COMMUNICATIONS AND ARMY TRANSMISSION SYSTEMS (PM DCATS) : VA | 47.664             | 3.740          | Jan 2022          | 3.806          | Jan 2023          | 4.195               | Jan 2024          | -                  |                   | 4.195                | Continuing              | Continuing        | Continuing                      |
| C2BMC Communications - Communication Equipment and Fielding - PMDCATS         | MIPR                              | DOD - USA - PROGRAM MANAGER, DEFENSE COMMUNICATIONS AND ARMY TRANSMISSION SYSTEMS (PM DCATS) : PA | 0.000              | 0.000          |                   | 1.000          | Jan 2023          | 1.500               | Jan 2024          | -                  |                   | 1.500                | Continuing              | Continuing        | Continuing                      |
| C2BMC Communications - Communication Equipment and Fielding -Tobyhanna        | MIPR                              | DOD - USA - TOBYHANNA ARMY DEPOT (TYAD) : VA  | 17.100             | 6.570          | Jan 2022          | 2.183          | Jan 2023          | 1.505               | Jan 2024          | -                  |                   | 1.505                | Continuing              | Continuing        | Continuing                      |

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|---|--|--|--|---|--|--|--|--|--|--|-------------------------|--|--|--|--|
| <b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2024 Missile Defense Agency</b> |  |  |  |   |  |  |  |  |  |  | <b>Date:</b> March 2023 |  |  |  |  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                    |  |  |  | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> |  |  |  |  | <b>Project (Number/Name)</b><br>MD01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC)</i> |  |                         |  |  |  |  |

| Product Development (\$ in Millions)   |                        |  |             | FY 2022 |            | FY 2023 |            | FY 2024 Base |            | FY 2024 OCO |            | FY 2024 Total |            | Cost To Complete |            | Total Cost | Target Value of Contract |
|--|------------------------|--|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------|------------------|------------|------------|--------------------------|
|  |                        |  |             | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          | Award Date |                  |            |            |                          |
| Cost Category Item   | Contract Method & Type | Performing Activity & Location   | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          | Award Date | Cost             | Award Date | Cost       | Award Date               |
| C2BMC Communications - Communication Leases  | MIPR                   | DOD - DEFENSE INFORMATION SYSTEMS AGENCY (DISA) : VA                         | 69.197      | 4.806   | Oct 2021   | 4.966   | Oct 2022   | 5.132        | Oct 2023   | -           |            | 5.132         |            | Continuing       | Continuing | Continuing |                          |
| Classified - Classified Program  | MIPR                   | TBD : Various  | 50.000      | 37.865  | Feb 2022   | 0.000   |            | 0.000        |            | -           |            | 0.000         |            | 87.865           | 175.730    | 0.000      |                          |
| Guam Defense C2BMC - C2BMC Hardware/ Software Development, Integration & Test (I&T) User NODE (Phase I)        | SS/CPHF                | LOCKHEED MARTIN CORPORATION : Various  | 0.000       | 0.000   |            | 1.185   | Nov 2022   | 6.733        | Nov 2023   | -           |            | 6.733         |            | Continuing       | Continuing | Continuing |                          |
| Guam Defense C2BMC - Communication Equipment and Fielding  | MIPR                   | DOD - DEFENSE INFORMATION SYSTEMS AGENCY (DISA) : VA                         | 0.000       | 0.000   |            | 4.306   | Nov 2022   | 21.321       | Nov 2023   | -           |            | 21.321        |            | Continuing       | Continuing | Continuing |                          |
| Cruise Missile Defense for Homeland - Cruise Missile Defense for Homeland                                      | MIPR                   | DOD - USAF - SECRETARY OF THE AIR FORCE, FINANCIAL MANAGEMENT (SAF/FM) : TBD | 36.200      | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000      | 0.000            | 36.200     | 0.000      |                          |
| Guam Defense C2BMC - Management Decision Aids, Planners and Algorithms - ESPN/ESL/ BOA Development             | C/CPAF                 | NORTHROP GRUMMAN : CO  | 0.000       | 0.000   |            | 13.648  | Nov 2022   | 5.962        | Nov 2023   | -           |            | 5.962         |            | Continuing       | Continuing | Continuing |                          |
| Guam Defense C2BMC - Upgrade C2BMC Battle Management Decision Aids, Planners and Algorithms - ESPN Development | C/CPFF                 | SCITEC INC : Various   | 0.000       | 0.000   |            | 0.861   | Nov 2022   | 0.000        |            | -           |            | 0.000         | 0.861      | 0.861            | 1.722      | 0.000      |                          |
| <b>Subtotal</b>  |                        |  | 2,640.756   | 305.861 |            | 335.353 |            | 298.426      |            | -           |            | 298.426       |            | Continuing       | Continuing | N/A        |                          |

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|---|--|--|--|--|--|---|--|--|--|--|--|--|--|--|--|
| <b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2024 Missile Defense Agency</b> |  |  |  |  |  |   |  |  |  |  | <b>Date:</b> March 2023  |  |  |  |  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                    |  |  |  |  |  | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> |  |  |  |  | <b>Project (Number/Name)</b><br>MD01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC)</i> |  |  |  |  |

| <b>Product Development (\$ in Millions)</b> |                                   |   |                    | <b>FY 2022</b> |                   | <b>FY 2023</b> |                   | <b>FY 2024 Base</b> |                   | <b>FY 2024 OCO</b> |                   | <b>FY 2024 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>          |                         |                   |                                 |

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

| <b>Management Services (\$ in Millions)</b>  |                                   |  |                    | <b>FY 2022</b> |                   | <b>FY 2023</b> |                   | <b>FY 2024 Base</b> |                   | <b>FY 2024 OCO</b> |                   | <b>FY 2024 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>          |                         |                   |                                 |
| C2BMC Development and Deployment - Contract Support Services - BCF Solutions       | C/CPFF                            | BCF SOLUTIONS, INC. : AL                   | 15.499             | 0.933          | Nov 2021          | 0.997          | Nov 2022          | 1.384               | Nov 2023          | -                  |                   | 1.384                | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - Contract Support Services - BlueHalo            | C/CPFF                            | BLUEHALO : AL                              | 0.000              | 0.000          |                   | 1.308          | Nov 2022          | 1.340               | Nov 2023          | -                  |                   | 1.340                | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - Contract Support Services - Millennium Eng      | C/CPFF                            | MILLENNIUM CORPORATION : AL                | 51.487             | 2.927          | Nov 2021          | 3.733          | Nov 2022          | 4.260               | Nov 2023          | -                  |                   | 4.260                | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - Contract Support Services - Parsons             | C/CPFF                            | PARSONS GOVERNMENT SERVICES INC. : Various | 299.367            | 20.417         | Nov 2021          | 22.388         | Nov 2022          | 22.341              | Nov 2023          | -                  |                   | 22.341               | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - Contract Support Services - Various             | C/CPFF                            | Various : Various                          | 8.994              | 4.907          | Nov 2021          | 5.171          | Nov 2022          | 3.071               | Nov 2023          | -                  |                   | 3.071                | Continuing              | Continuing        | Continuing                      |
| C2BMC Development and Deployment - Contract Support Services - Veterans Technology | C/CPFF                            | Veterans Technology, LLC : AL              | 0.000              | 0.000          |                   | 0.000          |                   | 1.121               | Nov 2023          | -                  |                   | 1.121                | Continuing              | Continuing        | Continuing                      |
| Guam Defense C2BMC - Contractor Support Services                                   | C/CPFF                            | TBD : TBD                                  | 0.000              | 0.000          |                   | 0.000          |                   | 4.474               | Nov 2023          | -                  |                   | 4.474                | Continuing              | Continuing        | Continuing                      |

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

|  |   |  |
|--|---|--|
| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MD01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC)</i> |
|--|---|--|

| Management Services (\$ in Millions) |                        |                                |             | FY 2022 |            | FY 2023 |            | FY 2024 Base |            | FY 2024 OCO |            | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--------------------------------------|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                   | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| <b>Subtotal</b>                      |                        |                                | 375.347     | 29.184  |            | 33.597  |            | 37.991       |            | -           |            | 37.991        | Continuing       | Continuing | N/A                      |

**Remarks**  
N/A

|                            | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
| <b>Project Cost Totals</b> | 3,016.103   | 335.045 | 368.950 | 336.417      | -           | 336.417       | Continuing       | Continuing | N/A                      |

**Remarks**  
N/A

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

|  |   |  |
|--|---|--|
| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MD01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC)</i> |
|--|---|--|

|   | Significant Event Complete ▲ |   |   |   | Milestone Decision Complete ★ |   |   |   | Element Test Complete ◆ |   |   |   | System Level Test Complete ● |   |   |   | Complete Activity ◆ |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |
|---|------------------------------|---|---|---|-------------------------------|---|---|---|-------------------------|---|---|---|------------------------------|---|---|---|---------------------|---|---|---|---------|---|---|---|---------|---|---|---|---|---|---|---|
|   | Significant Event Planned △  |   |   |   | Milestone Decision Planned ☆  |   |   |   | Element Test Planned ◇  |   |   |   | System Level Test Planned ○  |   |   |   | Planned Activity ◇  |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |
|   | FY 2022                      |   |   |   | FY 2023                       |   |   |   | FY 2024                 |   |   |   | FY 2025                      |   |   |   | FY 2026             |   |   |   | FY 2027 |   |   |   | FY 2028 |   |   |   |   |   |   |   |
| MD01 Command & Control, Battle Management, Communications (C2BMC) Planned                         | ◇                            | ◇ | ◇ | ◇ | ◇                             | ◇ | ◇ | ◇ | ◇                       | ◇ | ◇ | ◇ | ◇                            | ◇ | ◇ | ◇ | ◇                   | ◇ | ◇ | ◇ | ◇       | ◇ | ◇ | ◇ | ◇       | ◇ | ◇ | ◇ | ◇ | ◇ | ◇ | ◇ |
| C2BMC and BOA Incremental Engineering Technical Reviews (IETR) Planned                            | ◇                            | ◇ | ◇ | ◇ | ◇                             | ◇ | ◇ | ◇ | ◇                       | ◇ | ◇ | ◇ | ◇                            | ◇ | ◇ | ◇ | ◇                   | ◇ | ◇ | ◇ | ◇       | ◇ | ◇ | ◇ | ◇       | ◇ | ◇ | ◇ | ◇ | ◇ | ◇ | ◇ |
| BOA 7.0 OCB   |                              |   |   | ▲ |                               |   |   |   |                         |   |   |   |                              |   |   |   |                     |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |
| Spiral 8.2-5 Homeland Defense Capability Declaration USNORTHCOM/USINDOPACOM                       |                              |   |   |   |                               |   |   | △ |                         |   |   |   |                              |   |   |   |                     |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |
| BOA 7.1.0 OCB   |                              |   |   |   |                               |   |   | △ |                         |   |   |   |                              |   |   |   |                     |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |
| Spiral 8.2-5 Homeland Defense Capability Declaration USEUCOM/USCENTCOM                            |                              |   |   |   |                               |   |   |   |                         |   |   | △ |                              |   |   |   |                     |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |
| BOA 7.1.1 OCB   |                              |   |   |   |                               |   |   |   |                         |   |   | △ |                              |   |   |   |                     |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |
| Downloadable Unified Client S8.2-5.1/BOA 7.0  |                              |   |   |   |                               |   |   |   |                         |   |   | △ |                              |   |   |   |                     |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |
| BOA 7.1.2 OCB   |                              |   |   |   |                               |   |   |   |                         |   |   |   |                              |   |   | △ |                     |   |   |   |         |   |   |   |         |   |   |   |   |   |   |   |
| Spiral 8.2-7 Expanded Regional and Homeland Defense Capability Declaration USNORTHCOM/USINDOPACOM |                              |   |   |   |                               |   |   |   |                         |   |   |   |                              |   |   |   |                     |   |   | △ |         |   |   |   |         |   |   |   |   |   |   |   |
| Spiral 8.2-7 Expanded Regional and Homeland Defense Capability Declaration USEUCOM/USCENTCOM      |                              |   |   |   |                               |   |   |   |                         |   |   |   |                              |   |   |   |                     |   |   |   |         |   |   | △ |         |   |   |   |   |   |   |   |
| Mission Node on Island S8.2-7/BOA 8.1 w/Raid  |                              |   |   |   |                               |   |   |   |                         |   |   |   |                              |   |   |   |                     |   |   |   |         |   |   |   |         |   |   | △ |   |   |   |   |

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| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Missile Defense Agency |   | <b>Date:</b> March 2023  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MD01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC)</i> |

Schedule Details

| Events  | Start   |      | End     |      |
|---|---------|------|---------|------|
|   | Quarter | Year | Quarter | Year |
| MD01 Command & Control, Battle Management, Communications (C2BMC) Planned                         | 1       | 2022 | 4       | 2028 |
| C2BMC and BOA Incremental Engineering Technical Reviews (IETR) Planned                            | 2       | 2022 | 4       | 2028 |
| BOA 7.0 OCB   | 4       | 2022 | 4       | 2022 |
| Spiral 8.2-5 Homeland Defense Capability Declaration USNORTHCOM/USINDOPACOM                       | 2       | 2023 | 2       | 2023 |
| BOA 7.1.0 OCB   | 3       | 2023 | 3       | 2023 |
| Spiral 8.2-5 Homeland Defense Capability Declaration USEUCOM/USCENTCOM                            | 1       | 2024 | 1       | 2024 |
| BOA 7.1.1 OCB   | 3       | 2024 | 3       | 2024 |
| Downloadable Unified Client S8.2-5.1/BOA 7.0  | 4       | 2024 | 4       | 2024 |
| BOA 7.1.2 OCB   | 1       | 2025 | 1       | 2025 |
| Spiral 8.2-7 Expanded Regional and Homeland Defense Capability Declaration USNORTHCOM/USINDOPACOM | 1       | 2026 | 1       | 2026 |
| Spiral 8.2-7 Expanded Regional and Homeland Defense Capability Declaration USEUCOM/USCENTCOM      | 3       | 2026 | 3       | 2026 |
| Mission Node on Island S8.2-7/BOA 8.1 w/Raid  | 4       | 2026 | 4       | 2026 |

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|--|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|--|-------------------------|-------------------------|-------------------|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Missile Defense Agency |                    |                |                |                     |   |                      |                |                |  | <b>Date:</b> March 2023 |                         |                   |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                     |                    |                |                |                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> |                      |                |                | <b>Project (Number/Name)</b><br>MC01 / <i>Cyber Operations</i> |                         |                         |                   |
| <b>COST (\$ in Millions)</b>   | <b>Prior Years</b> | <b>FY 2022</b> | <b>FY 2023</b> | <b>FY 2024 Base</b> | <b>FY 2024 OCO</b>  | <b>FY 2024 Total</b> | <b>FY 2025</b> | <b>FY 2026</b> | <b>FY 2027</b>   | <b>FY 2028</b>          | <b>Cost To Complete</b> | <b>Total Cost</b> |
| MC01: <i>Cyber Operations</i>  | 79.987             | 12.068         | 8.504          | 8.261               | -   | 8.261                | 8.512          | 8.672          | 8.847  | 9.025                   | Continuing              | Continuing        |
| Quantity of RDT&E Articles   | -                  | -              | -              | -                   | -   | -                    | -              | -              | -  | -                       |                         |                   |

**Note**

N/A

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

Command and Control, Battle Management, and Communications (C2BMC) Cyber Operations sustain the Missile Defense Agency (MDA) Risk Management Framework (RMF) and Security Controls Assessments/Controls Validation Testing activities, analysis of validation results, risk assessments, and reviews of proposed Program Manager/Information System Security Manager Plan of Action and Milestones (POA&Ms) and Cybersecurity Tools for MDA C2BMC mission systems. Activities in this Project are necessary to comply with the Federal Information Systems Modernization Act.

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

|  | <b>FY 2022</b> | <b>FY 2023</b> | <b>FY 2024</b> |
|--|----------------|----------------|----------------|
| <b>Title:</b> Network / System Certification and Accreditation (C&A)   | 12.068         | 8.504          | 8.261          |
| <b>Articles:</b>   | -              | -              | -              |
| <p><b>Description:</b> This activity maintains the Assessment and Authorization and Certification and Accreditation (C&amp;A) data repository, capturing the RMF documentation (artifacts, validation results, Information Assurance Risk Assessment results, and Authorizing Official (AO) accreditation decisions) and POA&amp;Ms on all MDA information systems. This activity prepares and submits C&amp;A documentation and accreditation recommendations to the MDA Chief Information Officer/ Security Controls Assessor and the AO. Leverages Cross Domain Solution as single authority implementing standard security policies for C2BMC across the Ballistic Missile Defense System. Independent Verification and Validation team actions ensure the availability, integrity, authentication, confidentiality, and non-repudiation of the MDA mission, test, and administrative systems.</p> <ul style="list-style-type: none"> <li>- Conduct cybersecurity design, engineering, and architecture planning for C2BMC information technology systems</li> <li>- Plan and test the cybersecurity controls for C2BMC systems</li> <li>- Conduct Security Controls Assessment testing continuous monitoring of C2BMC mission systems and provide POA&amp;Ms to mitigate cybersecurity vulnerabilities</li> </ul> <p>Specific and/or unique accomplishments for each FY are as follows:</p> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"> <li>- Transition Spiral 8.2-5 test assets to support sustainment testing, assessments, and evaluations</li> <li>- Update test labs to support next generation platform technology in support of Spiral 8.2-7</li> </ul> |                |                |                |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Missile Defense Agency |   | <b>Date:</b> March 2023  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MC01 / <i>Cyber Operations</i> |

| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b> | <b>FY 2022</b> | <b>FY 2023</b> | <b>FY 2024</b> |
|---|----------------|----------------|----------------|
| - Upgrade all testbed enclaves with next generation cyber tools                         |                |                |                |
| <b><i>FY 2024 Plans:</i></b><br>- SEE ABOVE.  |                |                |                |
| <b><i>FY 2023 to FY 2024 Increase/Decrease Statement:</i></b><br>N/A                    |                |                |                |
| <b>Accomplishments/Planned Programs Subtotals</b>                                       | 12.068         | 8.504          | 8.261          |

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

N/A

**Remarks**

**D. Acquisition Strategy**

A sole source C2BMC contract to Lockheed Martin was awarded 1st quarter FY 2012. The current ordering period is through 4th quarter FY 2026. Major team members to Lockheed are Northrop Grumman, Boeing, Raytheon, and General Dynamics. They are charged with cybersecurity operations support of the C2BMC system. The sole source C2BMC Follow-on contract is planned to be awarded in 1st quarter FY 2024 to continue support of the C2BMC system. Additionally, various MDA government personnel and Contract Support Services personnel are also fully integrated as part of the Prime contractor's team to function in an Integrated Product Team environment. Furthermore, a sole source Specialized Warfighter Development Contract was awarded to Northrop Grumman in March 2018 (3-year base and 2 one-year option periods) for continuation of cybersecurity operations support for Ballistic Missile Defense Overhead Persistent Infrared Architecture (BOA). The BOA Follow-on sole source contract is planned to be awarded in 3rd quarter FY 2023 with a 5-year period of performance.

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

|  |   |  |
|--|---|--|
| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MC01 / <i>Cyber Operations</i> |
|--|---|--|

| <b>Product Development (\$ in Millions)</b>                                 |                        |                                       |             | FY 2022 |            | FY 2023 |            | FY 2024 Base |            | FY 2024 OCO |            | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|---------------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item  | Contract Method & Type | Performing Activity & Location        | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| Network / System Certification and Accreditation (C&A) - All Prior Years    | Various                | Various : Various                     | 22.454      | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 22.454           | 44.908     | 0.000                    |
| Network / System Certification and Accreditation (C&A) - Civilian Salaries  | Allot                  | MDA Other : Various                   | 2.403       | 0.620   | Oct 2021   | 0.646   | Oct 2022   | 0.840        | Oct 2023   | -           |            | 0.840         | Continuing       | Continuing | Continuing               |
| Network / System Certification and Accreditation (C&A) - Core C2BMC         | SS/CPAF                | LOCKHEED MARTIN CORPORATION : VARIOUS | 44.204      | 9.510   | Oct 2021   | 6.081   | Nov 2022   | 5.779        | Oct 2023   | -           |            | 5.779         | Continuing       | Continuing | Continuing               |
| Network / System Certification and Accreditation (C&A) - Lab Infrastructure | C/CPAF                 | JACOBS TECHNOLOGY INC. : CO           | 5.551       | 0.478   | Nov 2021   | 0.595   | Nov 2022   | 0.604        | Nov 2023   | -           |            | 0.604         | Continuing       | Continuing | Continuing               |
| <b>Subtotal</b>   |                        |                                       | 74.612      | 10.608  |            | 7.322   |            | 7.223        |            | -           |            | 7.223         | Continuing       | Continuing | N/A                      |

**Remarks**  
In accordance with the Financial Management Regulation cost category definitions, contract support services have transferred to appropriate cost categories.

| <b>Support (\$ in Millions)</b> |                        |                                |             | FY 2022 |            | FY 2023 |            | FY 2024 Base |            | FY 2024 OCO |            | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---------------------------------|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item              | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| <b>Subtotal</b>                 |                        |                                | -           | -       |            | -       |            | -            |            | -           |            | -             | -                | -          | N/A                      |

**Remarks**  
N/A

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

|  |   |  |
|--|---|--|
| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MC01 / <i>Cyber Operations</i> |
|--|---|--|

| <b>Test and Evaluation (\$ in Millions)</b> |                        |                                |             | FY 2022 |            | FY 2023 |            | FY 2024 Base |            | FY 2024 OCO |            | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                          | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| <b>Subtotal</b>                             |                        |                                | -           | -       |            | -       |            | -            |            | -           |            | -             | -                | -          | N/A                      |

**Remarks**  
N/A

| <b>Management Services (\$ in Millions)</b>  |                        |                                |             | FY 2022 |            | FY 2023 |            | FY 2024 Base |            | FY 2024 OCO |            | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item   | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| Network / System Certification and Accreditation (C&A) - Contract Support Services | C/CPFF                 | Various : VARIOUS              | 5.375       | 1.460   | Oct 2021   | 1.182   | Oct 2022   | 1.038        | Oct 2023   | -           |            | 1.038         | Continuing       | Continuing | Continuing               |
| <b>Subtotal</b>  |                        |                                | 5.375       | 1.460   |            | 1.182   |            | 1.038        |            | -           |            | 1.038         | Continuing       | Continuing | N/A                      |

**Remarks**  
N/A

|                            | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
| <b>Project Cost Totals</b> | 79.987      | 12.068  | 8.504   | 8.261        | -           | 8.261         | Continuing       | Continuing | N/A                      |

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



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| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Missile Defense Agency |   | <b>Date:</b> March 2023  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MC01 / <i>Cyber Operations</i> |

Schedule Details

| Events  | Start   |      | End     |      |
|---|---------|------|---------|------|
|   | Quarter | Year | Quarter | Year |
| MC01 Cyber Operations Planned                                 | 1       | 2022 | 4       | 2028 |
| MC01 Incremental Engineering Technical Reviews (IETR) Planned | 2       | 2022 | 4       | 2028 |

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

|  |   |  |
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| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MT01 / <i>C2BMC Test</i> |
|--|---|--|

| COST (\$ in Millions)      | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| MT01: <i>C2BMC Test</i>    | 478.147     | 65.341  | 58.616  | 51.849       | -           | 51.849        | 57.628  | 59.930  | 64.674  | 65.120  | Continuing       | Continuing |
| Quantity of RDT&E Articles | -           | -       | -       | -            | -           | -             | -       | -       | -       | -       |                  |            |

**Note**

Decrease from FY 2023 to FY 2024 is in accordance with the current Integrated Master Test Plan (IMTP).

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

Command and Control, Battle Management and Communications (C2BMC) Test supports system flight and ground testing, wargames, and exercises as detailed in the Missile Defense Agency (MDA) IMTP to ensure C2BMC capabilities delivered are consistent with the Prioritized Capabilities List and are interoperable with other Missile Defense System components.

MDA gains efficiencies and minimizes laboratory resource requirements (footprint, personnel, and hardware) by utilizing the C2BMC test bed and the Overhead Persistent Infrared Architecture (OPIR) Capabilities Lab test infrastructure as the laboratory environment supporting System Test, Development, and Sustainment. For System Ground and Flight Test, the labs are used for pre-test analysis, test execution, and post-test analysis. For Development, the labs are utilized for software verification and validation testing and system integration testing. For Sustainment, the labs are used to assist with root cause determination for issues discovered on the fielded system and validation of any required software patches.

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

|   | FY 2022 | FY 2023 | FY 2024 |
|---|---------|---------|---------|
| <b>Title:</b> Integrated Master Test Plan   | 65.341  | 58.616  | 51.849  |
| <b>Articles:</b>  | -       | -       | -       |
| <p><b>Description:</b> This activity funds C2BMC participation in Missile Defense System flight and ground testing, wargames and exercises, and resources in accordance with the Missile Defense System IMTP. Recurring accomplishments include:</p> <ul style="list-style-type: none"> <li>- Assess Missile Defense System interoperability, integration, and functionality in lab and distributed environments, leveraging a complex set of scenarios to test the limits of the C2BMC system. Participate in and analyze results of ground tests and flight tests in accordance with the Missile Defense System IMTP. Support all phases of the MDA Ground Test Concept of Operations (CONOPS) and the MDA Flight Test CONOPS. Provide Flight Test Predictive Analysis support. Generate, test, and distribute federated model compatible scenarios for Ground Test and Flight Test Experimentation test support. Use Missile Defense System C2BMC Model to support exercise integration testing activities including test case and scenario checkout.</li> <li>- Utilize the Enterprise Sensors Laboratory to plan, coordinate, and provide test operations to demonstrate prototype algorithms through flight tests and United States-launched targets of opportunity. The development plans for algorithm improvements focus on track and measurement level sensor data fusion and feature extraction to improve 3-D track formation utilizing a variety of</li> </ul> |         |         |         |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Missile Defense Agency |   | <b>Date:</b> March 2023                                  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MT01 / <i>C2BMC Test</i> |

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

|   | <b>FY 2022</b> | <b>FY 2023</b> | <b>FY 2024</b> |
|---|----------------|----------------|----------------|
| <p>space, airborne, and terrestrial-based sensors. Results from the tests and experiments are provided back to the algorithms development activity to enable algorithm refinement.</p> <ul style="list-style-type: none"> <li>- Continue Long Range Discrimination Radar (LRDR) node integration, testing, and training with new C2BMC Spiral 8.2-5 Homeland Defense baseline changes at the Missile Defense Integration and Operation Center (MDIOC). Retain Existing Sensor Data Interfaces and provide LRDR Data for Risk Reduction for Ground-Based Missile Defense (GMD); Initial Hypersonic Tracking and Reporting; and Cyber Security Enhancements Risk Management Functions.</li> <li>- Utilize the C2BMC Experimentation Laboratory (X-Lab) to plan, coordinate, and provide test operations to demonstrate maturing C2BMC technologies and software builds within an integrated C2BMC environment through flight tests, ground tests, and real-world targets of opportunity before incorporation into formal C2BMC spiral builds. Results from the tests are provided back to the C2BMC and X-Lab development activity.</li> <li>- Participate in wargames and exercises using current and future C2BMC architectures to support all requesting Combatant Commands, North Atlantic Treaty Organization (NATO) partners, and Host Nations allowing warfighters to validate Ballistic Missile Defense (BMD) Techniques, Tactics, and Procedures specific to all designated Areas of Operations to include current and future C2BMC architectures.</li> <li>- Continue development, sustainment, and upgrades in the C2BMC Testbed (CTB) to support MDA IMTP Events (flight and ground tests). Continue Cyber Testing in the CTB to support continuous C2BMC spiral development. Continue Hardware in the Loop testing, C2BMC, and NATO planning exchanges, demonstrations, and support to NATO live fire events. Maintain Situational Awareness Nodes (Turkey, Romania, and Poland) in accordance with U.S. and Host nation Bi-lateral Agreements. Continue to enhance interoperability between U.S. BMD systems and the NATO BMD systems. Provide infrastructure, network, and troubleshooting support to C2BMC Command Center, to include the BMDS Network Operations and Security Center, System Test and Operations Center, C2BMC System Support Center, BMDS Communications Network, the Distributed Training system, and Combined OPIR Laboratories (OCL).</li> <li>- Begin to assess interoperability of C2BMC S8.2-7, BOA 7.1, AN/TPY-2 FBM CX 5.0, LRDR 2.0, GS 9, XBR 4.2, EKV 24.0/11.0, IBCS 4.6, PDB 8.1, and THAAD 4.1</li> <li>- In cyber events: Assess C2BMC and BOA Baseline Revision (BBR) cyber security in Cooperative Vulnerability and Penetration Assessment (CVPA) events in the lab and operational asset environments; and AA events in the operational asset environment prior to fielding</li> <li>- Continue upgrades and implementation of latest Department of Defense (DoD) required Assured Compliance Assessment Solution (ACAS), Endpoint Security Services (ESS), and Cyber Security increments within the CTB including the OCL</li> <li>- Maintain CTB and OCLs to ensure availability for ground and cyber test events</li> <li>- Prepare, configure, and execute IMTP test events, Pairwise, Continuous Developmental Integration (CDI), and special test request</li> </ul> |                |                |                |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Missile Defense Agency |   | <b>Date:</b> March 2023                                  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MT01 / <i>C2BMC Test</i> |

| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>  | <b>FY 2022</b> | <b>FY 2023</b> | <b>FY 2024</b> |
|--|----------------|----------------|----------------|
| <p>Specific and/or unique accomplishments for each FY are as follows:</p> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"> <li>- Participate in flight test events to support fielding of Spiral 8.2-5 and BOA 7.0 additional capabilities by testing the following capabilities: Initial Integrated Air and Missile Defense Battle Command System (IBCS) Integration into Missile Defense System, Hit Assessment using Space-based Kill Assessment (SKA), and Conditioning &amp; debris filtering of Mobile Sensor Integration (MSI) tracks</li> <li>- Participate in ground test events to support fielding of Spiral 8.2-7 and Ballistic Missile Defense Overhead Persistent Infrared Architecture (BOA) 7.1 BMD System Track (BST) with System Level Integrated Discrimination (SLD) by testing the following capabilities: Generation of BST with SLD to support GMD Engagements, BOA 7.1 Integration, Space Domain Awareness (SDA) refinement, Reporting of Space Object Catalog (SOC) entities to Army Navy/Transportable Radar Surveillance and Control-2 (AN/TPY-2) (FBM) Radars and LRDR for use in radar calibration, and Expanded Hypersonic Tracking and Link-16 Reporting</li> <li>- In flight test events: Continue to collect data for SKA algorithm development. Collect data in support of Hypersonic Tracking capability, to assess C2BMC incremental capability performance, to include support of SKA Hit Assessment fielding; assess alternatives for C2BMC system track typing, correlation, and launch event association processes in the presence of advanced threats. Continue to demonstrate interoperability with Aegis and collect data to assess Aegis EoR capability</li> <li>- Continue to assess interoperability of C2BMC S8.2-5, BBR 7.0, AN/TPY-2 FBM Common X-Band (CX) 4.0, LRDR 1.0.1, Ground System (GS) 8B, XBR 4.1.1, EKV 23.2/11.0, IBCS 4.6, PDB 8.1, SBR 19-1, and Terminal High Altitude Area Defense (THAAD) 4.0; assess C2BMC planning, monitoring, and tasking capabilities effect on Homeland Defense performance</li> </ul> <p><b>FY 2024 Plans:</b></p> <ul style="list-style-type: none"> <li>- Participate in flight test events to support fielding of Spiral 8.2-5 and BOA 7.0 additional capabilities by testing the following capabilities: IBCS Integration into the Missile Defense System and Conditioning &amp; debris filtering of MSI tracks</li> <li>- Participate in ground test events to support fielding of Spiral 8.2-7 and BOA 7.1 BST with SLD by testing the following capabilities: Generation of BST with SLD to support GMD Engagements, BOA 7.1 Integration, SDA refinement, Reporting of SOC entities to AN/TPY-2 (FBM) Radars and LRDR for use in radar calibration, and Expanded Hypersonic Tracking and Link-16 Reporting</li> <li>- In flight test events: Collect data in support of Hypersonic Tracking capability, to assess C2BMC incremental capability performance, to include support of SKA Hit Assessment fielding; assess alternatives for C2BMC system track typing, correlation, and launch event association processes in the presence of advanced threats. Continue to demonstrate interoperability with Aegis and collect data to assess Aegis EoR capability</li> </ul> |                |                |                |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Missile Defense Agency |   | <b>Date:</b> March 2023                                  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MT01 / <i>C2BMC Test</i> |

| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>  | <b>FY 2022</b> | <b>FY 2023</b> | <b>FY 2024</b> |
|--|----------------|----------------|----------------|
| - Continue to assess interoperability of C2BMC S8.2-5, BOA 7.0, AN/TPY-2 FBM CX 5.0, LRDR 1.0, GS 8B, XBR 4.2, Orbital Boost Vehicle (OBV) 8.0/OBV11.0, IBCS 4.6, PDB 8.1, SBR 22-1, and THAAD 4.1; assess C2BMC planning, monitoring, and tasking capabilities effect on Homeland Defense performance |                |                |                |
| <b><i>FY 2023 to FY 2024 Increase/Decrease Statement:</i></b><br>Decrease from FY 2023 to FY 2024 is in accordance with the current IMTP.  |                |                |                |
| <b>Accomplishments/Planned Programs Subtotals</b>  | 65.341         | 58.616         | 51.849         |

| <b>C. Other Program Funding Summary (\$ in Millions)</b>                     |                |                |                         |                        |                          |                |                |                |                |                             |                   |
|--|----------------|----------------|-------------------------|------------------------|--------------------------|----------------|----------------|----------------|----------------|-----------------------------|-------------------|
| <b>Line Item</b>   | <b>FY 2022</b> | <b>FY 2023</b> | <b>FY 2024<br/>Base</b> | <b>FY 2024<br/>OCO</b> | <b>FY 2024<br/>Total</b> | <b>FY 2025</b> | <b>FY 2026</b> | <b>FY 2027</b> | <b>FY 2028</b> | <b>Cost To<br/>Complete</b> | <b>Total Cost</b> |
| • 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>        | 209.004        | 195.216        | 220.311                 | -                      | 220.311                  | 239.705        | 334.977        | 384.992        | 292.629        | Continuing                  | Continuing        |
| • 0603882C: <i>Ballistic Missile Defense Midcourse Defense Segment</i>       | 707.632        | 689.018        | 903.633                 | -                      | 903.633                  | 852.567        | 906.634        | 930.538        | 875.198        | Continuing                  | Continuing        |
| • 0603884C: <i>Ballistic Missile Defense Sensors</i>                         | 250.123        | 230.502        | 239.159                 | -                      | 239.159                  | 212.191        | 233.877        | 242.623        | 251.226        | Continuing                  | Continuing        |
| • 0603890C: <i>BMD Enabling Programs</i>                                     | 616.800        | 588.847        | 597.720                 | -                      | 597.720                  | 620.823        | 639.398        | 648.954        | 650.432        | Continuing                  | Continuing        |
| • 0603892C: <i>AEGIS BMD</i>   | 628.014        | 595.572        | 693.727                 | -                      | 693.727                  | 639.678        | 706.974        | 699.611        | 733.909        | Continuing                  | Continuing        |
| • 0603904C: <i>Missile Defense Integration and Operations Center (MDIOC)</i> | 44.188         | 49.367         | 50.549                  | -                      | 50.549                   | 56.624         | 58.020         | 59.193         | 60.615         | Continuing                  | Continuing        |
| • 0603907C: <i>Sea Based X-Band Radar (SBX)</i>                              | 147.241        | 164.668        | 177.868                 | -                      | 177.868                  | 196.952        | 176.633        | 162.632        | 162.578        | Continuing                  | Continuing        |
| • 0603914C: <i>Ballistic Missile Defense Test</i>                            | 388.956        | 366.824        | 360.455                 | -                      | 360.455                  | 430.281        | 436.921        | 465.074        | 375.256        | Continuing                  | Continuing        |
| • 0603915C: <i>Ballistic Missile Defense Targets</i>                         | 560.445        | 579.075        | 570.258                 | -                      | 570.258                  | 583.747        | 642.329        | 664.683        | 510.063        | Continuing                  | Continuing        |
| • 0604181C: <i>Hypersonic Defense</i>  | 281.886        | 517.977        | 208.997                 | -                      | 208.997                  | 218.939        | 294.326        | 366.951        | 644.996        | Continuing                  | Continuing        |
| • 0604672C: <i>Homeland Defense Radar-Hawaii</i>                             | 75.000         | 0.000          | 0.000                   | -                      | 0.000                    | 0.000          | 0.000          | 0.000          | 0.000          | 0.000                       | 75.000            |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Missile Defense Agency |   | <b>Date:</b> March 2023                                  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MT01 / <i>C2BMC Test</i> |

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

| <u>Line Item</u>  | <u>FY 2022</u> | <u>FY 2023</u> | <u>FY 2024</u><br><u>Base</u> | <u>FY 2024</u><br><u>OCO</u> | <u>FY 2024</u><br><u>Total</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>FY 2028</u> | <u>Cost To</u><br><u>Complete</u> | <u>Total Cost</u> |
|---|----------------|----------------|-------------------------------|------------------------------|--------------------------------|----------------|----------------|----------------|----------------|-----------------------------------|-------------------|
| • 0604873C: <i>Long Range Discrimination Radar (LRDR)</i> | 129.552        | 75.120         | 103.517                       | -                            | 103.517                        | 100.114        | 68.815         | 69.219         | 65.521         | Continuing                        | Continuing        |

**Remarks**

**D. Acquisition Strategy**

A sole source C2BMC contract to Lockheed Martin was awarded 1st quarter FY 2012. The current ordering period is through 4th quarter FY 2026. Major team members to Lockheed are Northrop Grumman, Boeing, Raytheon, and General Dynamics. They are charged with the Integration and Test support of the C2BMC system as depicted in Missile Defense System Integrated Master Test Plan. The sole source C2BMC Follow-on contract is planned to be awarded in 1st quarter FY 2024 to continue support of the C2BMC system. Federally Funded Research and Development Center (FFRDC)/University Affiliated Research Center and Contract Support Services personnel are also fully integrated as part of the Prime contractor's team to function in an Integrated Product Team environment. Additionally, a sole source Specialized Warfighter Development Contract was awarded to Northrop Grumman in March 2018 (3-year base and 2 one-year option periods) and is utilized for the Overhead Persistent Infrared Architecture (OPIR) Capabilities Lab test infrastructure as the laboratory environment supporting system tests. The BOA Follow-on sole source contract is planned to be awarded in 3rd quarter FY 2023 with a 5-year period of performance. Furthermore, the competitive Integrated Research and Development for Enterprise Solutions (IRES) contract with Jacob technologies was awarded in March 2022 with the planned follow-on award in February/March 2024 through August 2025. The contract provides support for the C2BMC testbed infrastructure for Missile Defense System tests and verification & validation of C2BMC developmental capabilities. Various other government agencies provide additional lab infrastructure support.

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

|  |   |  |
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| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MT01 / <i>C2BMC Test</i> |
|--|---|--|

| <b>Product Development (\$ in Millions)</b> |                        |                                |             | FY 2022 |            | FY 2023 |            | FY 2024 Base |            | FY 2024 OCO |            | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                          | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| <b>Subtotal</b>                             |                        |                                | -           | -       |            | -       |            | -            |            | -           |            | -             | -                | -          | N/A                      |

**Remarks**  
N/A

| <b>Support (\$ in Millions)</b> |                        |                                |             | FY 2022 |            | FY 2023 |            | FY 2024 Base |            | FY 2024 OCO |            | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---------------------------------|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item              | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| <b>Subtotal</b>                 |                        |                                | -           | -       |            | -       |            | -            |            | -           |            | -             | -                | -          | N/A                      |

**Remarks**  
N/A

| <b>Test and Evaluation (\$ in Millions)</b>  |                        |   |             | FY 2022 |            | FY 2023 |            | FY 2024 Base |            | FY 2024 OCO |            | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|------------------------|---|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item   | Contract Method & Type | Performing Activity & Location  | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| Integrated Master Test Plan - All Prior Years                                      | Various                | Various : Various   | 90.701      | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 90.701     | 0.000                    |
| Integrated Master Test Plan - Consolidated Contractor Support                      | Various                | MDA : Huntsville, AL; Colorado Springs, CO; NCR                                 | 0.721       | 0.247   | Oct 2021   | 0.252   | Oct 2022   | 0.000        |            | -           |            | 0.000         | 0.000            | 1.220      | 0.000                    |
| Integrated Master Test Plan - Enterprise Sensors Lab Infrastructure Support (NSWC) | MIPR                   | DOD - USN - NAVAL SURFACE WARFARE CENTER (NSWC) DAHLGREN DIVISION (NSWCDD) : VA | 0.000       | 0.000   |            | 0.000   |            | 1.057        | Oct 2023   | -           |            | 1.057         | Continuing       | Continuing | Continuing               |
| Integrated Master Test Plan - Enterprise Sensors                                   | MIPR                   | Various : Various   | 19.310      | 2.160   | Oct 2021   | 1.692   | Oct 2022   | 0.593        | Oct 2023   | -           |            | 0.593         | Continuing       | Continuing | Continuing               |

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

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| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MT01 / <i>C2BMC Test</i> |
|--|---|--|

| <b>Test and Evaluation (\$ in Millions)</b>  |                        |   |             | FY 2022 |            | FY 2023 |            | FY 2024 Base |            | FY 2024 OCO |            | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |  |
|--|------------------------|---|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|--|
| Cost Category Item   | Contract Method & Type | Performing Activity & Location                        | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |  |
| Lab Infrastructure Support (Various)   |                        |   |             |         |            |         |            |              |            |             |            |               |                  |            |                          |  |
| Integrated Master Test Plan - Enterprise Sensors Lab Infrastructure/BOA Infrastructure-Missile Defense System Level Testing (Northrop) | SS/CPAF                | NORTHROP GRUMMAN : CO                                 | 54.073      | 2.250   | Mar 2022   | 2.617   | Mar 2023   | 2.003        | Mar 2024   | -           |            | 2.003         | Continuing       | Continuing | Continuing               |  |
| Integrated Master Test Plan - FFRDC  | FFRDC                  | Institute for Defense Analyses (IDA) : Alexandria, VA | 0.350       | 0.735   | Oct 2021   | 1.008   | Oct 2022   | 0.000        |            | -           |            | 0.000         | 0.000            | 2.093      | 0.000                    |  |
| Integrated Master Test Plan - Information Assurance - Test Lab Infrastructure  | C/CPAF                 | Jacobs Technology, Inc : Colorado Springs, CO         | 0.000       | 5.182   | Oct 2021   | 4.514   | Oct 2022   | 0.000        |            | -           |            | 0.000         | 0.000            | 9.696      | 0.000                    |  |
| Integrated Master Test Plan - Missile Defense System Level Testing (Element/System Test Lab Facilities)                                | C/CPAF                 | JACOBS TECHNOLOGY INC. : VARIOUS                      | 83.519      | 23.119  | Mar 2022   | 19.521  | Mar 2023   | 15.525       | Mar 2024   | -           |            | 15.525        | Continuing       | Continuing | Continuing               |  |
| Integrated Master Test Plan - Missile Defense System Level Testing (LM)  | SS/IDIQ                | LOCKHEED MARTIN CORPORATION : VARIOUS                 | 179.987     | 18.217  | Jul 2022   | 15.994  | Jul 2023   | 18.021       | Jul 2024   | -           |            | 18.021        | Continuing       | Continuing | Continuing               |  |
| Integrated Master Test Plan - Missile Defense System Level Testing - Element/System Test Lab Facilities                                | C/CPAF                 | NORTHROP GRUMMAN : CO                                 | 35.998      | 12.220  | Mar 2022   | 10.997  | Mar 2023   | 12.209       | Mar 2024   | -           |            | 12.209        | Continuing       | Continuing | Continuing               |  |
| Integrated Master Test Plan - Missile Defense System Level Testing GOV   | MIPR                   | Various : Various                                     | 13.488      | 1.211   | Oct 2021   | 2.021   | Oct 2022   | 2.441        | Oct 2023   | -           |            | 2.441         | Continuing       | Continuing | Continuing               |  |
| <b>Subtotal</b>  |                        |   | 478.147     | 65.341  |            | 58.616  |            | 51.849       |            | -           |            | 51.849        | Continuing       | Continuing | N/A                      |  |

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

|  |   |  |
|--|---|--|
| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MT01 / <i>C2BMC Test</i> |
|--|---|--|

| Test and Evaluation (\$ in Millions) |                        |                                |             | FY 2022 |            | FY 2023 |            | FY 2024 Base |            | FY 2024 OCO |            | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--------------------------------------|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                   | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |

**Remarks**  
N/A

| Management Services (\$ in Millions) |                        |                                |             | FY 2022 |            | FY 2023 |            | FY 2024 Base |            | FY 2024 OCO |            | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--------------------------------------|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                   | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| <b>Subtotal</b>                      |                        |                                | -           | -       |            | -       |            | -            |            | -           |            | -             | -                | -          | N/A                      |

**Remarks**  
N/A

|                            | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
| <b>Project Cost Totals</b> | 478.147     | 65.341  | 58.616  | 51.849       | -           | 51.849        | Continuing       | Continuing | N/A                      |

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

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

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| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MT01 / <i>C2BMC Test</i> |
|--|---|--|

|                              |                               |                         |                              |                     |
|------------------------------|-------------------------------|-------------------------|------------------------------|---------------------|
| Significant Event Complete ▲ | Milestone Decision Complete ★ | Element Test Complete ◆ | System Level Test Complete ● | Complete Activity ◆ |
| Significant Event Planned △  | Milestone Decision Planned ☆  | Element Test Planned ◇  | System Level Test Planned ○  | Planned Activity ◇  |

|  | FY 2022 | FY 2023 | FY 2024 | FY 2025 | FY 2026 | FY 2027 | FY 2028 |
|--|---------|---------|---------|---------|---------|---------|---------|
| GTI-ISR (21) (Missile Defense System Ground Test)        | ◆       |         |         |         |         |         |         |
| FTP-21 E1 (P8.1.1)(LTPO, DT Intercept Flight Test)       | ▲       |         |         |         |         |         |         |
| (WG) Demonstration, Table-top Exercises & Experiments 21 | ◆       |         |         |         |         |         |         |
| (EX) VIGILANT SHIELD 22                                  | ◆       |         |         |         |         |         |         |
| (EX) GLOBAL THUNDER 21                                   | ◆       |         |         |         |         |         |         |
| FTX-43 (OTHER, DT Tracking Exercise Flight Test)         | ▲       |         |         |         |         |         |         |
| (EX) KEEN EDGE 22  | ◆       | ◆       |         |         |         |         |         |
| (EX) JUNIPER COBRA 22                                    | ◆       | ◆       |         |         |         |         |         |
| (EX) AIR AND MISSILE DEFENSE EXERCISE 22                 | ◆       | ◆       | ◆       |         |         |         |         |
| JFC-1 (OTHER, DT Tracking Exercise Flight Test)          |         |         |         | ◆       |         |         |         |
| GTI-08a (N/I) (Missile Defense System Ground Test)       |         |         |         | ◆       |         |         |         |
| SICO-8a-1  |         |         |         | ◆       |         |         |         |
| (WG) NIMBLE TITAN 22                                     | ◆       | ◆       | ◆       | ◆       |         |         |         |
| GTI-08a Part 2 (N/I)                                     |         |         |         | ◆       |         |         |         |
| TBG-2 (OTHER, DT Tracking Exercise Flight Test)          |         |         |         | ▲       |         |         |         |
| (EX) Joint Live, Virtual, and Constructive 2021/2022     | ◆       | ◆       | ◆       | ◆       | ◆       |         |         |
| Enterprise Sensor Lab Infrastructure Support Planned     | ◇       | ◇       | ◇       | ◇       | ◇       | ◇       | ◇       |
| FTT-21 (TH, DT Intercept Flight Test)                    |         | ▲       |         |         |         |         |         |
| (EX) EAGLE RESOLVE 22                                    |         | ▲       |         |         |         |         |         |
| (EX) RESILIENT SHIELD 22                                 |         | ▲       |         |         |         |         |         |
| (EX) GLOBAL LIGHTNING 22                                 |         | ◆       | ◆       |         |         |         |         |
| (EX) STEADFAST ALLIANCE 22                               |         | ◆       | ◆       |         |         |         |         |
| (EX) JOINT AIR AND MISSILE DEFENSE EXERCISE SERIES 22    |         | ◆       | ◆       | ◆       |         |         |         |
| (EX) EUROPEAN TEST BED 22                                |         | ◆       | ◆       | ◆       |         |         |         |

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

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| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MT01 / <i>C2BMC Test</i> |
|--|---|--|

|                              |                               |                         |                              |                     |
|------------------------------|-------------------------------|-------------------------|------------------------------|---------------------|
| Significant Event Complete ▲ | Milestone Decision Complete ★ | Element Test Complete ◆ | System Level Test Complete ● | Complete Activity ◆ |
| Significant Event Planned △  | Milestone Decision Planned ☆  | Element Test Planned ◇  | System Level Test Planned ○  | Planned Activity ◇  |

|  | FY 2022 | FY 2023 | FY 2024 | FY 2025 | FY 2026 | FY 2027 | FY 2028 |
|--|---------|---------|---------|---------|---------|---------|---------|
| FTX-42 (OTHER, DT Target Only Flight Test)                 |         | ▲       |         |         |         |         |         |
| (WG) Demonstration, Table-top Exercises & Experiments 22   |         | ◆◆◆     |         |         |         |         |         |
| GTI-09 Sprint 1 (E/C) (Missile Defense System Ground Test) |         | ◆       |         |         |         |         |         |
| FTX-45   |         | ▲       |         |         |         |         |         |
| (EX) VIGILANT SHIELD 23                                    |         | ◆◆      |         |         |         |         |         |
| (EX) KEEN SWORD 23   |         | ◆◆      |         |         |         |         |         |
| (EX) GLOBAL RESPONSE EXERCISE 11                           |         | ◆◆      |         |         |         |         |         |
| (EX) GLOBAL THUNDER 22                                     |         | ◆◆      |         |         |         |         |         |
| SICO -09-1   |         | ◆       |         |         |         |         |         |
| (EX) GLOBAL RESPONSE EXERCISE 12                           |         | ◇       |         |         |         |         |         |
| GTD-08a (N/I) (Missile Defense System Ground Test)         |         | ◆       |         |         |         |         |         |
| JFTM-07 E1 (JAPAN, DT Tracking Exercise Flight Test)       |         | ▲       |         |         |         |         |         |
| GTD-07b (AA)   |         | ◆       |         |         |         |         |         |
| (WG) NIMBLE TITAN 24                                       |         |         | ◇◇◇◇◇   |         |         |         |         |
| SICO-09-3  |         |         | ◇       |         |         |         |         |
| SICO 9-4   |         |         | ◇       |         |         |         |         |
| TBG-3 (OTHER, DT Tracking Exercise Flight Test)            |         |         | △       |         |         |         |         |
| (EX) Joint Project Optic Windmill 2023                     |         |         | ◇◇◇     |         |         |         |         |
| (EX) AIR AND MISSILE DEFENSE EXERCISE 23                   |         |         | ◇◇◇     |         |         |         |         |
| GTI-09 Sprint 2 (E/C) (Missile Defense System Ground Test) |         |         | ◇       |         |         |         |         |
| (EX) AUSTERE CHALLENGE 23                                  |         |         | ◇       |         |         |         |         |
| (EX) RESILIENT SHIELD 23                                   |         |         | △       |         |         |         |         |
| (EX) GLOBAL LIGHTNING 23                                   |         |         | ◇◇      |         |         |         |         |
| SICO-09-2  |         |         | ◇       |         |         |         |         |

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

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| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MT01 / <i>C2BMC Test</i> |
|--|---|--|

|                              |                               |                         |                              |                     |
|------------------------------|-------------------------------|-------------------------|------------------------------|---------------------|
| Significant Event Complete ▲ | Milestone Decision Complete ★ | Element Test Complete ◆ | System Level Test Complete ● | Complete Activity ◆ |
| Significant Event Planned △  | Milestone Decision Planned ☆  | Element Test Planned ◇  | System Level Test Planned ○  | Planned Activity ◇  |

|  | FY 2022 |  |  | FY 2023 |   |   | FY 2024 |   |   | FY 2025 |   |  | FY 2026 |  |  | FY 2027 |  |  | FY 2028 |  |  |
|--|---------|--|--|---------|---|---|---------|---|---|---------|---|--|---------|--|--|---------|--|--|---------|--|--|
|  |         |  |  |         |   |   |         |   |   |         |   |  |         |  |  |         |  |  |         |  |  |
| (EX) EUROPEAN TEST BED 23                                  |         |  |  | ◇       | ◇ | ◇ |         |   |   |         |   |  |         |  |  |         |  |  |         |  |  |
| FTT-25 (TH, DT/OT Intercept Flight Test)                   |         |  |  |         | △ |   |         |   |   |         |   |  |         |  |  |         |  |  |         |  |  |
| SICO-08a-02  |         |  |  | ◇       |   |   |         |   |   |         |   |  |         |  |  |         |  |  |         |  |  |
| FTX-26 (OT) (SN, OT Target Only Flight Test)               |         |  |  |         |   | △ |         |   |   |         |   |  |         |  |  |         |  |  |         |  |  |
| GTI-101 (E/C)  |         |  |  |         |   |   | ◇       |   |   |         |   |  |         |  |  |         |  |  |         |  |  |
| FTG-12 (GM, DT/OT Intercept Flight Test)                   |         |  |  |         |   |   | △       |   |   |         |   |  |         |  |  |         |  |  |         |  |  |
| (EX) VIGILANT SHIELD 24                                    |         |  |  | ◇       | ◇ | ◇ | ◇       | ◇ |   |         |   |  |         |  |  |         |  |  |         |  |  |
| (EX) KEEN EDGE 24  |         |  |  | ◇       | ◇ | ◇ | ◇       |   |   |         |   |  |         |  |  |         |  |  |         |  |  |
| FTM-32 (AEGIS SBT, DT/OT Intercept Flight Test)            |         |  |  |         |   |   | △       |   |   |         |   |  |         |  |  |         |  |  |         |  |  |
| GTI-08b (N/I)  |         |  |  |         | ◇ |   |         |   |   |         |   |  |         |  |  |         |  |  |         |  |  |
| GTI-ASI (24) (Missile Defense System Ground Test)          |         |  |  |         |   |   | ◇       |   |   |         |   |  |         |  |  |         |  |  |         |  |  |
| FTX-40 (AEGIS 5.1, DT Tracking Exercise Flight Test)       |         |  |  |         |   |   | △       |   |   |         |   |  |         |  |  |         |  |  |         |  |  |
| FTX-23 (AEGIS 5.1, DT Tracking Exercise Flight Test)       |         |  |  |         |   |   | △       |   |   |         |   |  |         |  |  |         |  |  |         |  |  |
| GTD-08b (N/I)  |         |  |  |         |   |   | ◇       |   |   |         |   |  |         |  |  |         |  |  |         |  |  |
| FTX-28 E2 (TH, DT/OT Tracking Exercise Flight Test)        |         |  |  |         |   |   |         | △ |   |         |   |  |         |  |  |         |  |  |         |  |  |
| (EX) AIR AND MISSILE DEFENSE EXERCISE 24                   |         |  |  |         |   |   | ◇       | ◇ | ◇ |         |   |  |         |  |  |         |  |  |         |  |  |
| FTX-28 E1 (TH, DT/OT Tracking Exercise Flight Test)        |         |  |  |         |   |   |         | △ |   |         |   |  |         |  |  |         |  |  |         |  |  |
| GTI-102 (I)  |         |  |  |         |   |   |         | ◇ |   |         |   |  |         |  |  |         |  |  |         |  |  |
| FTX-28 E3 (TH, DT/OT Tracking Exercise Flight Test)        |         |  |  |         |   |   |         | △ |   |         |   |  |         |  |  |         |  |  |         |  |  |
| Pacific Dragon-24 E2 (ARAV-T1)                             |         |  |  |         |   |   |         |   | △ |         |   |  |         |  |  |         |  |  |         |  |  |
| Pacific Dragon-24 E1 (ARAV-B)                              |         |  |  |         |   |   |         |   | △ |         |   |  |         |  |  |         |  |  |         |  |  |
| GTI-ISR (23) (Missile Defense System Ground Test)          |         |  |  |         |   |   |         | ◇ |   |         |   |  |         |  |  |         |  |  |         |  |  |
| GTI-13 Sprint 1 (N/I) (Missile Defense System Ground Test) |         |  |  |         |   |   |         |   |   | ◇       |   |  |         |  |  |         |  |  |         |  |  |
| FTM-37 (AEGIS 5.1, DT/OT Intercept Flight Test)            |         |  |  |         |   |   |         |   |   |         | △ |  |         |  |  |         |  |  |         |  |  |

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

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| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MT01 / <i>C2BMC Test</i> |
|--|---|--|

|                              |                               |                         |                              |                     |
|------------------------------|-------------------------------|-------------------------|------------------------------|---------------------|
| Significant Event Complete ▲ | Milestone Decision Complete ★ | Element Test Complete ◆ | System Level Test Complete ● | Complete Activity ◆ |
| Significant Event Planned △  | Milestone Decision Planned ☆  | Element Test Planned ◇  | System Level Test Planned ○  | Planned Activity ◇  |

|  | FY 2022 |  | FY 2023 |  | FY 2024 |  | FY 2025 |   | FY 2026 |   | FY 2027 |   | FY 2028 |   |
|--|---------|--|---------|--|---------|--|---------|---|---------|---|---------|---|---------|---|
|  |         |  |         |  |         |  |         |   |         |   |         |   |         |   |
| GTI-ISR (25) (Missile Defense System Ground Test)          |         |  |         |  |         |  | ◇       |   |         |   |         |   |         |   |
| FTM-43 (AEGIS 5.1, DT/OT Intercept Flight Test)            |         |  |         |  |         |  | △       |   |         |   |         |   |         |   |
| JFTX-01 E1 (JAPAN, DT Tracking Exercise Flight Test)       |         |  |         |  |         |  | △       |   |         |   |         |   |         |   |
| GTI-13 Sprint 2 (N/I) (Missile Defense System Ground Test) |         |  |         |  |         |  | ◇       |   |         |   |         |   |         |   |
| JFTX-01 E2 (JAPAN, DT Tracking Exercise Flight Test)       |         |  |         |  |         |  | △       |   |         |   |         |   |         |   |
| FTT-26 (MRBM T1)   |         |  |         |  |         |  | △       |   |         |   |         |   |         |   |
| FTM-30 (AEGIS 5.1, DT/OT Intercept Flight Test)            |         |  |         |  |         |  | △       |   |         |   |         |   |         |   |
| GTD-13 (N/I) (Missile Defense System Ground Test)          |         |  |         |  |         |  | ◇       |   |         |   |         |   |         |   |
| GTI-12 (E/C)   |         |  |         |  |         |  |         | ◇ |         |   |         |   |         |   |
| GTD-12 (E/C) (Missile Defense System Ground Test)          |         |  |         |  |         |  |         |   | ◇       |   |         |   |         |   |
| GTI-ASI (26) (Missile Defense System Ground Test)          |         |  |         |  |         |  |         |   |         | ◇ |         |   |         |   |
| FTM-40 (AEGIS 6, DT/OT Intercept Flight Test)              |         |  |         |  |         |  |         |   |         | △ |         |   |         |   |
| TH CTV-03 (TH, DT Interceptor Only Flight Test)            |         |  |         |  |         |  |         |   |         | △ |         |   |         |   |
| Pacific Dragon-26 E1 (ARAV-B)                              |         |  |         |  |         |  |         |   |         |   | △       |   |         |   |
| Pacific Dragon-26 E2 (ARAV-T)                              |         |  |         |  |         |  |         |   |         |   | △       |   |         |   |
| GTI-14 Sprint 1 (N/I)                                      |         |  |         |  |         |  |         |   |         |   | ◇       |   |         |   |
| GTI-24 (N/I)   |         |  |         |  |         |  |         |   |         |   | ◇       |   |         |   |
| FTX-47   |         |  |         |  |         |  |         |   |         |   |         |   | △       |   |
| FTM-41 (AEGIS 6, DT/OT Intercept Flight Test)              |         |  |         |  |         |  |         |   |         |   |         | △ |         |   |
| FTG-16 (GM, DT Intercept Flight Test)                      |         |  |         |  |         |  |         |   |         |   |         |   | △       |   |
| GTI-14 (N/I) Sprint 2 (Missile Defense System Ground Test) |         |  |         |  |         |  |         |   |         |   |         |   | ◇       |   |
| SICO-24 (N/I)  |         |  |         |  |         |  |         |   |         |   |         |   |         | ◇ |
| GTI-15 Sprint 1 (E/C)                                      |         |  |         |  |         |  |         |   |         |   |         |   |         | ◇ |
| FTT-22 (TH, DT/OT Intercept Flight Test)                   |         |  |         |  |         |  |         |   |         |   |         |   |         | △ |

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

|  |   |  |
|--|---|--|
| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MT01 / <i>C2BMC Test</i> |
|--|---|--|

| Activity   | Significant Event Complete ▲ |  | Milestone Decision Complete ★ |  | Element Test Complete ◆ |  | System Level Test Complete ● |  | Complete Activity ◆ |  |         |  |         |   |
|--|------------------------------|--|-------------------------------|--|-------------------------|--|------------------------------|--|---------------------|--|---------|--|---------|---|
|  | Significant Event Planned △  |  | Milestone Decision Planned ☆  |  | Element Test Planned ◇  |  | System Level Test Planned ○  |  | Planned Activity ◇  |  |         |  |         |   |
|  | FY 2022                      |  | FY 2023                       |  | FY 2024                 |  | FY 2025                      |  | FY 2026             |  | FY 2027 |  | FY 2028 |   |
| FTG-17 (GM, DT/OT Intercept Flight Test)           |                              |  |                               |  |                         |  |                              |  |                     |  |         |  | △       |   |
| GTD-14 (N/I) ((Missile Defense System Ground Test) |                              |  |                               |  |                         |  |                              |  |                     |  |         |  | ◇       |   |
| GTI-ISR (27) (Missile Defense System Ground Test)  |                              |  |                               |  |                         |  |                              |  |                     |  |         |  | ◇       |   |
| FTM-42 (AEGIS 6, DT/OT Intercept Flight Test)      |                              |  |                               |  |                         |  |                              |  |                     |  |         |  | △       |   |
| GTI-15 Sprint 2 (E/C)                              |                              |  |                               |  |                         |  |                              |  |                     |  |         |  | ◇       |   |
| FTM-38   |                              |  |                               |  |                         |  |                              |  |                     |  |         |  | ◇       |   |
| FTM-47 (MRBM T4 X3/BQM-177 X4)                     |                              |  |                               |  |                         |  |                              |  |                     |  |         |  |         | △ |
| GTD-15 (E/C)                                       |                              |  |                               |  |                         |  |                              |  |                     |  |         |  |         | ◇ |
| FTG-18 (DT/OT)                                     |                              |  |                               |  |                         |  |                              |  |                     |  |         |  |         | △ |
| GTI-25 (N/I)                                       |                              |  |                               |  |                         |  |                              |  |                     |  |         |  |         | ◇ |
| Pacific Dragon-28 E1 (ARAV-B)                      |                              |  |                               |  |                         |  |                              |  |                     |  |         |  |         | △ |
| Pacific Dragon-28 E2 (ARAV-B)                      |                              |  |                               |  |                         |  |                              |  |                     |  |         |  |         | ◇ |
| GTI-ASI (28)                                       |                              |  |                               |  |                         |  |                              |  |                     |  |         |  |         | ◇ |
| GTI-16 Sprint 1 (N/I)                              |                              |  |                               |  |                         |  |                              |  |                     |  |         |  |         | ◇ |

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| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Missile Defense Agency |   | <b>Date:</b> March 2023                                  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MT01 / <i>C2BMC Test</i> |

Schedule Details

| Events   | Start   |      | End     |      |
|--|---------|------|---------|------|
|  | Quarter | Year | Quarter | Year |
| GTI-ISR (21) (Missile Defense System Ground Test)        | 1       | 2022 | 1       | 2022 |
| FTP-21 E1 (P8.1.1)(LTPO, DT Intercept Flight Test)       | 1       | 2022 | 1       | 2022 |
| (WG) Demonstration, Table-top Exercises & Experiments 21 | 1       | 2022 | 1       | 2022 |
| (EX) VIGILANT SHIELD 22                                  | 1       | 2022 | 1       | 2022 |
| (EX) GLOBAL THUNDER 21                                   | 1       | 2022 | 1       | 2022 |
| FTX-43 (OTHER, DT Tracking Exercise Flight Test)         | 1       | 2022 | 1       | 2022 |
| (EX) KEEN EDGE 22  | 1       | 2022 | 2       | 2022 |
| (EX) JUNIPER COBRA 22                                    | 1       | 2022 | 2       | 2022 |
| (EX) AIR AND MISSILE DEFENSE EXERCISE 22                 | 1       | 2022 | 3       | 2022 |
| JFC-1 (OTHER, DT Tracking Exercise Flight Test)          | 3       | 2022 | 3       | 2022 |
| GTI-08a (N/I) (Missile Defense System Ground Test)       | 3       | 2022 | 3       | 2022 |
| SICO-8a-1  | 3       | 2022 | 3       | 2022 |
| (WG) NIMBLE TITAN 22                                     | 1       | 2022 | 4       | 2022 |
| GTI-08a Part 2 (N/I)                                     | 1       | 2023 | 1       | 2023 |
| TBG-2 (OTHER, DT Tracking Exercise Flight Test)          | 1       | 2023 | 1       | 2023 |
| (EX) Joint Live, Virtual, and Constructive 2021/2022     | 1       | 2022 | 1       | 2023 |
| Enterprise Sensor Lab Infrastructure Support Planned     | 1       | 2022 | 4       | 2027 |
| FTT-21 (TH, DT Intercept Flight Test)                    | 2       | 2022 | 2       | 2022 |
| (EX) EAGLE RESOLVE 22                                    | 2       | 2022 | 2       | 2022 |
| (EX) RESILIENT SHIELD 22                                 | 2       | 2022 | 2       | 2022 |
| (EX) GLOBAL LIGHTNING 22                                 | 2       | 2022 | 3       | 2022 |

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

|  |   |  |
|--|---|--|
| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MT01 / <i>C2BMC Test</i> |
|--|---|--|

| Events   | Start   |      | End     |      |
|--|---------|------|---------|------|
|  | Quarter | Year | Quarter | Year |
| (EX) STEADFAST ALLIANCE 22                                 | 2       | 2022 | 3       | 2022 |
| (EX) JOINT AIR AND MISSILE DEFENSE EXERCISE SERIES 22      | 2       | 2022 | 4       | 2022 |
| (EX) EUROPEAN TEST BED 22                                  | 2       | 2022 | 4       | 2022 |
| FTX-42 (OTHER, DT Target Only Flight Test)                 | 3       | 2022 | 3       | 2022 |
| (WG) Demonstration, Table-top Exercises & Experiments 22   | 3       | 2022 | 1       | 2023 |
| GTI-09 Sprint 1 (E/C) (Missile Defense System Ground Test) | 4       | 2022 | 4       | 2022 |
| FTX-45   | 4       | 2022 | 4       | 2022 |
| (EX) VIGILANT SHIELD 23                                    | 4       | 2022 | 1       | 2023 |
| (EX) KEEN SWORD 23   | 4       | 2022 | 1       | 2023 |
| (EX) GLOBAL RESPONSE EXERCISE 11                           | 4       | 2022 | 1       | 2023 |
| (EX) GLOBAL THUNDER 22                                     | 4       | 2022 | 1       | 2023 |
| SICO -09-1   | 1       | 2023 | 1       | 2023 |
| (EX) GLOBAL RESPONSE EXERCISE 12                           | 1       | 2023 | 1       | 2023 |
| GTD-08a (N/I) (Missile Defense System Ground Test)         | 1       | 2023 | 1       | 2023 |
| JFTM-07 E1 (JAPAN, DT Tracking Exercise Flight Test)       | 1       | 2023 | 1       | 2023 |
| GTD-07b (AA)   | 1       | 2023 | 1       | 2023 |
| (WG) NIMBLE TITAN 24                                       | 1       | 2023 | 1       | 2024 |
| SICO-09-3  | 2       | 2023 | 2       | 2023 |
| SICO 9-4   | 3       | 2023 | 3       | 2023 |
| TBG-3 (OTHER, DT Tracking Exercise Flight Test)            | 3       | 2023 | 3       | 2023 |
| (EX) Joint Project Optic Windmill 2023                     | 1       | 2023 | 3       | 2023 |
| (EX) AIR AND MISSILE DEFENSE EXERCISE 23                   | 1       | 2023 | 3       | 2023 |
| GTI-09 Sprint 2 (E/C) (Missile Defense System Ground Test) | 2       | 2023 | 2       | 2023 |
| (EX) AUSTERE CHALLENGE 23                                  | 2       | 2023 | 2       | 2023 |
| (EX) RESILIENT SHIELD 23                                   | 2       | 2023 | 2       | 2023 |

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

|  |   |  |
|--|---|--|
| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MT01 / <i>C2BMC Test</i> |
|--|---|--|

| Events   | Start   |      | End     |      |
|--|---------|------|---------|------|
|  | Quarter | Year | Quarter | Year |
| (EX) GLOBAL LIGHTNING 23                                   | 2       | 2023 | 3       | 2023 |
| SICO-09-2  | 2       | 2023 | 2       | 2023 |
| (EX) EUROPEAN TEST BED 23                                  | 2       | 2023 | 4       | 2023 |
| FTT-25 (TH, DT/OT Intercept Flight Test)                   | 3       | 2023 | 3       | 2023 |
| SICO-08a-02  | 3       | 2023 | 3       | 2023 |
| FTX-26 (OT) (SN, OT Target Only Flight Test)               | 4       | 2023 | 4       | 2023 |
| GTI-101 (E/C)  | 1       | 2024 | 1       | 2024 |
| FTG-12 (GM, DT/OT Intercept Flight Test)                   | 1       | 2024 | 1       | 2024 |
| (EX) VIGILANT SHIELD 24                                    | 3       | 2023 | 3       | 2024 |
| (EX) KEEN EDGE 24  | 3       | 2023 | 2       | 2024 |
| FTM-32 (AEGIS SBT, DT/OT Intercept Flight Test)            | 1       | 2024 | 1       | 2024 |
| GTI-08b (N/I)  | 4       | 2023 | 4       | 2023 |
| GTI-ASI (24) (Missile Defense System Ground Test)          | 2       | 2024 | 2       | 2024 |
| FTX-40 (AEGIS 5.1, DT Tracking Exercise Flight Test)       | 2       | 2024 | 2       | 2024 |
| FTX-23 (AEGIS 5.1, DT Tracking Exercise Flight Test)       | 2       | 2024 | 2       | 2024 |
| GTD-08b (N/I)  | 2       | 2024 | 2       | 2024 |
| FTX-28 E2 (TH, DT/OT Tracking Exercise Flight Test)        | 3       | 2024 | 3       | 2024 |
| (EX) AIR AND MISSILE DEFENSE EXERCISE 24                   | 1       | 2024 | 3       | 2024 |
| FTX-28 E1 (TH, DT/OT Tracking Exercise Flight Test)        | 3       | 2024 | 3       | 2024 |
| GTI-102 (I)  | 3       | 2024 | 3       | 2024 |
| FTX-28 E3 (TH, DT/OT Tracking Exercise Flight Test)        | 3       | 2024 | 3       | 2024 |
| Pacific Dragon-24 E2 (ARAV-T1)                             | 4       | 2024 | 4       | 2024 |
| Pacific Dragon-24 E1 (ARAV-B)                              | 4       | 2024 | 4       | 2024 |
| GTI-ISR (23) (Missile Defense System Ground Test)          | 3       | 2024 | 3       | 2024 |
| GTI-13 Sprint 1 (N/I) (Missile Defense System Ground Test) | 1       | 2025 | 1       | 2025 |

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

|  |   |  |
|--|---|--|
| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MT01 / <i>C2BMC Test</i> |
|--|---|--|

| Events   | Start   |      | End     |      |
|--|---------|------|---------|------|
|  | Quarter | Year | Quarter | Year |
| FTM-37 (AEGIS 5.1, DT/OT Intercept Flight Test)            | 1       | 2025 | 1       | 2025 |
| GTI-ISR (25) (Missile Defense System Ground Test)          | 2       | 2025 | 2       | 2025 |
| FTM-43 (AEGIS 5.1, DT/OT Intercept Flight Test)            | 2       | 2025 | 2       | 2025 |
| JFTX-01 E1 (JAPAN, DT Tracking Exercise Flight Test)       | 3       | 2025 | 3       | 2025 |
| GTI-13 Sprint 2 (N/I) (Missile Defense System Ground Test) | 3       | 2025 | 3       | 2025 |
| JFTX-01 E2 (JAPAN, DT Tracking Exercise Flight Test)       | 3       | 2025 | 3       | 2025 |
| FTT-26 (MRBM T1)   | 3       | 2025 | 3       | 2025 |
| FTM-30 (AEGIS 5.1, DT/OT Intercept Flight Test)            | 4       | 2025 | 4       | 2025 |
| GTD-13 (N/I) (Missile Defense System Ground Test)          | 4       | 2025 | 4       | 2025 |
| GTI-12 (E/C)   | 1       | 2026 | 1       | 2026 |
| GTD-12 (E/C) (Missile Defense System Ground Test)          | 2       | 2026 | 2       | 2026 |
| GTI-ASI (26) (Missile Defense System Ground Test)          | 3       | 2026 | 3       | 2026 |
| FTM-40 (AEGIS 6, DT/OT Intercept Flight Test)              | 3       | 2026 | 3       | 2026 |
| TH CTV-03 (TH, DT Interceptor Only Flight Test)            | 3       | 2026 | 3       | 2026 |
| Pacific Dragon-26 E1 (ARAV-B)                              | 4       | 2026 | 4       | 2026 |
| Pacific Dragon-26 E2 (ARAV-T)                              | 4       | 2026 | 4       | 2026 |
| GTI-14 Sprint 1 (N/I)                                      | 4       | 2026 | 4       | 2026 |
| GTI-24 (N/I)   | 4       | 2026 | 4       | 2026 |
| FTX-47   | 4       | 2027 | 4       | 2027 |
| FTM-41 (AEGIS 6, DT/OT Intercept Flight Test)              | 1       | 2027 | 1       | 2027 |
| FTG-16 (GM, DT Intercept Flight Test)                      | 2       | 2027 | 2       | 2027 |
| GTI-14 (N/I) Sprint 2 (Missile Defense System Ground Test) | 2       | 2027 | 2       | 2027 |
| SICO-24 (N/I)  | 3       | 2027 | 3       | 2027 |
| GTI-15 Sprint 1 (E/C)                                      | 3       | 2027 | 3       | 2027 |
| FTT-22 (TH, DT/OT Intercept Flight Test)                   | 3       | 2027 | 3       | 2027 |

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

|  |   |  |
|--|---|--|
| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MT01 / <i>C2BMC Test</i> |
|--|---|--|

| Events   | Start   |      | End     |      |
|--|---------|------|---------|------|
|  | Quarter | Year | Quarter | Year |
| FTG-17 (GM, DT/OT Intercept Flight Test)           | 4       | 2027 | 4       | 2027 |
| GTD-14 (N/I) ((Missile Defense System Ground Test) | 4       | 2027 | 4       | 2027 |
| GTI-ISR (27) (Missile Defense System Ground Test)  | 4       | 2027 | 4       | 2027 |
| FTM-42 (AEGIS 6, DT/OT Intercept Flight Test)      | 4       | 2027 | 4       | 2027 |
| GTI-15 Sprint 2 (E/C)                              | 1       | 2028 | 1       | 2028 |
| FTM-38   | 1       | 2028 | 1       | 2028 |
| FTM-47 (MRBM T4 X3/BQM-177 X4)                     | 2       | 2028 | 2       | 2028 |
| GTD-15 (E/C)                                       | 2       | 2028 | 2       | 2028 |
| FTG-18 (DT/OT)                                     | 3       | 2028 | 3       | 2028 |
| GTI-25 (N/I)                                       | 3       | 2028 | 3       | 2028 |
| Pacific Dragon-28 E1 (ARAV-B)                      | 4       | 2028 | 4       | 2028 |
| Pacific Dragon-28 E2 (ARAV-B)                      | 4       | 2028 | 4       | 2028 |
| GTI-ASI (28)                                       | 4       | 2028 | 4       | 2028 |
| GTI-16 Sprint 1 (N/I)                              | 4       | 2028 | 4       | 2028 |

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|---|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|--|-------------------------|-------------------------|-------------------|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Missile Defense Agency              |                    |                |                |                     |   |                      |                |                |  | <b>Date:</b> March 2023 |                         |                   |
| <b>Appropriation/Budget Activity</b><br>0400 / 4  |                    |                |                |                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> |                      |                |                | <b>Project (Number/Name)</b><br>MX01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC) Development Support</i> |                         |                         |                   |
| <b>COST (\$ in Millions)</b>  | <b>Prior Years</b> | <b>FY 2022</b> | <b>FY 2023</b> | <b>FY 2024 Base</b> | <b>FY 2024 OCO</b>  | <b>FY 2024 Total</b> | <b>FY 2025</b> | <b>FY 2026</b> | <b>FY 2027</b>   | <b>FY 2028</b>          | <b>Cost To Complete</b> | <b>Total Cost</b> |
| MX01: <i>Command &amp; Control, Battle Management, Communications (C2BMC) Development Support</i> | 971.762            | 122.194        | 131.903        | 138.665             | -   | 138.665              | 139.480        | 142.259        | 145.342  | 148.249                 | Continuing              | Continuing        |
| Quantity of RDT&E Articles  | -                  | -              | -              | -                   | -   | -                    | -              | -              | -  | -                       |                         |                   |

**Note**

Increase from FY 2023 to FY 2024 provides additional Integrated Logistics Support (ILS) training material, facilities modifications and engineering support to prepare for deployment of Spiral 8.2-7.

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

C2BMC Development Support provides operations engineering, integrated logistics, warfighter integration, deployment, and disposal of the current operational system and/or systems fielded in United States Strategic Command, United States Northern Command (USNORTHCOM), United States Indo-Pacific Command (USINDOPACOM), United States European Command (USEUCOM), United States Central Command (USCENTCOM), and U.S. Space Command (USSPACECOM) and the operation of the C2BMC Control Center. This activity provides continuous support of the development, deployment, sustainment of the C2BMC training systems, and updates training material to stay current with fielded capabilities.

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

|   | <b>FY 2022</b> | <b>FY 2023</b> | <b>FY 2024</b> |
|---|----------------|----------------|----------------|
| <b>Title:</b> Operations Engineering  | 105.237        | 113.079        | 120.326        |
| <b>Articles:</b>  | -              | -              | -              |
| <p><b>Description:</b> This activity funds C2BMC support of current operational, test, and training systems. Recurring efforts include:</p> <ul style="list-style-type: none"> <li>- On-site maintenance, help-desk support, and developer reach-back support to ensure operational availability</li> <li>- C2BMC Command Center (CCC) provides 24 hours a day, 7 days a week, 365 days a year Ballistic Missile Defense System (BMDS) Overhead Persistent Infra-Red Architecture (BOA) and C2BMC operations including system and network monitoring, system administration, and network defense against cyber-attacks</li> <li>- ILS by providing a secure supply chain; reliability, availability, and maintainability (RAM) engineering; obsolescence engineering; and sparing to ensure operational availability</li> <li>- Cybersecurity engineering providing C2BMC Commercial-off-the-shelf software/hardware updates and CCC upgrades that address system vulnerabilities, field quarterly updates to reduce system component vulnerability to cyber-attacks</li> <li>- Information System Security Officers ensuring C2BMC compliance with latest cybersecurity requirements and policies</li> </ul> |                |                |                |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Missile Defense Agency  |   | <b>Date:</b> March 2023  |                |                |
| <b>Appropriation/Budget Activity</b><br>0400 / 4  | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MX01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC) Development Support</i> |                |                |
| <b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>   |   | <b>FY 2022</b>   | <b>FY 2023</b> | <b>FY 2024</b> |
| <ul style="list-style-type: none"> <li>- System modifications driven by Warfighter Involvement Process, Continuous Improvement Process, RAM and obsolescence engineering, and external systems such as Space-Based Infrared Sensors, Ground-based Midcourse Defense Fire Control, Aegis, Terminal High Altitude Area Defense, Navy Link Monitoring and Management Tool, Army Navy/Transportable Radar Surveillance and Control-2, standard Army communications, Defense Information Systems Agency (DISA) fiber networks, and Allied/Coalition interfaces</li> <li>- Combatant Command (CCMD) integration providing C2BMC training, on-site Subject Matter Experts (SMEs), and surge SME support for real-world events, flight tests, ground tests, exercises, cyber assessments, and wargames</li> <li>- Facility modifications required to house current or future C2BMC equipment and transportation for moving C2BMC equipment</li> <li>- Integrated product support for tactical satellite communications (SATCOM) used in flight tests, hardened SATCOM, and associated shelters</li> <li>- Provide transportation for flight test equipment and SME support and analysis for numerous test, exercise, and real world events</li> <li>- Provide recurring proficiency training to CCMDs and keep training material and systems consistent with operational capabilities</li> </ul> <p>Specific and/or unique accomplishments for each FY are as follow:</p> <p><b>FY 2023 Plans:</b></p> <ul style="list-style-type: none"> <li>- Begin sustainment of S8.2-5/BOA 7.0 capabilities</li> <li>- Complete BMDS Teleport Gateway architecture redesign, engineering and installation</li> </ul> <p><b>FY 2024 Plans:</b></p> <ul style="list-style-type: none"> <li>- Continue sustainment of S8.2-5/BOA 7.0 capabilities</li> <li>- Begin initial preparation for Spiral 8.2-7 deployment</li> </ul> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b><br/>Increase from FY 2023 to FY 2024 provides additional ILS training material, facilities modifications and engineering support to prepare for deployment of Spiral 8.2-7.</p> |   |  |                |                |
| <b>Title:</b> Concurrent Test, Training, and Operations (CTTO)  |   | 16.957   | 18.824         | 18.339         |
| <b>Description:</b> This element provides the development and sustainment of the C2BMC Training Support System (TSS) and the Missions Specific Vendor Plug-in (MSVP) stand-alone operator training devices and the Distributed Training System (DTS) for USINDOPACOM, USNORTHCOM, USEUCOM, USCENTCOM, and USSPACECOM. C2BMC connects all Missile Defense System Elements through virtual and physical networks to facilitate integrated test, training, operations, and certification within two coexistent realms. This enables the warfighter to become proficient on current and future software versions at the operational   |   | <b>Articles:</b><br>-  | -              | -              |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Missile Defense Agency |   | <b>Date:</b> March 2023  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MX01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC) Development Support</i> |

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

|  | FY 2022 | FY 2023 | FY 2024 |
|--|---------|---------|---------|
| console, increases the developer's capacity to perform a variety of tests and upgrades on the operational Missile Defense System, and decreases recall-to-mission operations times from weeks and days to hours and minutes. The recently acquired C2BMC MSVP is a gaming-based stand-alone trainer developed from a Small Business Innovation Research (SBIR) project. It delivers mission training simulation using core Standard Space Trainer and provides the same level of training fidelity as the legacy TSS but with greater flexibility in architecture and reduced long term cost. Recurring accomplishments include sustaining current training systems for Missile Defense System training events for the Unified Combatant Command developing the next generation training systems, to include the integration of Red Force / Blue Force capability, to keep current with the operational system capabilities. |         |         |         |
| Specific and/or unique accomplishments for each FY are as follows:   |         |         |         |
| <b>FY 2023 Plans:</b><br>- Continue MSVP and DTS development for inclusion of the capabilities that are planned for delivery in Spiral 8.2-7<br>- Provide hardware updates for DTS simulation and stimulation  |         |         |         |
| <b>FY 2024 Plans:</b><br>- SEE ABOVE.  |         |         |         |
| <b>FY 2023 to FY 2024 Increase/Decrease Statement:</b><br>N/A  |         |         |         |
| <b>Accomplishments/Planned Programs Subtotals</b>  | 122.194 | 131.903 | 138.665 |

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

| Line Item  | FY 2022 | FY 2023 | FY 2024 | FY 2024 | FY 2024 | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To    |            |
|--|---------|---------|---------|---------|---------|---------|---------|---------|---------|------------|------------|
|  |         |         | Base    | OCO     | Total   |         |         |         |         | Complete   | Total Cost |
| • 0603881C: <i>Ballistic Missile Defense Terminal Defense Segment</i>  | 209.004 | 195.216 | 220.311 | -       | 220.311 | 239.705 | 334.977 | 384.992 | 292.629 | Continuing | Continuing |
| • 0603882C: <i>Ballistic Missile Defense Midcourse Defense Segment</i> | 707.632 | 689.018 | 903.633 | -       | 903.633 | 852.567 | 906.634 | 930.538 | 875.198 | Continuing | Continuing |
| • 0603884C: <i>Ballistic Missile Defense Sensors</i>                   | 250.123 | 230.502 | 239.159 | -       | 239.159 | 212.191 | 233.877 | 242.623 | 251.226 | Continuing | Continuing |
| • 0603890C: <i>BMD Enabling Programs</i>                               | 616.800 | 588.847 | 597.720 | -       | 597.720 | 620.823 | 639.398 | 648.954 | 650.432 | Continuing | Continuing |

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

|  |   |  |
|--|---|--|
| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MX01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC) Development Support</i> |
|--|---|--|

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

| Line Item  | FY 2022 | FY 2023 | FY 2024<br>Base | FY 2024<br>OCO | FY 2024<br>Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To<br>Complete | Total Cost |
|--|---------|---------|-----------------|----------------|------------------|---------|---------|---------|---------|---------------------|------------|
| • 0603892C: <i>AEGIS BMD</i>   | 628.014 | 595.572 | 693.727         | -              | 693.727          | 639.678 | 706.974 | 699.611 | 733.909 | Continuing          | Continuing |
| • 0603904C: <i>Missile Defense Integration and Operations Center (MDIOC)</i> | 44.188  | 49.367  | 50.549          | -              | 50.549           | 56.624  | 58.020  | 59.193  | 60.615  | Continuing          | Continuing |
| • 0603907C: <i>Sea Based X-Band Radar (SBX)</i>                              | 147.241 | 164.668 | 177.868         | -              | 177.868          | 196.952 | 176.633 | 162.632 | 162.578 | Continuing          | Continuing |
| • 0603914C: <i>Ballistic Missile Defense Test</i>                            | 388.956 | 366.824 | 360.455         | -              | 360.455          | 430.281 | 436.921 | 465.074 | 375.256 | Continuing          | Continuing |
| • 0603915C: <i>Ballistic Missile Defense Targets</i>                         | 560.445 | 579.075 | 570.258         | -              | 570.258          | 583.747 | 642.329 | 664.683 | 510.063 | Continuing          | Continuing |
| • 0604181C: <i>Hypersonic Defense</i>  | 281.886 | 517.977 | 208.997         | -              | 208.997          | 218.939 | 294.326 | 366.951 | 644.996 | Continuing          | Continuing |
| • 0604672C: <i>Homeland Defense Radar-Hawaii</i>                             | 75.000  | 0.000   | 0.000           | -              | 0.000            | 0.000   | 0.000   | 0.000   | 0.000   | 0.000               | 75.000     |
| • 0604873C: <i>Long Range Discrimination Radar (LRDR)</i>                    | 129.552 | 75.120  | 103.517         | -              | 103.517          | 100.114 | 68.815  | 69.219  | 65.521  | Continuing          | Continuing |

**Remarks**

**D. Acquisition Strategy**

A sole source C2BMC contract to Lockheed Martin was awarded 1st quarter FY 2012. The current ordering period is through 4th quarter FY 2026. Major team members to Lockheed are Northrop Grumman, Boeing, Raytheon, and General Dynamics. They are charged with the operations engineering, cybersecurity development, integrated logistics, warfighter integration, deployment, and disposal of the current fielded operational system and/or systems and the operation of the C2BMC Control Center. The sole source C2BMC Follow-on contract is planned to be awarded in 1st quarter FY 2024 to continue support of the C2BMC system. Contract Support Services (CSS) personnel are also fully integrated as part of the Prime contractor's team to function in an Integrated Product Team environment. Furthermore, a competitive contract to Sonalysts was awarded in January 2020 with a five-year period of performance to provide a C2BMC stand-alone training system called MSVP.

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

|  |   |  |
|--|---|--|
| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MX01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC) Development Support</i> |
|--|---|--|

| <b>Product Development (\$ in Millions)</b>  |                        |   |             | FY 2022 |            | FY 2023 |            | FY 2024 Base |            | FY 2024 OCO |            | FY 2024 Total |                  |            |                          |
|--|------------------------|---|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item   | Contract Method & Type | Performing Activity & Location  | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          | Cost To Complete | Total Cost | Target Value of Contract |
| Operations Engineering - All Prior Years   | Various                | Various : Various   | 58.566      | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 58.566     | 58.566                   |
| Operations Engineering - Sustaining Support  | C/CPAF                 | JACOBS TECHNOLOGY INC. : VARIOUS  | 7.087       | 1.810   | Dec 2021   | 1.847   | Dec 2022   | 2.022        | Dec 2023   | -           |            | 2.022         | Continuing       | Continuing | Continuing               |
| Operations Engineering - Training Support  | C/FPIF                 | BOEING : AL   | 3.203       | 1.193   | Oct 2021   | 1.813   | Nov 2022   | 1.462        | Oct 2023   | -           |            | 1.462         | Continuing       | Continuing | Continuing               |
| Operations Engineering - Unit Personnel, Control System Improvement Sustaining Support (CCDC)    | MIPR                   | DOD - USA - COMBAT CAPABILITIES DEVELOPMENT COMMAND (CCDC) AVIATION AND MISSILE CENTER (AVMC) : VARIOUS | 5.608       | 3.467   | Oct 2021   | 4.622   | Nov 2022   | 3.860        | Oct 2023   | -           |            | 3.860         | Continuing       | Continuing | Continuing               |
| Operations Engineering - Unit Personnel, Control System Improvement Sustaining Support (NG)      | C/CPAF                 | NORTHROP GRUMMAN : CO   | 9.100       | 4.466   | Oct 2021   | 3.383   | Nov 2022   | 6.264        | Oct 2023   | -           |            | 6.264         | Continuing       | Continuing | Continuing               |
| Operations Engineering - Unit Personnel, Control System Improvement Sustaining Support (Various) | MIPR                   | Various : Various   | 12.022      | 3.244   | Oct 2021   | 4.090   | Nov 2022   | 8.275        | Oct 2023   | -           |            | 8.275         | Continuing       | Continuing | Continuing               |
| Operations Engineering - Unit Personnel, Control System Improvement, Sustaining Support (LM)     | SS/CPFF                | LOCKHEED MARTIN CORPORATION : AL  | 684.122     | 90.448  | Dec 2021   | 96.698  | Dec 2022   | 97.804       | Nov 2023   | -           |            | 97.804        | Continuing       | Continuing | Continuing               |
| Concurrent Test, Training, and Operations (CTTO) - All Prior Years                               | Various                | Various : Various   | 8.443       | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 8.443      | 4.610                    |
| Concurrent Test, Training, and Operations (CTTO) -   | C/CPFF                 | BLUEHALO : AL   | 11.132      | 2.639   | Dec 2021   | 3.129   | Dec 2022   | 3.802        | Dec 2023   | -           |            | 3.802         | Continuing       | Continuing | Continuing               |

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|---|--|--|--|---|--|--|--|--|--|--|-------------------------|--|--|--|--|
| <b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2024 Missile Defense Agency</b> |  |  |  |   |  |  |  |  |  |  | <b>Date:</b> March 2023 |  |  |  |  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                    |  |  |  | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> |  |  |  | <b>Project (Number/Name)</b><br>MX01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC) Development Support</i> |  |  |                         |  |  |  |  |

| <b>Product Development (\$ in Millions)</b>  |                                   |  |                    | <b>FY 2022</b> |                   | <b>FY 2023</b> |                   | <b>FY 2024 Base</b> |                   | <b>FY 2024 OCO</b> |                   | <b>FY 2024 Total</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>          | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |
| Training Enhancements (Blue Halo)  |                                   |  |                    |                |                   |                |                   |                     |                   |                    |                   |                      |                         |                   |                                 |
| Concurrent Test, Training, and Operations (CTTO) - Training Enhancements (CCDC)      | MIPR                              | DOD - USA - COMBAT CAPABILITIES DEVELOPMENT COMMAND (CCDC) AVIATION AND MISSILE CENTER (AVMC) : AL | 16.704             | 3.959          | Dec 2021          | 4.694          | Dec 2022          | 5.705               | Dec 2023          | -                  |                   | 5.705                | Continuing              | Continuing        | Continuing                      |
| Concurrent Test, Training, and Operations (CTTO) - Training Enhancements (LM)        | SS/CPFF                           | LOCKHEED MARTIN CORPORATION : VARIOUS  | 135.062            | 7.095          | Dec 2021          | 8.294          | Dec 2022          | 5.747               | Dec 2023          | -                  |                   | 5.747                | Continuing              | Continuing        | Continuing                      |
| Concurrent Test, Training, and Operations (CTTO) - Training Enhancements (Sonalysts) | SS/CPFF                           | SONALYSTS, INC. : CT   | 15.775             | 3.264          | Dec 2021          | 2.707          | Dec 2022          | 3.085               | Dec 2023          | -                  |                   | 3.085                | Continuing              | Continuing        | Continuing                      |
| <b>Subtotal</b>  |                                   |  | 966.824            | 121.585        |                   | 131.277        |                   | 138.026             |                   | -                  |                   | 138.026              | Continuing              | Continuing        | N/A                             |

**Remarks**  
In accordance with the Financial Management Regulation cost category definitions, contract support services have transferred to appropriate cost categories.

| <b>Support (\$ in Millions)</b> |                                   |   |                    | <b>FY 2022</b> |                   | <b>FY 2023</b> |                   | <b>FY 2024 Base</b> |                   | <b>FY 2024 OCO</b> |                   | <b>FY 2024 Total</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>          | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |
| <b>Subtotal</b>                 |                                   |   | -                  | -              |                   | -              |                   | -                   |                   | -                  |                   | -                    | -                       | -                 | N/A                             |

**Remarks**  
N/A

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|---|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <b>Exhibit R-3, RDT&amp;E Project Cost Analysis: PB 2024 Missile Defense Agency</b> |  |  |  |  |  |  |  |  |  |  | <b>Date:</b> March 2023  |  |  |  |  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                    |  |  |  |  |  | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Co<br/>mmand and Control, Battle Management &amp;<br/>Communication</i> |  |  |  |  | <b>Project (Number/Name)</b><br>MX01 / <i>Command &amp; Control, Battle<br/>Management, Communications (C2BMC)<br/>Development Support</i> |  |  |  |  |

| <b>Test and Evaluation (\$ in Millions)</b> |                        |                                |             | FY 2022 |            | FY 2023 |            | FY 2024 Base |            | FY 2024 OCO |            | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                          | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| <b>Subtotal</b>                             |                        |                                | -           | -       | -          | -       | -          | -            | -          | -           | -          | -             | -                | -          | N/A                      |

**Remarks**  
N/A

| <b>Management Services (\$ in Millions)</b>                  |                        |  |             | FY 2022 |            | FY 2023 |            | FY 2024 Base |            | FY 2024 OCO |            | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|--|------------------------|--|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item   | Contract Method & Type | Performing Activity & Location             | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| Operations Engineering - Contract Support Services - Parsons | MIPR                   | PARSONS GOVERNMENT SERVICES INC. : VARIOUS | 4.938       | 0.609   | Oct 2021   | 0.626   | Nov 2022   | 0.639        | Oct 2023   | -           |            | 0.639         | Continuing       | Continuing | Continuing               |
| <b>Subtotal</b>  |                        |  | 4.938       | 0.609   |            | 0.626   |            | 0.639        |            | -           |            | 0.639         | Continuing       | Continuing | N/A                      |

**Remarks**  
N/A

|                            | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
| <b>Project Cost Totals</b> | 971.762     | 122.194 | 131.903 | 138.665      | -           | 138.665       | Continuing       | Continuing | N/A                      |

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

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

|  |   |  |
|--|---|--|
| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MX01 / <i>Command &amp; Control, Battle Management, Communications (C2BMC) Development Support</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 ◇  |         |         |         |         |         |         |         |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>FY 2022</th> <th>FY 2023</th> <th>FY 2024</th> <th>FY 2025</th> <th>FY 2026</th> <th>FY 2027</th> <th>FY 2028</th> </tr> </thead> <tbody> <tr> <td>MX01 Command &amp; Control, Battle Management, Communications (C2BMC) Development Support Planned</td> <td>◇</td><td>◇</td><td>◇</td><td>◇</td><td>◇</td><td>◇</td><td>◇</td> </tr> <tr> <td>MX01 Incremental Engineering Technical Reviews (IETR) Planned</td> <td>◇</td><td>◇</td><td>◇</td><td>◇</td><td>◇</td><td>◇</td><td>◇</td> </tr> </tbody> </table> |                               |                         |                              |                     |         | FY 2022 | FY 2023 | FY 2024 | FY 2025 | FY 2026 | FY 2027 | FY 2028 | MX01 Command & Control, Battle Management, Communications (C2BMC) Development Support Planned | ◇ | ◇ | ◇ | ◇ | ◇ | ◇ | ◇ | MX01 Incremental Engineering Technical Reviews (IETR) Planned | ◇ | ◇ | ◇ | ◇ | ◇ | ◇ | ◇ |
|   | FY 2022                       | FY 2023                 | FY 2024                      | FY 2025             | FY 2026 | FY 2027 | FY 2028 |         |         |         |         |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| MX01 Command & Control, Battle Management, Communications (C2BMC) Development Support Planned   | ◇                             | ◇                       | ◇                            | ◇                   | ◇       | ◇       | ◇       |         |         |         |         |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| MX01 Incremental Engineering Technical Reviews (IETR) Planned   | ◇                             | ◇                       | ◇                            | ◇                   | ◇       | ◇       | ◇       |         |         |         |         |         |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |

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|---|--|--|
| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Missile Defense Agency |  | <b>Date:</b> March 2023  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Co<br/>mmand and Control, Battle Management &amp;<br/>Communication</i> | <b>Project (Number/Name)</b><br>MX01 / <i>Command &amp; Control, Battle<br/>Management, Communications (C2BMC)<br/>Development Support</i> |

Schedule Details

| Events  | Start   |      | End     |      |
|---|---------|------|---------|------|
|   | Quarter | Year | Quarter | Year |
| MX01 Command & Control, Battle Management, Communications (C2BMC) Development Support Planned | 1       | 2022 | 4       | 2028 |
| MX01 Incremental Engineering Technical Reviews (IETR) Planned                                 | 2       | 2022 | 4       | 2028 |

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|  |                    |                |                |                     |   |                      |                |                |  |                         |                         |                   |
|--|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|--|-------------------------|-------------------------|-------------------|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Missile Defense Agency |                    |                |                |                     |   |                      |                |                |  | <b>Date:</b> March 2023 |                         |                   |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                     |                    |                |                |                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> |                      |                |                | <b>Project (Number/Name)</b><br>MD40 / <i>Program-Wide Support</i> |                         |                         |                   |
| <b>COST (\$ in Millions)</b>   | <b>Prior Years</b> | <b>FY 2022</b> | <b>FY 2023</b> | <b>FY 2024 Base</b> | <b>FY 2024 OCO</b>  | <b>FY 2024 Total</b> | <b>FY 2025</b> | <b>FY 2026</b> | <b>FY 2027</b>   | <b>FY 2028</b>          | <b>Cost To Complete</b> | <b>Total Cost</b> |
| MD40: <i>Program-Wide Support</i>  | 194.053            | 22.266         | 21.401         | 19.009              | -   | 19.009               | 19.174         | 21.200         | 22.567   | 25.119                  | Continuing              | Continuing        |
| Quantity of RDT&E Articles   | -                  | -              | -              | -                   | -   | -                    | -              | -              | -  | -                       |                         |                   |

**Note**

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

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

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

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

|   | <b>FY 2022</b> | <b>FY 2023</b> | <b>FY 2024</b> |
|---|----------------|----------------|----------------|
| <b>Title:</b> Program Wide Support  | 22.266         | 21.401         | 19.009         |
| <b>Articles:</b>  | -              | -              | -              |
| <b>Description:</b> PWS contains non-headquarters management costs in support of MDA functions and activities across the entire Missile Defense System. These functions include Government Civilians and Contract Support Services. This effort provides integrity and oversight of the Missile Defense System as well as supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes personnel to support global deployments performing deployment site preparation and activation, and provides facility capabilities for MDA Executing Agent locations worldwide. Other MDA wide costs include: physical and technical security; civilian drug testing; audit readiness; the Science, Technology, Engineering, and Mathematics (STEM) program; legal services and settlements; travel and agency training; office, equipment, vehicle, and warehouse leases; utilities and base operations across multiple geographic locations; commercial and ancillary facility services; management of all facility aspects regardless of lifecycle stage; supplies and maintenance; compliance with |                |                |                |

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|--|---|--|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Missile Defense Agency |   | <b>Date:</b> March 2023  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</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 2022</b> | <b>FY 2023</b> | <b>FY 2024</b> |
|---|----------------|----------------|----------------|
| <p>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.</p> <p><b>FY 2023 Plans:</b><br/>- SEE ABOVE.</p> <p><b>FY 2024 Plans:</b><br/>- SEE ABOVE.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b><br/>N/A</p> |                |                |                |
| <b>Accomplishments/Planned Programs Subtotals</b>   | 22.266         | 21.401         | 19.009         |

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

N/A

**Remarks**

**D. Acquisition Strategy**

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

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

|  |   |  |
|--|---|--|
| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MD40 / <i>Program-Wide Support</i> |
|--|---|--|

| <b>Product Development (\$ in Millions)</b> |                        |                                |             | FY 2022 |            | FY 2023 |            | FY 2024 Base |            | FY 2024 OCO |            | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                          | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| <b>Subtotal</b>                             |                        |                                | -           | -       | -          | -       | -          | -            | -          | -           | -          | -             | -                | -          | N/A                      |

**Remarks**

N/A

| <b>Support (\$ in Millions)</b>   |                        |                                 |             | FY 2022 |            | FY 2023 |            | FY 2024 Base |            | FY 2024 OCO |            | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|---------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item  | Contract Method & Type | Performing Activity & Location  | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| Program Wide Support - Agency Operations Management   | Various                | Various : Multi: AL, CA, CO, VA | 6.277       | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 6.277            | 12.554     | 0.000                    |
| Program Wide Support - Agency Operations Travel   | Various                | Various : Various               | 0.000       | 0.536   | Oct 2021   | 0.496   | Oct 2022   | 1.158        | Oct 2023   | -           |            | 1.158         | Continuing       | Continuing | Continuing               |
| Program Wide Support - Agency Operations and Support Services Civilian Salaries, Travel, Training | Allot                  | MDA : AL                        | 89.094      | 17.048  | Oct 2021   | 17.537  | Oct 2022   | 17.578       | Oct 2023   | -           |            | 17.578        | Continuing       | Continuing | Continuing               |
| Program Wide Support - Prior year no longer funded in the FYDP                                    | Various                | Various : Various               | 52.036      | 0.000   |            | 0.000   |            | 0.000        |            | -           |            | 0.000         | 0.000            | 52.036     | 0.000                    |
| <b>Subtotal</b>   |                        |                                 | 147.407     | 17.584  |            | 18.033  |            | 18.736       |            | -           |            | 18.736        | Continuing       | Continuing | N/A                      |

**Remarks**

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

| <b>Test and Evaluation (\$ in Millions)</b> |                        |                                |             | FY 2022 |            | FY 2023 |            | FY 2024 Base |            | FY 2024 OCO |            | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                          | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| <b>Subtotal</b>                             |                        |                                | -           | -       |            | -       |            | -            |            | -           |            | -             | -                | -          | N/A                      |

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

|  |   |  |
|--|---|--|
| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MD40 / <i>Program-Wide Support</i> |
|--|---|--|

| <b>Test and Evaluation (\$ in Millions)</b> |                        |                                |             | FY 2022 |            | FY 2023 |            | FY 2024 Base |            | FY 2024 OCO |            | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item                          | Contract Method & Type | Performing Activity & Location | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |

**Remarks**  
N/A

| <b>Management Services (\$ in Millions)</b>                         |                        |   |             | FY 2022 |            | FY 2023 |            | FY 2024 Base |            | FY 2024 OCO |            | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|---|------------------------|---|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item  | Contract Method & Type | Performing Activity & Location          | Prior Years | Cost    | Award Date | Cost    | Award Date | Cost         | Award Date | Cost        | Award Date | Cost          |                  |            |                          |
| Program Wide Support - Agency Operations and Support Services       | C/CPFF                 | NETWORK MANAGEMENT RESOURCES, INC. : AL | 23.087      | 4.146   | Jul 2022   | 2.870   | Jul 2023   | 0.000        |            | -           |            | 0.000         | Continuing       | Continuing | Continuing               |
| Program Wide Support - Agency Operations and Support Services (FFP) | C/CPFF                 | Veterans Technology, LLC : AL           | 23.559      | 0.536   | Nov 2021   | 0.498   | Nov 2022   | 0.273        | Nov 2023   | -           |            | 0.273         | Continuing       | Continuing | Continuing               |
| <b>Subtotal</b>   |                        |   | 46.646      | 4.682   |            | 3.368   |            | 0.273        |            | -           |            | 0.273         | Continuing       | Continuing | N/A                      |

**Remarks**  
N/A

|                            | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-------------|---------|---------|--------------|-------------|---------------|------------------|------------|--------------------------|
| <b>Project Cost Totals</b> | 194.053     | 22.266  | 21.401  | 19.009       | -           | 19.009        | Continuing       | Continuing | N/A                      |

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

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

|  |   |  |
|--|---|--|
| <b>Appropriation/Budget Activity</b><br>0400 / 4 | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i> | <b>Project (Number/Name)</b><br>MD40 / <i>Program-Wide Support</i> |
|--|---|--|

|                              |                               |                         |                              |                     |         |         |         |         |         |
|------------------------------|-------------------------------|-------------------------|------------------------------|---------------------|---------|---------|---------|---------|---------|
| Significant Event Complete ▲ | Milestone Decision Complete ★ | Element Test Complete ◆ | System Level Test Complete ● | Complete Activity ◆ |         |         |         |         |         |
| Significant Event Planned △  | Milestone Decision Planned ☆  | Element Test Planned ◇  | System Level Test Planned ○  | Planned Activity ◇  |         |         |         |         |         |
|                              |                               |                         | FY 2022                      | FY 2023             | FY 2024 | FY 2025 | FY 2026 | FY 2027 | FY 2028 |
| MD40 Program-Wide Support    |                               |                         | ◇                            | ◇                   | ◇       | ◇       | ◇       | ◇       | ◇       |

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|   |  |  |
|---|--|--|
| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Missile Defense Agency |  | <b>Date:</b> March 2023  |
| <b>Appropriation/Budget Activity</b><br>0400 / 4                                | <b>R-1 Program Element (Number/Name)</b><br>PE 0603896C / <i>Ballistic Missile Defense Co<br/>mmand and Control, Battle Management &amp;<br/>Communication</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       | 2022 | 4       | 2028 |