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

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603892C / <i>AEGIS BMD</i>
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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	5,818.908	628.014	595.572	693.727	-	693.727	639.678	706.974	699.611	733.909	Continuing	Continuing
MD09: <i>Aegis BMD</i>	3,680.053	336.371	344.810	446.480	-	446.480	354.561	332.425	328.853	368.774	Continuing	Continuing
MM09: <i>Aegis BMD SM-3 Development</i>	849.412	119.798	85.633	42.323	-	42.323	78.754	151.302	129.335	117.755	Continuing	Continuing
MC09: <i>Cyber Operations</i>	45.948	3.661	4.431	5.972	-	5.972	6.236	6.263	6.430	6.602	Continuing	Continuing
MX09: <i>Aegis BMD Development Support</i>	837.174	136.589	138.909	173.105	-	173.105	177.638	188.903	207.636	212.658	Continuing	Continuing
MD40: <i>Program-Wide Support</i>	406.321	31.595	21.789	25.847	-	25.847	22.489	28.081	27.357	28.120	Continuing	Continuing

Program MDAP/MAIS Code: 362

Note

Increase from FY 2023 to FY 2024 provides for Technology maturation and prototyping for Army/Navy Surface Radar Surveillance and Control (AN/SPY)-1 Digital Receive Upgrade (DRU) (formerly Digital Low Noise Amplifier (dLNA)); additional Guam Defense Weapon System Development activities in support of the Guam Architecture and Milestone schedule; increased development, testing and certification of BMD 6.0.1 development to include additional raid evaluation capability and performance improvements for larger Integrated Air and Missile Defense (IAMD) scenarios; Model Based System Engineering computing needs for Aegis BMD baseline development as well as expansion of prototyping and development of Electronic Protection mitigations to address the advancing threat; and software upgrades for Standard Missile (SM)-3 (SM-3) Block IB Radio Frequency Links missile enhancement in conjunction with the Aegis Weapon System (AWS).

A. Mission Description and Budget Item Justification

The Sea-Based Weapon Systems mission is to deliver an enduring, operationally effective and supportable BMD capability to defend the nation, deployed forces, friends and allies, and to increase this capability by delivering evolutionary improvements as part of Missile Defense System upgrades. The Sea-Based Weapon Systems element of the Missile Defense System capitalizes upon and evolves from the existing U.S. Navy AWS and SM infrastructures. Sea-Based Weapon Systems provides a forward-deployable, mobile capability to detect and track Ballistic Missiles of all ranges, and the ability to destroy Short-Range Ballistic Missiles, Medium-Range Ballistic Missiles, and Intermediate-Range Ballistic Missiles in the midcourse phase of flight, and shorter range missiles in the terminal phase of flight. Sea-Based Weapon Systems also provides a Long Range Surveillance and Track capability to the Missile Defense System. Upgrades to both the Aegis BMD Weapon System and the SM-3 configuration enable Sea-Based Weapon Systems to provide effective, supportable defensive capability against longer range, threats and an enduring Aegis Ashore defensive capability.

This Program Element also provides the development of the Aegis Weapon System Software configuration for the Aegis portion of the Defense of Guam, including capabilities for defense against advanced ballistic threats and integration of Land Based Radar configuration.

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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0603892C / <i>AEGIS BMD</i>
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This Program Element includes Missile Defense System threat discrimination improvements, which will enhance Missile Defense System effectiveness against the evolving adversary threat. The result will be a Missile Defense System architecture more capable of discriminating and destroying reentry vehicles with a higher degree of confidence, improving Warfighter shot doctrine, and more efficiently using interceptor inventory. Missile Defense System threat discrimination improvements are funded from the Enabling (0603890C), Midcourse (0603882C), BMD Sensors (0603884C), Command and Control, Battle Management, and Communications (0603896C), and Aegis BMD (0603892C) PEs.

B. Program Change Summary (\$ in Millions)	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
Previous President's Budget	639.549	600.072	658.798	-	658.798
Current President's Budget	628.014	595.572	693.727	-	693.727
Total Adjustments	-11.535	-4.500	34.929	-	34.929
• Congressional General Reductions	0.000	-1.000			
• Congressional Directed Reductions	0.000	-9.500			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	6.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-11.535	0.000			
• Other Adjustment	0.000	0.000	34.929	-	34.929

Change Summary Explanation

FY 2023 Congressional Add of \$6.0 million in Project MD09 Aegis BMD for Lightweight telescope for advanced AEGIS interceptor.

FY 2023 Congressional Directed Reductions Total \$9.5 million:

Project: MD09 Aegis BMD for Program growth (\$5.429 million)

Project: MX09 AEGIS BMD Development Support for Program growth (\$2.571 million) and Program operation growth (\$1.5 million)

Increase in FY 2024 provides additional funding to support Guam architecture and timelines.

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Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MD09 / Aegis BMD			
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
MD09: <i>Aegis BMD</i>	3,680.053	336.371	344.810	446.480	-	446.480	354.561	332.425	328.853	368.774	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

The Increase from FY 2023 to FY 2024 provides the following:

- Aegis BMD 5.x Development: Increased technology maturation and prototyping support for Army/Navy Surface Radar Surveillance and Control (AN/SPY)-1 Digital Receive Upgrade (DRU) (formerly Digital Low Noise Amplifier (dLNA))
- Guam Defense Aegis BMD Development: Increased weapon system development activities in support of the Guam Architecture and Milestone schedule.
- Aegis BMD 6.x Development: Additional development, testing and certification of BMD 6.0.1 development to include additional raid evaluation capability and performance improvements for larger Integrated Air and Missile Defense (IAMD) scenarios.
- Aegis Ballistic Missile Defense Technology and design Model Based Systems Engineering computing needs for Aegis BMD baseline development as well as expansion of prototyping and development of Electronic Protection mitigations to address the advancing threat.
- RF Link Improvements: Continued software upgrades for Standard Missile (SM)-3 (SM-3) Block IB Radio Frequency (RF) Links missile enhancement in conjunction with the Aegis Weapon System (AWS).

A. Mission Description and Budget Item Justification

Sea-Based Weapon Systems continues development of a Sea-Based BMD capability in support of the Missile Defense Agency's (MDA's) mission to protect the homeland, deployed forces, friends and allies from ballistic missile threats of all ranges and in all stages of flight.

Systems Engineering & Integration performs requirements development, engineering analysis, capability integration, and performance verification for Aegis BMD development and Missile Defense System integration.

Aegis BMD Technology Design and Insertion enables cross-baseline specification management and capability assessments to ensure consistent application of technical standards, processes, and procedures across the Aegis BMD program. Aegis BMD specific efforts include: systems engineering and architecture (process and execution); modeling and simulation (M&S); Verification and Validation (V&V) test and evaluation support; ship integration; quality; safety and mission assurance M&S. V&V efforts in this accomplishment are performed at the Aegis BMD element level, which feed into the overall Missile Defense System level.

Aegis Baseline (BL) 5.4.1 (BMD 4.2) is a joint effort with the U.S. Navy that refurbishes existing ship AN/SPY-1 radar arrays with the installation of antenna Low Noise Amplifiers (LNAs). As a result of cost growth and schedule MDA and Navy jointly realigned the LNA program to include software upgrades only with no LNA hardware procurements. The restructured program referred to as BMD 4.1.3 will develop spiral capability for the non-LNA upgrades beginning in FY 2024 to include SBT Increment 2 Capability Upgrade, Hypersonic Tracking and Reporting, Mission Planner Console update, and Threat Database re-architecture. This capability will deliver to 21 Flight I/II DDGs beginning in FY 2025.

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Aegis BL 9 (BMD 5.1.5) software spiral aligns with U.S. Navy Aegis Baseline 9 Capability Package 2024. The software spiral provides enhanced detection, track, report, and defeat capabilities of additional medium, intermediate, and long-range threats with increasingly complex engagement scenes and increased raid sizes. Through a series of unique Capability Insertion Packages, BMD 5.X capability spirals provide continuous software updates to the original BMD 5.1.0 architecture to incorporate emerging Missile Defense System capabilities, War fighter improvements, SM-3 software updates, and improved Weapon System performance necessary to pace the threat. Aegis BL 9 (BMD 5.1.5) software spiral includes support for AN/SPY-1 Radar sensitivity improvements, technology maturation, and prototyping that will demonstrate enhanced Missile Defense tracking performance against longer range and more sophisticated threats in challenging and complex environments.

Aegis BL 10 (BMD 6.0 and BMD 6.0.1) incorporates the solid state Air and Missile Defense Radar (AMDR), now designated AN/SPY-6(v)1, for introduction on the first Flight III DDG. Aegis BL 10 (BMD 6.0) will provide deployed assets enhanced IAMD capability, while enabling Missile Defense System element utilization of SPY-6 data for remote engagement. Enhancements include significant improvements in Integrated Air and Missile Defense (IAMD) planning, search, track, discrimination and force level (multi-asset) raid defense. Aegis BL 10 (BMD 6.0) will enable U.S. Navy ships to maintain greater stand-off range while increasing performance against complex threats. Aegis BL 10.1 (BMD 6.0.1) provides the next software spiral for capability and performance improvements to IAMD and raid defense.

This Program Element also provides the development of the Aegis Weapon System Software configuration for the Aegis portion of the Defense of Guam, including capabilities for defense against advanced ballistic threats and integration of the Land Based Radar configuration.

M&S Objective Simulation Framework (OSF) effort develops, maintains and deploys the framework hardware and software for use at element laboratories and Combatant Command (CCMD) locations to support Integrated Master Test Plan (IMTP) events, Missile Defense System capability delivery assessments, War fighter training, exercises, and wargames.

M&S Missile Defense System Simulations & Tools effort provides development and sustainment of digital products and the architecture framework, and delivery/maintenance of infrastructure for Missile Defense System performance assessments.

Missile Defense System Assessment and Verification, Validation & Assessment (VV&A) includes activities to support Missile Defense System Operational Capability Baseline (OCB) delivery decisions and Technical Capability Declarations, and anchor System M&S.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
<p>Title: Systems Engineering & Integration</p> <p align="right">Articles:</p> <p>Description: Perform requirements development, engineering analysis, capability integration, and performance verification for Aegis BMD development and Missile Defense System integration, including Aegis BMD compliance with the Missile Defense System Specification and Missile Defense System Description Document.</p> <p>Recurring Accomplishments:</p> <ul style="list-style-type: none"> - Conduct system level performance analyses to support ongoing Missile Defense System Architecture and Systems Engineering efforts 	<p>20.788</p> <p align="center">-</p>	<p>19.818</p> <p align="center">-</p>	<p>20.430</p> <p align="center">-</p>

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Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD09 / Aegis BMD		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2022	FY 2023	FY 2024	
<ul style="list-style-type: none"> - Perform top-down system level engineering analysis, capability integration, and performance verification for Aegis BMD development and Missile Defense System integration, including Aegis BMD compliance with the Missile Defense System Specification and Missile Defense System Description Document - Identify architecture alternatives that improve the Missile Defense System's performance and are complementary to and interoperable with NATO systems and theaters around the world - Define Missile Defense System technical content expectations and develop system requirements, to include integration of new capabilities - Develop functional performance, interface, and design suitability requirements in collaboration with Aegis BMD engineers to ensure correct flow-down and allocation of Missile Defense System-level requirements to Aegis BMD - Respond to Warfighter, Combatant Command and other requests for analyses and requests for information; provide analytical support for real-world events - Conduct non-advocate assessments of Missile Defense System capabilities and limitations prior to capability delivery decisions to determine fielding readiness (including Theater/Regional BMD) - Conduct extensive analysis of data collected in Missile Defense System test events to evaluate overall System operations and performance <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2023 Plans: - SEE ABOVE.</p> <p>FY 2024 Plans: - SEE ABOVE.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>					
Title: Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion		53.329	55.345	59.535	
		Articles: -	-	-	
<p>Description: Aegis BMD Core System Engineering enables cross-baseline specification management and capability assessments to ensure consistent application of technical standards, processes, and procedures across the Aegis BMD program. Aegis BMD specific efforts include: systems engineering and architecture (process and execution), M&S, V&V, test and evaluation support, and ship integration. M&S V&V efforts in this accomplishment are performed at the Aegis BMD element level, which feed into the overall Missile Defense System level.</p> <p>Recurring Accomplishments:</p> <ul style="list-style-type: none"> - Conduct U.S. Navy and Joint Link certifications required for Baseline certifications for operational deployment 					

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Support Ground Test Campaign for Missile Defense System to achieve OCB declaration - Execute V&V activities and provide results to MDA System Verification Team and the Operational Test Agency (OTA) in support of System-level accreditation for Ballistic Missile Defense System (BMDS) events - Provide M&S Requirements Management and Development - Conduct further development of Aegis BMD System Architecture and overarching system concepts - Conduct Missile Defense System level requirements allocation and Aegis BMD system requirements development, trace, validation and verification, and configuration management for coordination with all participating external agencies and organizations - Perform Command, Control, Computer, Communications and Intelligence (C4I) systems engineering to further develop Aegis BMD requirements, and to identify and resolve Missile Defense System interoperability issues - Define and coordinate development and implementation of C4I capabilities in U.S. Navy C4I programs of record to meet Aegis BMD requirements - Conduct Threat Engineering analysis and Requirements Assessment - Conduct Systems Engineering for Aegis BMD system-level M&S development and interfaces to the Missile Defense System architecture - Provide verified, validated, accredited models in support of U.S. Navy certification, MDA characterization of system-level performance, OTA assessment of operational capabilities, and representation of Aegis BMD capabilities in Missile Defense System test and exercise venues - Provide target engineering, test planning activities, and IMTP process/inputs for Aegis BMD - Conduct Performance Assessment and Verification processes which assess the sufficiency of Objective Quality Evidence (OQE) to provide a traceable evidence to verify Element Specification requirements traced to Missile Defense System requirements - Provide oversight of all Aegis BMD analysis in support of systems assessment and verification supporting test and analysis requirements and test planning inputs to align with MDA and U.S. Navy test programs - Provide consolidated analysis and reporting for firing events <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Continue providing residual capability analysis of deployed Aegis Ballistic Missile Defense Systems and SM-3 versus threats not covered in design requirements, specifically to improve response time to Combatant Command (COCOM) and Fleet requests for analysis - Integrate and improve threat data development tools with Prime contractor M&S - Maintain and expand dedicated analysis work force to support large-scale global analysis case matrix execution - Expand infrastructure to support large data library of performance analysis for read access upon request by COCOM and the Fleet while maximizing use of tactical code 			

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Develop and deploy Artificial Intelligence/Machine Learning (AI/ML) tools in a swarm learning environment to manage M&S input parameters and post-processing of large data sets - Continue Combat System Test Bed (CSTB) IAMD capability integration for M&S planning and VV&A of SM-3 Block IIA, SM-3 Block IB and SM-6 missile models using Aegis BMD 5.x performance assessment as risk reduction for Aegis BMD 6.x efforts - Fabricate and test the advanced telescope assembly and compare with SM-3 baseline program capabilities to inform the program on capability roadmap improvements against advanced threats. - Congressional add: Lightweight telescope for advanced AEGIS interceptor (\$6.0 million). <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Provide Digital Engineering improvements to ensure access to cloud based high-speed network communications, data, and tools for increased collaboration, analysis support, and fidelity across the development, analysis, test, and systems engineering efforts - Begin transitioning baseline development from current methodologies to Digital Engineering (Model Based Systems Engineering and AI/ML) practices - Continue providing residual capability analysis of deployed Aegis BMDS and SM-3 versus threats not covered in design requirements, specifically to improve response time to COCOM and Fleet requests for analysis - Expand prototyping and development of Electronic Protection mitigations; includes models and simulation development to support testing activities - Conduct studies for parametric threat space expansion based upon the updated Homeland Defense Ballistic Missile Threat Space for Aegis BMD engagements - Develop Feature Aided Track Correlation capability to support Interceptors ability to address complex threats - Investigate AI/ML feature extraction and new sensor architectures - Integrate and improve threat data development tools with Prime contractor M&S - Maintain and expand dedicated analysis workforce to support large-scale global analysis case matrix execution - Expand infrastructure to support large data library of performance analysis for read access upon request by COCOM and the Fleet while maximizing use of tactical code - Continue CSTB IAMD capability integration for M&S planning and VV&A of SM-3 Block IIA, SM-3 Block IB and SM-6 missile models using Aegis BMD 5.x performance assessment as risk reduction for Aegis BMD 6.x efforts <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase from FY 2023 to FY 2024 provides Model Based Systems Engineering computing needs for Aegis BMD baseline development as well as expansion of prototyping and development of Electronic Protection mitigations to address the advancing threat.</p>			
<p>Title: Aegis BMD 4.x Development</p> <p align="right">Articles:</p>	54.633 -	26.199 -	28.093 -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
<p>Description: Aegis Baseline 5.4.0 (BMD 4.1.2) incorporates the BMD 5.0 Capability Upgrade of European Phased Adaptive Approach (EPAA) Phase II Endo-atmospheric/Exo-atmospheric (ENDO/EXO) requirements including EPAA Phase II EXO threats, integration of the SM-3 Block IB Threat Upgrade, and reintroduction of other Aegis capabilities integrated with the SM-6 Dual I (ENDO only). It provides Aegis Modernization capabilities comparable to the BMD 4.0 ships with legacy computer processing architecture. BMD 4.1.3 will develop spiral capability for the non-LNA upgrades beginning in FY 2024 to include SBT Increment 2 Capability Upgrade, Hypersonic Tracking and Reporting, Mission Planner Console update, and Threat Database re-architecture. This capability will deliver to 21 Flight I/II DDGs beginning in FY 2025.</p> <p>Recurring Accomplishments:</p> <ul style="list-style-type: none"> - Update Critical Item Development (CIDS), Interface Description Specifications (IDS) and all supporting engineering documents and plans - Conduct design studies and concepts supporting development and integration - Conduct Aegis BMD performance analysis supporting In-Process Reviews (IPR) - Participate in program leadership and technical forums including Program Management Team, System Engineering Team, and Cross Product Teams for Integration and Test, M&S, Test, Evaluation & Certification, and Fleet Integration and Design - Provide Weapon System updates to include MIL-SPEC UYK-43, Commercial Off-The-Shelf (COTS) BMD Signal Processor, and COTS adjunct processor updates - MDA / U.S. Navy co-funded effort to provide BMD capability on Flight I/II DDGs <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2023 Plans: For Aegis Baseline 5.4.1 (BMD 4.2) with LNA:</p> <ul style="list-style-type: none"> - Begin system Integration Testing at Surface Combat System Center, Wallops Island - Continue prototype Install on first ship to finalize Ship Change Notice development in support of future ship installs in preparation of At-Sea testing and tracking event - Develop final baseline updates , Engineering Test and Evaluation, and Multi-Element Integration and Test with regression testing to support: <ul style="list-style-type: none"> - AEGIS BL 5.4.1 Engineering Evaluation - AEGIS BL 5.4.1 (BMD 4.2) Engineering Assessment (EA) - Continue increased threat sensitivity runs in MEDUSA to account for new additional threats - Complete the incorporation of new baseline requirements as a result of an FY 2020 System Requirements Review (SRR) <p>FY 2024 Plans: Begin development of Aegis Baseline 5.4.X (BMD 4.1.3):</p> <ul style="list-style-type: none"> - Conduct In Process Review to establish baseline schedule and development plans. 			

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Initiate system development and testing. - Begin Ship Change Document (SCD) updates. <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>			
<p>Title: Aegis BMD 5.x Development</p> <p align="right">Articles:</p> <p>Description: In alignment with U.S. Navy Aegis Baseline 9 Capability Packages (2022 and 2024), Aegis BMD 5.X will develop a series of unique Capability Insertion Packages (CIP) and AN/SPY-1 Radar sensitivity technology maturation and prototyping that expand detection, track, report, and defeat capabilities of emerging threat systems with increasingly complex engagement scenes and raid sizes. Aegis BMD capability packages are focused towards Aegis Baseline 9 DDGs and Aegis Ashore Missile Defense Systems. Annual capability upgrades are necessary to pace the evolving threat, improve system reliability, and incorporate technological growth.</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2023 Plans: Continues Aegis BMD 5.1.5 (Aligned with Navy Aegis Baseline 9 2024): CIP Includes:</p> <ul style="list-style-type: none"> - Expanded Hypersonic Track and Report (Increment 2): Continues development and delivery of Hypersonic tracking and reporting with Missile Defense System performance requirements - Expanded Aegis BMD Threat Space: Provides integration of additional threats to the Aegis weapon system (aligns with SM-3 Block IIA Build 8.2/8.3 software updates and threat set) - Aegis BMD Warfighter Improvements: Incorporates/Integrates Warfighter feedback through enhancements to existing functionality <p>AN/SPY-1 RADAR sensitivity improvement technology maturation and prototyping of dLNA:</p> <ul style="list-style-type: none"> - Demonstrate improved tracking performance, resource utilization, and performance against longer range and more sophisticated threats through implementation of digital receive technologies <p>Support includes:</p> <ul style="list-style-type: none"> - Maturation of critical RADAR technologies necessary to digitize receive chain of in-service AN/SPY-1 Radar - Procure prototype hardware and assemble prototype array - Develop RADAR calibration techniques 	42.663 -	78.247 -	126.808 -

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
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<p>- Assess System performance against existing and emerging threat systems</p> <p>FY 2024 Plans: Deliver Aegis BMD 5.1.5 (Aligned with Navy Aegis Baseline 9 CP 2024): CIP Includes: Support includes the design, development, integration, and developmental test of BMD 5.1.5 capabilities listed above. FY2022 and FY2023 efforts included development in Technical Insertion 2012 Hybrid (TI-12H) and TI-16 Mod 0 hardware. In coordination with Navy, MDA is adding TI-16 Mod 1 hardware integration with U.S. Navy including updated system operating environment necessary to address cyber requirements. The addition of new hardware architecture and in an effort to maintain alignment with the U.S. Navy CP 2024 schedule, BMD 5.1.5 milestones (with integrated Sea-Based Terminal Increment 3) are adjusted from what was reported in PB23 (see R4).</p> <p>Perform AN/SPY-1 Radar sensitivity improvement technology maturation and prototyping of DRU (formerly dLNA):</p> <ul style="list-style-type: none"> - Conduct software code and test activities - Maturation of critical RADAR technologies necessary to digitize receive chain of in-service AN/SPY-1 Radar to be demonstrated at Preliminary Design Review (PDR) for IPR #3 - Assemble prototype array - RADAR calibration techniques - Conduct near-field testing activities - Commence Multi-element Integration testing - Assessment of System performance against existing and emerging complex threat systems <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase from FY 2023 to FY 2024 provides additional technology maturation and prototyping development for AN/SPY-1 DRU (formerly dLNA) including software test activities, assembling of the prototype array, and near-field testing.</p>			
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<p>Title: Aegis BMD 6.x Development</p> <p align="right">Articles:</p> <p>Description: The U.S. Navy is developing the Advance Capability Build (ACB) 20 CS and the AMDR, now designated SPY-6(V)1, for introduction on the first DDG Flight III. Aegis BMD 6.0 and Aegis BMD 6.0.1 will integrate Aegis BMD 5.1 capability with the ACB 20 Combat System, to include new SPY-6 requirements. Aegis BMD 6.0 and 6.0.1 exploit SPY-6 radar improvement to enhance Engagement and Search and Track capabilities to include discrimination, raid defense and expanded threat space. This will enable Missile Defense System element utilization of AN/SPY-6(V)1 data for remote engagements and will supplement deployed assets with simultaneous multi-mission capabilities (e.g. IAMD). AMDR will support a force-level (multi-asset) approach to raid defense and will enable U.S. Navy ships to have a greater stand-off range from threat environments.</p> <p>Recurring Accomplishments:</p>	85.551	59.954	68.691
	-	-	-

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Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD09 / Aegis BMD

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - CIDS, IDS and all supporting engineering documents and plans - Conduct design studies and concepts supporting development and integration - Conduct Aegis BMD performance analysis supporting IPR - Participate in program leadership and technical forums including Program Management Team, System Engineering Team, and Cross Product Teams for Integration and Test, M&S, Test, Evaluation & Certification, and Fleet Integration and Design - Develop computer program for Aegis BMD 6.0 supporting Software Increment Reviews - MDA/Navy co-funded effort to provide BMD capability on Flight III DDGs - Expanded BMD Tracking and reporting updates <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - Aegis BMD 6.0 software development (Aligned with AEGIS baseline 10.0) <p>Capabilities include:</p> <ul style="list-style-type: none"> - Improved Mission Planner - Provides an Integrated Air and Missile Defense mission planner with increased accuracy, and engagement control functionality - Increased Organic Engagement Capacity - Provides increased ship operating areas by utilizing the increased radar performance of AN/SPY-6(V)1 - Kill Assessment Improvements - Provides improved analysis of intercept to better determine whether the intercept was successful - Increased IAMD Raid Performance - Exploits functionality of AN/SPY-6(V)1 to improve raid performance - BMD Coordinator Submode - Warfighter improvement consolidating all BMD related display functionality under a single submode - Increased IAMD performance with Sea Based Terminal Increment 2 Capability Upgrade - AN/SPY-6(V)1 integration efforts, capability development, and performance analysis with focus shifted to on-ship/at-sea - Aegis BMD 6.0 design, code, test and performance analysis across the BMD Mission area with focus shifted to on-ship/at-sea - Commence baseline certification preparation and mission readiness assessment - Support ship sailaway from building yard, arrival at homeport, and preparation for the start of test and evaluation activities. <p>- Commence Aegis BMD 6.0.1 software development (Aligned with AEGIS baseline 10.1)</p> <p>Capabilities include:</p> <ul style="list-style-type: none"> - BMD Engagement Control - Limit the number of simultaneous BMD engagements and weapons expended - Mobile Platform Planning - Off-ship IAMD plan development and on-ship mission plan import/export - Raid Evaluator - Capability to evaluate against raid and display predicted raid performance for a mission plan solution <p>FY 2024 Plans:</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD09 / Aegis BMD

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
<p>- Aegis BMD 6.0 software development (Aligned with Aegis Baseline 10.0):</p> <ul style="list-style-type: none"> - AN/SPY-6(V)1 and Aegis BMD 6.0 test efforts, defect correction, and performance analysis with focus on-ship/at-sea - Support ship execution of test and evaluation activities leading to Baseline Certification, Flt III and AMDR Initial Operational Capability assessment, and BMD 6.0 Operational Capability Baseline decision. <p>- Aegis BMD 6.0.1 software development (Aligned with AEGIS baseline 10.1) Capabilities include:</p> <ul style="list-style-type: none"> - BMD Engagement Control - Limit the number of simultaneous BMD engagements and weapons expended - Mobile Platform Planning - Off-ship IAMD plan development and on-ship mission plan import/export - Raid Evaluator - Add capability to evaluate against raid and display predicted raid performance for a mission plan solution - Provide additional performance improvements - Incorporate further design updates identified during BMD 6.0 development and provide further performance improvement for larger IAMD scenarios <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase from FY 2023 to FY 2024 provides BMD 6.0 increased development, testing and certification of BMD 6.0.1 development to include additional raid evaluation capability and performance improvements for larger IAMD scenarios.</p>			
<p>Title: Modeling & Simulation Objective Simulation Framework</p> <p align="right">Articles:</p> <p>Description: This effort develops, maintains and deploys the framework hardware and software for use at element laboratories and CCMD locations to support IMTP events, Missile Defense System capability delivery assessments, Warfighter training, exercises, and Wargames.</p> <p>Recurring Accomplishments:</p> <ul style="list-style-type: none"> - Develop and implement OSF upgrades to incorporate advanced tracking, discrimination, engagement and associated upper tier debris mitigation capabilities, as well as other requirements and capabilities to meet MDA's evolving M&S Enterprise needs - Sustain and enhance framework products to maintain capabilities to support stakeholders - Develop plans, procedures and documentation for scheduled events including Wargames and Combatant Command Exercises and the Distributed, Focused and Integrated hardware in the loop (HWIL) Events as presented in the IMTP. Provide event architecture integration and checkout of Wargames for these same IMTP scheduled events - Provide the ground test architecture integration expertise to meet the testing requirements of the IMTP. Support delivery of integrated architectures for test across all test venues using the Missile Defense System test framework to integrate distributed architectures - Develop, maintain, test, field, and operate model representations for use in events and other MDA M&S stakeholder application areas. Deploy hardware and software updates to distributed sites. Perform regular maintenance and critical repairs of hardware and software. 	29.562	34.326	36.285
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Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency	Date: March 2023
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Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD09 / Aegis BMD
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023		FY 2024
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<p>- Control and maintain the M&S Integration and Development Laboratories for Element M&S. Maintain venue for stakeholders to conduct early integration efforts and identification of issues prior to event architecture integration to support system development.</p> <p>- Maintain System-level M&S framework</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2023 Plans: - SEE ABOVE.</p> <p>FY 2024 Plans: - SEE ABOVE.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>				
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<p>Title: M&S BMDS Simulations &Tools</p> <p>Description: This effort includes: development and sustainment of digital products and the architecture framework, and delivery/maintenance of infrastructure for Missile Defense System performance assessments.</p> <p>Recurring Accomplishments:</p> <ul style="list-style-type: none"> - Integrate, test, and verify the M&S enterprise supporting Missile Defense System testing, assessment, exercises, and wargaming, including testing infrastructure. Guide and facilitate integration testing of MDA's M&S frameworks and core truth models, and all M&S components into virtual representations of the Missile Defense System that are credible, affordable, and provide decision makers with the data needed - Integrate, test, functionally qualify, and deliver M&S tools and complex test architectures to provide system test capabilities to support MDA IMTP based test events, wargames, and exercises - Continue the transition of real-time digital simulation capability to the OSF to support Intended Uses - Provide HWIL/M&S Benchmarking/Integration documentation and coordination - Conduct M&S system integration and verification to support M&S system architecture development. Provide developmental integration testing to support M&S system architecture integration <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2023 Plans: - SEE ABOVE.</p> <p>FY 2024 Plans:</p>	Articles:	4.405 -		4.383 -	4.355 -
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Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD09 / Aegis BMD		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2022	FY 2023	FY 2024
- SEE ABOVE.				
FY 2023 to FY 2024 Increase/Decrease Statement: N/A				
Title: BMDS Verification, Validation & Assessment (VV&A)		18.971	19.281	18.491
		Articles:	-	-
<p>Description: This activity includes Missile Defense System Assessment and VV&A activities to support OCB delivery decisions, and anchor System modeling and simulation.</p> <p>Recurring Accomplishments:</p> <ul style="list-style-type: none"> - Verify Missile Defense System performance, and produce verification status reports - Conduct extensive analysis of data collected in System ground and flight test events, instrumental to understanding Missile Defense System operations and performance and anchoring models and simulations - Identify mitigation approaches for Missile Defense System performance issues uncovered during system level analysis and assessment - Maintain M&S VV&A database, and verification data for Missile Defense System Specification Change Notices - Develop, maintain, and update the M&S VV&A tool kit - Provide recommendations for improving assessment confidence, including M&S and testing issue resolutions - Conduct V&V in support of MDA System-level accreditation process in support of Missile Defense System Ground Test and performance assessment events - Conduct specified System-level post-flight reconstructions, element post-flight reconstructions, and pre-mission testing events so as to optimize the body of evidence and analysis supporting system-level Missile Defense System accreditation. <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2023 Plans: - SEE ABOVE.</p> <p>FY 2024 Plans: - SEE ABOVE.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: N/A</p>				
Title: RF Link Improvements		26.469	2.257	3.392
		Articles:	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023		
Appropriation/Budget Activity 0400 / 4		R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD		Project (Number/Name) MD09 / Aegis BMD
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)				FY 2022
<p>Description: Design, develop, and deliver Radio Frequency (RF) Link Security Improvements that implement advance communications between Aegis BMD Weapon System and SM-3 Block IB and IIA missile variants. Product development and implementation will enable missile hardware enhancements in order to achieve the full requisite Missile RF Link Security Improvements. Priority will be on the BL 9 and SM-3 BLK IIA followed by BL 9/10 and SM-3 BLK IB.</p> <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2023 Plans: - Complete final integration and test of RF Link updates between the Aegis BL 9 Weapon System (BMD 5.1.5) and the SM-3 Block IIA Missile</p> <p>FY 2024 Plans: - Additional upgrades to Aegis BMD weapon system(s) and SM-3 BLK IB missile hardware and software to enhance missile-to-ship communications. - Replace Plate 3A (radio) & Computer Processing Unit Circuit Card Assembly with IIA Aegis Data Link to address obsolescence issues.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase from FY 2023 to FY 2024 provides the SM-3 BLK IB RF Links missile enhancement in conjunction with the Aegis Weapon System software upgrade.</p>				FY 2023
				FY 2024
Title: Guam Defense Aegis BMD Development				0.000
				45.000
				80.400
Articles:				-
<p>Description: Develop the Aegis Weapon System Software configuration for land based Defense of Guam (DoG) including capabilities for defense against advanced ballistic threats and integration of the Land Based SPY-7 Radar configuration.</p> <p>FY 2023 Plans: -Define DoG Architecture and develop requirements to support a distributed Aegis network (remote radars, remote launchers) -Conduct platform engineering studies and hardware/software prototyping required for a relocatable array -Develop new weapon system specifications for relocatable array and distributed weapon system/launchers -Conduct element level, as well as Multi-Element level integration testing -Develop Aegis compliance threat space and conduct early performance analysis to optimize Aegis system performance -Design and code new electronic protection techniques that take advantage of solid state radar technologies -Develop Aegis Guam system requirements compliant with Missile Defense System requirements and conduct a system requirements review</p>				-

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD09 / Aegis BMD

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
-Begin design and development of new radar adaptation data, fire control calculation changes to support remote launchers, encrypted communication methods between Aegis Guam System components, and modular Guam Defense System Operations Center components. FY 2024 Plans: - Finalize development of new weapon system specifications and continue development of distributed weapon system with relocatable array and launchers - Complete Aegis Guam system requirements compliant with Missile Defense System requirements and participate in Defense of Guam requirements review - Conduct element level, as well as Multi-Element level integration testing - Continue Aegis compliance threat space and performance analysis to inform requirements development and optimize Aegis Guam System performance - Design and code new electronic protection techniques that take advantage of solid state radar technologies - Continue design and development of new radar adaptation data, fire control calculation changes to support remote launchers, encrypted communication methods between Aegis Guam System components, and modular Guam Defense System Operations Center components. - Develop training plan that optimizes existing capabilities and easily adapted for Lead Service use FY 2023 to FY 2024 Increase/Decrease Statement: The increase from FY 2023 to FY 2024 provides Pacific Deterrence Initiative (PDI) funding increase by \$35.4 million for advanced development of the Aegis Guam System architecture and program milestones and delivery schedules.			
Accomplishments/Planned Programs Subtotals	336.371	344.810	446.480

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0208866C: MD09 <i>Aegis BMD Procurement</i>	334.621	402.235	374.756	-	374.756	372.639	528.486	537.124	550.011	0.000	3,099.872
• 0208866C: MD09: <i>Aegis BMD O&M</i>	77.170	69.071	72.224	-	72.224	85.696	99.209	96.412	93.554	Continuing	Continuing
• 0208866C: MD73: Aegis <i>Ashore Procurement</i>	27.866	30.056	2.390	-	2.390	0.976	0.000	0.000	0.000	0.000	61.288
• 0208866C: MD90: Aegis Hardware <i>and Software Procurement</i>	79.791	78.181	27.825	-	27.825	44.886	28.442	35.485	31.771	Continuing	Continuing

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD09 / Aegis BMD
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603898C: <i>Ballistic Missile</i>	50.261	50.269	48.248	-	48.248	49.164	50.445	51.542	52.859	Continuing	Continuing
<i>Defense Joint Warfighter Support</i>											
• 0604102C: <i>Guam</i>	110.611	393.201	397.578	-	397.578	291.301	272.227	238.348	232.115	Continuing	Continuing
<i>Defense Development</i>											
• 0604878C: <i>Aegis BMD Test</i>	111.206	175.619	193.484	-	193.484	135.473	183.024	203.676	135.080	Continuing	Continuing
• 0604880C: <i>Land</i>	42.156	27.678	22.163	-	22.163	20.479	21.193	21.620	21.736	Continuing	Continuing
<i>Based SM-3 (LBSM3)</i>											

Remarks

D. Acquisition Strategy

The Sea-Based Weapon Systems element acquisition approach supports evolutionary development, continuously building upon demonstrated capabilities to advance overall BMDS capability. After considering all the technical and management aspects of the program and to meet the requirements presented by an evolving ballistic missile threat, the Sea-Based Weapon Systems program awarded sole source contracts to Raytheon and Lockheed Martin to continue development of the SM-3 and the Aegis BMD Weapon System, respectively.

The M&S acquisition strategy utilizes full and open competition to develop, acquire and deliver the integrated architectures/frameworks, as well as develop and deliver models of Aegis systems. The Digital and HWIL product centers integrate the suite of M&S into a composite simulation capability, all based on an open architecture. M&S achieves this end-state via close collaboration between its integrating contractor teams (Digital and HWIL) and those of the Aegis BMD prime contractors, with additional technical standards and engineering oversight provided by Federally Funded Research and Development Centers (FFRDCs) and University Affiliated Research Centers.

The acquisition strategy for Guam Defense consists of contract actions to industry, and agreements with Department of Defense organizations and FFRDCs to develop, demonstrate, and field a Missile Defense System on Guam.

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD09 / Aegis BMD
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Systems Engineering & Integration - Architecture TEAMS	C/CPFF	Various : Various	5.242	3.567	Nov 2021	3.307	Nov 2022	4.396	Nov 2023	-		4.396	Continuing	Continuing	Continuing
Systems Engineering & Integration - CSS	C/CPFF	Various : Various	26.864	1.646	Nov 2021	2.359	Nov 2022	2.313	Nov 2023	-		2.313	Continuing	Continuing	Continuing
Systems Engineering & Integration - FFRDC	FFRDC	Various : Various	0.000	1.372	Apr 2022	0.000		0.000		-		0.000	0.000	1.372	0.000
Systems Engineering & Integration - GTRI	C/CPFF	GEORGIA TECH APPLIED RESEARCH CORPORATION : Various	0.000	1.000	Nov 2021	0.000		0.000		-		0.000	0.000	1.000	0.000
Systems Engineering & Integration - Industry	C/CPAF	Boeing : VA	100.340	7.017	Nov 2021	13.272	Nov 2022	12.745	Nov 2023	-		12.745	Continuing	Continuing	Continuing
Systems Engineering & Integration - OGA	MIPR	DOD - USA - COMBAT CAPABILITIES DEVELOPMENT COMMAND (CCDC) : AL	0.000	4.186	Apr 2022	0.000		0.000		-		0.000	0.000	4.186	0.000
Systems Engineering & Integration - Threat	C/CPFF	SEG (Systems Engineering Group, Inc.) : AL	0.000	2.000	May 2022	0.000		0.000		-		0.000	0.000	2.000	0.000
Systems Engineering & Integration - Various Systems Engineering	Allot	MDA Various : VA, AL	70.586	0.000		0.880	Nov 2022	0.976	Nov 2023	-		0.976	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - ABS NIWC Pacific	MIPR	NIWC PAC : San Diego, CA	22.230	8.346	Nov 2021	8.984	Nov 2022	9.200	Nov 2023	-		9.200	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - Advanced Concepts	MIPR	Various : Various	2.402	2.227	Aug 2022	0.000		0.000		-		0.000	0.000	4.629	0.000

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD09 / Aegis BMD
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - Discrimination	MIPR	Various - MDA : AL,VA	17.640	0.000		0.000		1.849	Nov 2023	-		1.849	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - M&S improvements	MIPR	Various - MDA : AL, VA	20.188	9.751	Nov 2021	2.290	Nov 2022	1.238	Nov 2023	-		1.238	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - MD09 - ABY Telescope	SS/TBD	Various : TBD	0.000	6.000	Jun 2022	6.000	Jun 2023	0.000		-		0.000	0.000	12.000	0.000
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - MD09 - C4I MITRE	MIPR	CECOM - MITRE : Dahlgren, VA	4.623	0.474	Nov 2021	0.000		0.000		-		0.000	0.000	5.097	0.000
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - MD09 - TD APL	SS/CPAF	JHU/APL : Columbia, MD	54.043	8.580	Nov 2021	9.764	Nov 2022	12.143	Nov 2023	-		12.143	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - MD09 - TD IDT	MIPR	INNOVATIVE DEFENSE TECHNOLOGIES, LLC : VA	0.000	0.804	Nov 2021	0.052	Nov 2022	3.274	Nov 2023	-		3.274	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - MD09 - TD LM	C/CPFF	Lockheed Martin : Moorestown, NJ	46.470	4.317	Nov 2021	12.851	Nov 2022	7.495	Nov 2023	-		7.495	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - MD09 - TD MIT	MIPR	Hanscom AFB - MIT/LL : Lexington, MA	29.011	2.969	Nov 2021	4.830	Nov 2022	4.965	Nov 2023	-		4.965	Continuing	Continuing	Continuing

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD09 / Aegis BMD
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - MD09 - TD NSWCCD	MIPR	NSWC DD : Dahlgren, VA	55.721	7.384	Nov 2021	10.574	Nov 2022	14.292	Nov 2023	-		14.292	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - MD09 - TD Raytheon	SS/IDIQ	RAYTHEON : AZ	1.683	2.477	Nov 2021	0.000		5.079	Nov 2023	-		5.079	Continuing	Continuing	Continuing
Aegis Ballistic Missile Defense (BMD) Technology Design and Insertion - Various - MDA	MIPR	Various - MDA : AL,VA,CA	34.569	0.000		0.000		0.000		-		0.000	0.000	34.569	0.000
Aegis BMD 4.x Development - MD09 - Dahlgren	MIPR	NSWC/DD : DAHLGREN, VA	170.294	9.462	Nov 2021	4.925	Nov 2022	5.281	Nov 2023	-		5.281	Continuing	Continuing	Continuing
Aegis BMD 4.x Development - MD09 - Lockheed Martin	SS/CPHF	LOCKHEED MARTIN : MOORESTOWN, NJ	961.250	40.035	Nov 2021	18.419	Nov 2022	19.750	Nov 2023	-		19.750	Continuing	Continuing	Continuing
Aegis BMD 4.x Development - MD09- Aegis Techrep	MIPR	AEGIS Techrep : Moorestown, NJ	5.882	1.748	Nov 2021	1.543	Nov 2022	1.655	Nov 2023	-		1.655	Continuing	Continuing	Continuing
Aegis BMD 4.x Development - MD09- BMD 4.0 Dev-	Various	Various : Various	48.568	3.388	Nov 2021	1.312	Nov 2022	1.407	Nov 2023	-		1.407	Continuing	Continuing	Continuing
Aegis BMD 4.x Development - MD09-D	Allot	MDA : VA	33.053	0.000		0.000		0.000		-		0.000	0.000	33.053	0.000
Aegis BMD 5.x Development - MD09 - 5.x	SS/CPAF	LOCKHEED MARTIN : MOORESTOWN, NJ	772.826	26.819	Nov 2021	72.424	Nov 2022	91.303	Nov 2023	-		91.303	Continuing	Continuing	Continuing
Aegis BMD 5.x Development - MD09 - 5.x APL	SS/CPFF	JHU/APL/MD : COLUMBIA, MD	56.454	2.148	Nov 2021	0.685	Nov 2022	6.340	Nov 2023	-		6.340	Continuing	Continuing	Continuing

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD09 / Aegis BMD
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aegis BMD 5.x Development - MD09 - 5.x DD	MIPR	NSWC/DD : DAHLGREN, VA	83.101	10.365	Nov 2021	3.768	Nov 2022	16.485	Nov 2023	-		16.485	Continuing	Continuing	Continuing
Aegis BMD 5.x Development - MD09 - 5.x PHD	MIPR	NSWC/PHD : PT HUENEME, CA	13.688	1.093	Nov 2021	0.514	Nov 2022	5.072	Nov 2023	-		5.072	Continuing	Continuing	Continuing
Aegis BMD 5.x Development - MD09 - Aegis Tech Rep	MIPR	Aegis Tech Rep : Moorestown, NJ	8.932	2.238	Nov 2021	0.856	Nov 2022	7.608	Nov 2023	-		7.608	Continuing	Continuing	Continuing
Aegis BMD 5.x Development - MD09 - Various	MIPR	Various : MA, MD, VA, NJ	209.059	0.000		0.000		0.000		-		0.000	0.000	209.059	0.000
Aegis BMD 6.x Development - D - Strategic Investment	MIPR	Various : Various	0.000	6.055	Nov 2021	0.000		0.000		-		0.000	0.000	6.055	0.000
Aegis BMD 6.x Development - JHU/APL	SS/CPFF	JHU/APL : MD	26.072	5.216	Nov 2021	4.974	Nov 2022	5.699	Nov 2023	-		5.699	Continuing	Continuing	Continuing
Aegis BMD 6.x Development - Lockheed Martin	C/CPFF	Lockheed Martin : NJ	180.304	55.496	Nov 2021	41.491	Nov 2022	47.537	Nov 2023	-		47.537	Continuing	Continuing	Continuing
Aegis BMD 6.x Development - MD09 - DD	MIPR	NSWC/DD : Dahlgren, VA	28.991	11.225	Nov 2021	6.840	Nov 2022	7.837	Nov 2023	-		7.837	Continuing	Continuing	Continuing
Aegis BMD 6.x Development - Raytheon Integrated Defense Systems	MIPR	DOD - USN - NAVAL SEA SYSTEMS COMMAND (NAVSEA) : VA	0.000	3.213	Nov 2021	3.251	Nov 2022	3.725	Nov 2023	-		3.725	Continuing	Continuing	Continuing
Aegis BMD 6.x Development - Various	MIPR	Various : MA, MD, VA, NJ, CA	45.573	4.346	Nov 2021	3.398	Nov 2022	3.893	Nov 2023	-		3.893	Continuing	Continuing	Continuing
Aegis Layered Homeland Defense Development - Aegis Engineering - APL	SS/CPFF	JHU/APL : MD	2.387	0.000		0.000		0.000		-		0.000	0.000	2.387	0.000
Aegis Layered Homeland Defense Development - Aegis Engineering - DD	MIPR	NSWC DD : Dahlgren VA	2.379	0.000		0.000		0.000		-		0.000	0.000	2.379	0.000

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD09 / Aegis BMD
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aegis Layered Homeland Defense Development - Aegis Engineering - LM	SS/CPFF	Lockheed Martin : Moorestown NJ	5.922	0.000		0.000		0.000		-		0.000	0.000	5.922	0.000
Aegis Layered Homeland Defense Development - Aegis Engineering - MIT/LL	FFRDC	MIT/LL : Lexington MA	3.241	0.000		0.000		0.000		-		0.000	0.000	3.241	0.000
Aegis Layered Homeland Defense Development - Aegis Weapon System - MD09 - LM	SS/CPFF	Lockheed Martin : Moorestown NJ	2.128	0.000		0.000		0.000		-		0.000	0.000	2.128	0.000
Modeling & Simulation Objective Simulation Framework - M&S OSF Engineering	Various	Various : AL, VA	23.691	2.004	Nov 2021	3.888	Nov 2022	3.968	Nov 2023	-		3.968	Continuing	Continuing	Continuing
Modeling & Simulation Objective Simulation Framework - M&S OSF Engineering - CSS Support	C/CPFF	Various : Various	37.968	4.272	Nov 2021	5.319	Nov 2022	5.013	Nov 2023	-		5.013	Continuing	Continuing	Continuing
Modeling & Simulation Objective Simulation Framework - M&S OSF Engineering - Engineering Support	C/CPAF	Northrop Grumman : CO	41.660	7.561	Nov 2021	0.546	Nov 2022	1.490	Nov 2023	-		1.490	0.000	51.257	0.000
Modeling & Simulation Objective Simulation Framework - M&S OSF Engineering - Integration	MIPR	CCDC : AL	33.487	4.434	Nov 2021	3.385	Nov 2022	2.911	Nov 2023	-		2.911	Continuing	Continuing	Continuing
Modeling & Simulation Objective Simulation Framework - M&S OSF Engineering - Prime	C/CPAF	BOEING : AL, CO	173.883	2.119	Apr 2022	0.000		0.000		-		0.000	0.000	176.002	0.000
Modeling & Simulation Objective Simulation Framework - M&S OSF Engineering - Prime 2	C/CPFF	Lockheed Martin : AL	16.960	9.172	Nov 2021	21.188	Nov 2022	22.903	Nov 2023	-		22.903	Continuing	Continuing	Continuing

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD09 / Aegis BMD
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Aegis Layered Homeland Defense Development - Standard Missile - 3 (SM-3) Block IIA Development - MD09 - Raytheon	SS/CPPIF	Raytheon : AZ	5.454	0.000		0.000		0.000		-		0.000	0.000	5.454	0.000
Aegis Layered Homeland Defense Development - Strategic Investment	MIPR	Various : Various	0.106	0.000		0.000		0.000		-		0.000	0.000	0.106	0.000
M&S BMDS Simulations & Tools - Sims & Tools	C/CPFF	Teledyne Brown Engineering : AL, CO	3.558	0.000		0.000		0.000		-		0.000	0.000	3.558	0.000
M&S BMDS Simulations & Tools - Sims & Tools - Industry	C/CPAF	Northrop Grumman : CO	40.308	0.000		0.000		0.000		-		0.000	0.000	40.308	0.000
M&S BMDS Simulations & Tools - Sims & Tools - Industry (2)	C/CPAF	NORTHROP GRUMMAN : CO	7.557	3.187	Nov 2021	4.383	Nov 2022	4.355	Nov 2023	-		4.355	Continuing	Continuing	Continuing
M&S BMDS Simulations & Tools - Sims & Tools - Industry (3)	C/CPAF	BOEING : AL	0.000	1.045	Nov 2021	0.000		0.000		-		0.000	0.000	1.045	0.000
M&S BMDS Simulations & Tools - Sims & Tools - Various	Various	Various : AL, CO	1.905	0.173	Nov 2021	0.000		0.000		-		0.000	0.000	2.078	0.000
BMDS Verification, Validation & Assessment (VV&A) - Verification & Assessment	Various	MDA Various : AL, VA	7.395	0.000		0.000		0.000		-		0.000	0.000	7.395	0.000
BMDS Verification, Validation & Assessment (VV&A) - Verification & Assessment - CSS Support	C/CPFF	PARSONS GOVERNMENT SERVICES INC. : AL	19.226	2.338	Nov 2021	2.329	Nov 2022	1.296	Nov 2023	-		1.296	Continuing	Continuing	Continuing
BMDS Verification, Validation & Assessment (VV&A) - Verification & Assessment - Industry	C/CPAF	Boeing : AL	42.318	7.002	Nov 2021	7.044	Nov 2022	6.677	Nov 2023	-		6.677	Continuing	Continuing	Continuing

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD09 / Aegis BMD
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
BMDS Verification, Validation & Assessment (VV&A) - Verification & Assessment - Labs	MIPR	MITRE : VA	13.108	1.577	Nov 2021	1.189	Nov 2022	1.321	Nov 2023	-		1.321	Continuing	Continuing	Continuing
BMDS Verification, Validation & Assessment (VV&A) - Verification & Assessment - OGA	MIPR	CCDC : AL	48.023	6.804	Nov 2021	6.798	Nov 2022	7.488	Nov 2023	-		7.488	Continuing	Continuing	Continuing
BMDS Verification, Validation & Assessment (VV&A) - Verification & Assessment - UARC2	FFRDC	JHU/APL : AL, VA	7.905	1.250	Nov 2021	1.921	Nov 2022	1.709	Nov 2023	-		1.709	Continuing	Continuing	Continuing
RF Link Improvements - Missile	SS/CPIF	RAYTHEON : AZ	3.672	22.288	Nov 2021	0.000		1.881	Dec 2023	-		1.881	Continuing	Continuing	Continuing
RF Link Improvements - Missile (Various)	Various	Various : Various	0.153	0.979	Nov 2021	0.000		0.600	Dec 2023	-		0.600	Continuing	Continuing	Continuing
RF Link Improvements - Weapon System	SS/CPIF	Lockheed Martin : Moorestown, NJ	0.000	3.202	Nov 2021	2.257	Nov 2022	0.911	Nov 2023	-		0.911	Continuing	Continuing	Continuing
Guam Defense Aegis BMD Development - JHU/APL	C/CPIF	JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY LLC, THE : MD	0.000	0.000		5.000	Nov 2022	3.533	Nov 2023	-		3.533	Continuing	Continuing	Continuing
Guam Defense Aegis BMD Development - Lockheed Martin	C/CPIF	LOCKHEED MARTIN CORPORATION : NJ	0.000	0.000		36.000	Nov 2022	68.011	Nov 2023	-		68.011	Continuing	Continuing	Continuing
Guam Defense Aegis BMD Development - NAVSEA	MIPR	Program Executive Office (PEO) Integrated Warfare Systems (IWS)/1.0 : VA	0.000	0.000		0.000		1.235	Nov 2023	-		1.235	Continuing	Continuing	Continuing
Guam Defense Aegis BMD Development - NSWC Dahlgren	MIPR	TBD : VA	0.000	0.000		4.000	Nov 2022	6.773	Nov 2023	-		6.773	Continuing	Continuing	Continuing

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD09 / Aegis BMD
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Guam Defense Aegis BMD Development - NSWC Port Hueneme	MIPR	TBD : CA	0.000	0.000		0.000		0.848	Nov 2023	-		0.848	Continuing	Continuing	Continuing
Subtotal			3,680.053	336.371		344.810		446.480		-		446.480	Continuing	Continuing	N/A

Remarks
N/A

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

Remarks
N/A

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

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			
Subtotal			-	-		-		-		-		-	-	-	N/A

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD09 / Aegis BMD
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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			

Remarks
N/A

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3,680.053	336.371	344.810	446.480	-	446.480	Continuing	Continuing	N/A

Remarks
Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, MIPRs, and civilian salaries on the R-3. 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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD09 / Aegis BMD
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Significant Event Complete ▲	Milestone Decision Complete ★	Element Test Complete ◆	System Level Test Complete ●	Complete Activity ◆
Significant Event Planned △	Milestone Decision Planned ☆	Element Test Planned ◇	System Level Test Planned ○	Planned Activity ◇

	FY 2022			FY 2023			FY 2024			FY 2025			FY 2026			FY 2027			FY 2028		
Defense of Guam CDR									☆												
Defense of Guam PDR								☆													
BMD 4.1.3 OCB													△								
BMD 4.1.3 Cert												△									
BMD 4.1.3 EA													☆								
BMD 4.1.3 IPR #2													☆								
BMD 4.1.3 IPR #1													☆								
BMD 6.0.1 EA #2													☆								
BMD 6.0.1 EA #1									☆												
BMD 6.0.1 IPR #10/CDR													☆								
BMD 6.0.1 IPR #9/PDR										☆											
BL 5.4.1 (BMD 4.2) IPR #4	▲																				
BMD 6.0 IPR #7		★																			
BMD 5.1.5 IPR #1/PDR		★																			
BMD 5.1.4.0 EA			▲																		
BMD 5.1.4.0 CSCP				★																	
BMD 5.1.4.0 OCB					☆																
BL 5.4.1 (BMD 4.2) EA					△																
BL 5.4.1 (BMD 4.2) IPR #5					△																
BMD 5.1.4.1 CSCP						☆															
BMD 5.1.4.1 EA						△															
BMD 5.1.4.1 OCB							☆														
BMD 6.0 IPR #8							☆														
BMD 6.0.1 SRR							☆														

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD09 / Aegis BMD
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Defense of Guam CDR	4	2024	4	2024
Defense of Guam PDR	1	2024	1	2024
BMD 4.1.3 OCB	4	2025	4	2025
BMD 4.1.3 Cert	3	2025	3	2025
BMD 4.1.3 EA	1	2025	1	2025
BMD 4.1.3 IPR #2	1	2025	1	2025
BMD 4.1.3 IPR #1	4	2024	4	2024
BMD 6.0.1 EA #2	4	2024	4	2024
BMD 6.0.1 EA #1	1	2024	1	2024
BMD 6.0.1 IPR #10/CDR	1	2025	1	2025
BMD 6.0.1 IPR #9/PDR	2	2024	2	2024
BL 5.4.1 (BMD 4.2) IPR #4	1	2022	1	2022
BMD 6.0 IPR #7	2	2022	2	2022
BMD 5.1.5 IPR #1/PDR	2	2022	2	2022
BMD 5.1.4.0 EA	3	2022	3	2022
BMD 5.1.4.0 CSCP	4	2022	4	2022
BMD 5.1.4.0 OCB	1	2023	1	2023
BL 5.4.1 (BMD 4.2) EA	1	2023	1	2023
BL 5.4.1 (BMD 4.2) IPR #5	1	2023	1	2023
BMD 5.1.4.1 CSCP	2	2023	2	2023
BMD 5.1.4.1 EA	2	2023	2	2023
BMD 5.1.4.1 OCB	3	2023	3	2023
BMD 6.0 IPR #8	2	2023	2	2023

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD09 / Aegis BMD
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Events	Start		End	
	Quarter	Year	Quarter	Year
BMD 6.0.1 SRR	2	2023	2	2023
BMD 5.1.5 EA	3	2023	3	2023
BMD 5.1.5 IPR #2/CDR	3	2023	3	2023
BMD 6.0 EA	3	2023	3	2023
Defense of Guam Weapon System SRR	3	2023	3	2023
AN/SPY-1 DRU (formerly dLNA) Demo Software Design Review	2	2024	2	2024
AN/SPY-1 DRU (formerly dLNA) Demo Hardware Design Review	1	2024	1	2024
BL 5.4.1 (BMD 4.2) CERT	4	2023	4	2023
BMD 5.1.5 CSCP	3	2025	3	2025
BMD 5.1.5 OCB	4	2025	4	2025
AN/SPY-1 DRU (formerly dLNA) Demo System Design Review	4	2024	4	2024
BMD 6.0 CSCP	4	2024	4	2024
BMD 6.0 OCB	2	2025	2	2025
AN/SPY-1 DRU (formerly dLNA) demo EA	4	2025	4	2025
BMD 6.0.1 CSCP	3	2025	3	2025
AN/SPY-1 DRU (formerly dLNA) Demo	2	2026	2	2026
BMD 6.0.1 OCB	1	2027	1	2027

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency										Date: March 2023		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MM09 / Aegis BMD SM-3 Development			
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
MM09: <i>Aegis BMD SM-3 Development</i>	849.412	119.798	85.633	42.323	-	42.323	78.754	151.302	129.335	117.755	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Decrease from FY 2023 to FY 2024 reflects completion of software Build 8.2 including Enhanced Aegis Data Link (EADL).

A. Mission Description and Budget Item Justification

Provides development of SM-3 Missiles, Upgrade Modifications, and Integration into the Aegis Weapon System.

The SM-3 Block IB improves Aegis Ballistic Missile Defense's (BMD's) ability to expand the BMD battlespace, engage longer range, more sophisticated ballistic missiles that may deploy countermeasures and launch in larger raid sizes. The Standard Missile (SM)-3 Block IB Kinetic Warhead's (KW) two color infra-red (IR) seeker and advanced signal processor provides a real-time discrimination and characterization capability while improving sensitivity for longer range targets and performance against more sophisticated threats. Additionally, the new Throttleable Divert and Attitude Control System KW divert engine has been upgraded over the SM-3 Block IA to provide a more flexible divert in order to maneuver the KW to intercept.

The SM-3 Block IIA consists of an upgrade to a 21-inch diameter SM-3 missile and expands beyond the SM-3 Block IB battlespace to counter Intermediate Range Ballistic Missile. SM-3 Block IIA provides an increased kinematic envelope through improved IR discrimination and divert capability that provide performance against the European Phased Approach (EPAA) phase III expanded threat set. When combined with Aegis BMD 5.1 weapon system modifications, the SM-3 Block IIA will provide Engage on Remote (EoR) capability, which allows the use of remote off board sensor information to launch and guide the SM-3 Block IIA to final intercept. Aegis BMD 5.1 EoR capability with SM-3 Block IIA also frees up radar resources and increases the number and type of threats to be engaged simultaneously over previous baselines.

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

	FY 2022	FY 2023	FY 2024
Title: Standard Missile-3 (SM-3) Block IB Development	49.464	9.359	15.823
Articles:	-	-	-
<p>Description: This effort modernizes the SM-3 Block IB missile, which improves on the SM-3 Block IA performance and enables engagement of more sophisticated ballistic missiles and larger raid sizes</p> <p>SM-3 Block IB Threat Upgrade/Tech Refresh (previously IB Modernization) will provide the following:</p> <ul style="list-style-type: none"> - Refreshed SM-3 KW Common Avionics Package will provide improved producibility and utilization of common components between the SM-3 Block IIA. SM-3 Block IB common components will be extendable to support different form/fit in circuit card assemblies across SM-3 Block IB and SM-3 Block IIA and will mitigate SM-3 Block IB hardware availability issues. Includes Back-fit of IIA Guidance Electronics Unit (GEU) Engineering Change Proposal (ECP) into IB 			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MM09 / Aegis BMD SM-3 Development		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2022	FY 2023	FY 2024
<p>- Refreshed SM-3 Block IB Guidance Section with the integration of Digital Data Link replacement of Plate 3A will resolve Plate 3A hardware availability issues</p> <p>Recurring Accomplishments:</p> <p>- Assess performance with weapons systems upgrades/modifications and against emerging threats Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2023 Plans: - SEE ABOVE</p> <p>FY 2024 Plans: In addition to the above, the program plans the following accomplishments in FY 2024:</p> <ul style="list-style-type: none"> - Expand threat space to combat evolving ballistic missile threats and facilitate availability of Blk IIA All Up Rounds (AURs) for more complex missions. - Develop Two phase software build with associated Formal Qualification Tests (FQTs). Address self-destruct, inertial midcourse guidance, fin rotation angle Built-in Test, normalized distance factor, discrimination updates, and exclusion angle improvements. - Leverage studies conducted for SM-3 exclusion angle and SM-3 Block IIA algorithms - Conduct Hardware/Software refresh of test/integration Hardware-in-the-Loop (HIL)/Computer-in-the-Loop (CIL) workstations <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase from FY 2023 to FY 2024 provides IB software upgrades based on maturity of technical scope and addition of required HIL/CIL refresh.</p>				
Title: Standard Missile-3 (SM-3) Block IIA Development		70.334	76.274	26.500
		Articles:	-	-
<p>Description: The SM-3 Block IIA is required to meet EPAA Phase III. It will increase the area that can be defended by Aegis BMD, increase the probability of kill against a larger threat set, and leverage enhanced capability provided by Ballistic Missile Defense System (BMDS) sensor upgrades</p> <p>Recurring Accomplishments:</p> <ul style="list-style-type: none"> - Conduct SM-3 Block IIA software update to support engagements against additional complex threats identified during Aegis BMD 5.1 design process conducted after missile Critical Design Review (CDR) - Conduct End to End Distributed Development System integration testing; and flight test support - Continue implementation of SM-3 Block IIA cost reduction initiatives to support meeting cost goals to reduce the current estimated Average Unit Production Price 				

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MM09 / Aegis BMD SM-3 Development
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
- Continue transition of KW hardware commonality effort (from design to material purchases) to system integration testing in order to demonstrate Technology Readiness Level 7 - Continue Engineering Manufacture Readiness Level 3 compliance to support life cycle progression Specific and unique accomplishments to each FY are as follows: FY 2023 Plans: - SEE ABOVE. FY 2024 Plans: - Completion of software Build 8.2 including Enhanced Aegis Data Link (EADL) and continuation of Baseline 5 and 6 integration efforts. Includes transition to Production to support a Full Rate Production Decision and transition of Guidance Electronics Unit (GEU) Engineering Change Proposal (ECP) to Production. FY 2023 to FY 2024 Increase/Decrease Statement: Decrease from FY 2023 to FY 2024 reflects completion of software Build 8.2 including EADL.			
Accomplishments/Planned Programs Subtotals	119.798	85.633	42.323

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

<u>Line Item</u>	FY 2022	FY 2023	FY 2024 <u>Base</u>	FY 2024 <u>OCO</u>	FY 2024 <u>Total</u>	FY 2025	FY 2026	FY 2027	FY 2028	<u>Cost To Complete</u>	<u>Total Cost</u>
• 0208866C MD09: SM-3 Block IB Procurement	334.621	402.235	374.756	-	374.756	372.639	528.486	537.124	550.011	Continuing	Continuing
• 0208866C MD09: Aegis BMD O&M	77.170	69.071	72.224	-	72.224	85.696	99.209	96.412	93.554	Continuing	Continuing
• 0208866C MD09: SM-3 Block IB Advanced Procurement	17.493	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	17.493
• 0208866C MD14: SM-3 Block IIA Procurement	488.022	669.975	432.824	-	432.824	507.705	464.094	457.932	467.091	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Sea-Based Weapon Systems element acquisition approach supports evolutionary development, continuously building upon demonstrated capabilities to advance overall BMDS capability. After considering all the technical and management aspects of the program and to meet the requirements presented by an evolving ballistic missile threat, the Sea-Based Weapon Systems program awarded sole source contracts to Raytheon and Lockheed Martin to continue development of the SM-3 and the Aegis BMD Weapon System, respectively.

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MM09 / Aegis BMD SM-3 Development
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Standard Missile-3 (SM-3) Block IB Development - JHU/APL	SS/CPFF	JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY LLC, THE : MD	4.262	2.581	Nov 2021	0.430	Nov 2022	1.650	Nov 2023	-		1.650	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - MM09 - 20117142332259	MIPR	NSWC/PHD : Port Hueneme, CA	0.199	0.000		0.000		0.000		-		0.000	0.000	0.199	0.000
Standard Missile-3 (SM-3) Block IB Development - MM09 - Various	MIPR	NSWC Corona : Corona, CA	1.053	0.000		0.000		0.000		-		0.000	0.000	1.053	0.000
Standard Missile-3 (SM-3) Block IB Development - MM09 Carderock	MIPR	NSWC Carderock : Bethesda, MD	0.882	0.000		0.000		0.000		-		0.000	0.000	0.882	0.000
Standard Missile-3 (SM-3) Block IB Development - Raytheon	SS/CPFI	RAYTHEON : AZ	159.668	46.201	Dec 2021	8.871	Jan 2023	12.805	Dec 2023	-		12.805	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IB Development - Various	MIPR	Various : Various	3.029	0.682	Nov 2021	0.058	Nov 2022	1.368	Nov 2023	-		1.368	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IIA Development - Integration (NSWCDD)	MIPR	DOD - USN - NAVAL SURFACE WARFARE CENTER (NSWC) DAHLGREN DIVISION (NSWCDD) : VA	23.526	5.871	Nov 2021	7.206	Dec 2022	2.110	Dec 2023	-		2.110	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IIA Development - Integration (Raytheon)	SS/CPFI	RAYTHEON : AZ	534.981	52.080	Oct 2021	66.024	Nov 2022	22.706	Dec 2023	-		22.706	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IIA Development - Integration (Various)	MIPR	Various : VARIOUS	83.791	5.495	Nov 2021	3.044	Dec 2022	1.684	Dec 2023	-		1.684	Continuing	Continuing	Continuing
Standard Missile-3 (SM-3) Block IIA Development - MM09 - SM-3 BLK IIA	MIPR	Brookhaven Lab - DOE : Uptown NY	3.830	0.000		0.000		0.000		-		0.000	0.000	3.830	0.000

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MM09 / Aegis BMD SM-3 Development
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Standard Missile-3 (SM-3) Block IIA Development - MM09 - SM-3 BLK IIA Draper	SS/CPHF	Draper Laboratory : Cambridge MA	5.067	0.000		0.000		0.000		-		0.000	0.000	5.067	0.000
Standard Missile-3 (SM-3) Block IIA Development - New Jersey	C/CPFF	Lockheed Martin : Moorestown NJ	29.124	5.688	Dec 2021	0.000		0.000		-		0.000	0.000	34.812	0.000
Standard Missile-3 (SM-3) Block IIA Development - Various	MIPR	Various : Various	0.000	1.200	Aug 2022	0.000		0.000		-		0.000	0.000	1.200	0.000
Subtotal			849.412	119.798		85.633		42.323		-		42.323	Continuing	Continuing	N/A

Remarks

N/A

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	849.412	119.798	85.633	42.323	-	42.323	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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MM09 / Aegis BMD SM-3 Development
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	Significant Event Complete ▲		Milestone Decision Complete ★		Element Test Complete ◆		System Level Test Complete ●		Complete Activity ◆			
	Significant Event Planned △		Milestone Decision Planned ☆		Element Test Planned ◇		System Level Test Planned ○		Planned Activity ◇			
	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028					
Build 8.2 Formal Qualification Testing (FQT)		▲										
Build 8.2 and BMD 5.1.4 OCB			▲									
GEU-ECP (1st AUR Delivery with ECP)			▲									
IB GU Qualification			△									
Build 8.3 FQT				△								
IBTU Tech Refresh CDR				△								
GEU-ECP Transition to Production				△								
IB ECP Approval				△								
IBTU Tech Refresh Qualification				△								
IB SWUP Phase 1.0						△						
IB SW FQT					△							
Build 8.3 and BMD 5.1.5 OCB							△					
SRR for SWUP Phase 1.0								△				
CDR for SWUP Phase 1.0									△			
FQT for SWUP Phase 1.0										△		
SRR for SWUP Phase 2.0										△		
CDR for SWUP Phase 2.0											△	
FQT for SWUP Phase 2.0												△

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Exhibit R-4A, RDT&E Schedule Details: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MM09 / Aegis BMD SM-3 Development

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
Build 8.2 Formal Qualification Testing (FQT)	3	2022	3	2022
Build 8.2 and BMD 5.1.4 OCB	1	2023	1	2023
GEU-ECP (1st AUR Delivery with ECP)	1	2023	1	2023
IB GU Qualification	2	2023	2	2023
Build 8.3 FQT	3	2023	3	2023
IBTU Tech Refresh CDR	3	2023	3	2023
GEU-ECP Transition to Production	3	2023	3	2023
IB ECP Approval	3	2023	3	2023
IBTU Tech Refresh Qualification	3	2023	3	2023
IB SWUP Phase 1.0	1	2024	1	2024
IB SW FQT	4	2023	4	2023
Build 8.3 and BMD 5.1.5 OCB	2	2024	2	2024
SRR for SWUP Phase 1.0	4	2024	4	2024
CDR for SWUP Phase 1.0	4	2025	4	2025
FQT for SWUP Phase 1.0	2	2026	2	2026
SRR for SWUP Phase 2.0	3	2026	3	2026
CDR for SWUP Phase 2.0	3	2027	3	2027
FQT for SWUP Phase 2.0	1	2028	1	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency										Date: March 2023		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MC09 / Cyber Operations			
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
MC09: <i>Cyber Operations</i>	45.948	3.661	4.431	5.972	-	5.972	6.236	6.263	6.430	6.602	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Increase from FY 2023 to FY 2024 provides monitoring requirements in support of the Host Based Security System, Assured Compliance Assessment Solution (ACAS) Vulnerability scanning, Security Information Event Management (SIEM) (i.e. ArcSight) requirements at remote sites, and on-site maintenance support for Cybersecurity activities at the Missile Defense Agency (MDA) sponsored Land Based Test Sites.

A. Mission Description and Budget Item Justification

Sustain the Department of Defense (DoD) Risk Management Framework (RMF) Certification and Accreditation (C&A) process and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Systems Security Manager.

This project supports the monitoring and tracking of Cybersecurity mitigation detailed in Information Technology Security Plan of Action and Milestones (POA&Ms). Activities include preparation of Certification and Accreditation (C&A) documentation and accreditation recommendations to the MDA Authorizing Official. Independent Verification and Validation team actions ensure the availability, integrity, authentication, confidentiality and non-repudiation of the Aegis mission and non-mission systems, which includes test and remote site administrative systems. Activities in the Project are necessary to comply with the Federal Information Security Management Act.

The Standard Missile (SM)-3 Block IB and IIA missiles and corresponding Aegis Ballistic Missile Defense (BMD) weapon systems communication requires hardware and software development and integration testing to enable new cyber security capabilities. Activities include Encoder/Decoder, Plate 3 Circuit Card Assemblies (CCA) and Mission Computer CCA updates. After missile and baseline specific efforts are complete, significant integration testing is required.

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

	FY 2022	FY 2023	FY 2024
Title: Network / System Certification and Accreditation (C&A)	3.661	4.431	5.972
Articles:	-	-	-
Description: Network/System C&A includes recurring efforts such as cybersecurity engineering and architecture requirements planning for Aegis BMD systems, plan and test the RMF controls for the Ballistic Missile Defense System (BMDS) in regards to Aegis BMD systems to comply with the new directive, RMF for DoD Information Technology (DoDi 8510.01) to replace the DoD Information Assurance Certification and Accreditation process and conduct CVT.			
Recurring Accomplishments:			
- Continue coordination and development of new and existing accreditation packages that comply with new directive, RMF for DoD Information Technology (DoDi 8510.01) process			
- CVT and cooperative risk assessments to mitigate cybersecurity deficiencies			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MC09 / Cyber Operations

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Develop and deploy Hardware and Software implementation strategies for Continuous Monitoring activities at remote sites and Aegis BMD assets - Monthly reviews of systems through the eMass System - Daily management of eMass System POAMs <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2023 Plans: - SEE ABOVE.</p> <p>FY 2024 Plans: - Provide monitoring for the Host Based Security System - Conduct ACAS Vulnerability scanning - Implement SIEM (i.e. ArcSight) requirements at remote sites - Provide on-site maintenance support for Cybersecurity activities at MDA sponsored Land Based Test Sites</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase from FY 2023 to FY 2024 provides for additional monitoring requirements in support of the Host Based Security System, ACAS Vulnerability scanning, SIEM (i.e. ArcSight) requirements at remote sites, and on-site maintenance support for Cybersecurity activities at MDA sponsored Land Based Test Sites.</p>			
Accomplishments/Planned Programs Subtotals	3.661	4.431	5.972

C. Other Program Funding Summary (\$ in Millions)											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603882C: Ballistic Missile Defense Midcourse Defense Segment	707.632	689.018	903.633	-	903.633	852.567	906.634	930.538	875.198	Continuing	Continuing
• 0603884C: Ballistic Missile Defense Sensors	250.123	230.502	239.159	-	239.159	212.191	233.877	242.623	251.226	Continuing	Continuing
• 0603896C: Ballistic Missile Defense Command and Control, Battle Management & Communication	556.914	589.374	554.201	-	554.201	574.275	585.966	598.896	582.156	Continuing	Continuing
• 0603898C: Ballistic Missile Defense Joint Warfighter Support	50.261	50.269	48.248	-	48.248	49.164	50.445	51.542	52.859	Continuing	Continuing

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MC09 / Cyber Operations
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C. Other Program Funding Summary (\$ in Millions)

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603904C: <i>Missile Defense Integration and Operations Center (MDIOC)</i>	44.188	49.367	50.549	-	50.549	56.624	58.020	59.193	60.615	Continuing	Continuing
• 0604878C: <i>Aegis BMD Test</i>	111.206	175.619	193.484	-	193.484	135.473	183.024	203.676	135.080	Continuing	Continuing
• 0604880C: <i>Land Based SM-3 (LBSM3)</i>	42.156	27.678	22.163	-	22.163	20.479	21.193	21.620	21.736	Continuing	Continuing
• 0901598C: <i>Management HQ - MDA</i>	24.102	25.259	28.363	-	28.363	29.039	29.601	30.174	30.760	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Sea-Based Weapon Systems element acquisition approach supports evolutionary development, continuously building upon demonstrated capabilities to advance overall BMDS capability. After considering all the technical and management aspects of the program and to meet the requirements presented by an evolving ballistic missile threat, the Sea-Based Weapon Systems program awarded sole source contracts to Raytheon and Lockheed Martin to continue development of the SM-3 and the Aegis BMD Weapon System, respectively.

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MC09 / Cyber Operations
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Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Network / System Certification and Accreditation (C&A) - DISA	MIPR	DISA : Falls Church, VA	0.100	0.000		0.000		0.000		-		0.000	0.000	0.100	0.000
Network / System Certification and Accreditation (C&A) - CND/IA Advisory and Assistance Services	C/CPIF	Torch Technologies : Huntsville, AL	2.747	0.000		0.000		0.000		-		0.000	0.000	2.747	0.000
Network / System Certification and Accreditation (C&A) - Cyber TEAMS MC09 - BMDS CSM/CND	C/CPFF	SYSTEM HIGH CORPORATION : TBD	0.000	0.000		0.505	Nov 2022	0.542	Nov 2023	-		0.542	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Cyber TEAMS MC09 - CCRM	C/CPFF	DECISIVE ANALYTICS CORPORATION : TBD	0.000	0.000		3.104	Nov 2022	3.297	Nov 2023	-		3.297	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Cyber TEAMS - MC09	C/CPFF	Booz Allen and Hamilton : McLean, VA	14.701	2.847	Nov 2021	0.000		0.000		-		0.000	0.000	17.548	0.000
Network / System Certification and Accreditation (C&A) - DD	MIPR	NSWC - DD : Dahlgren VA	1.300	0.000		0.000		0.000		-		0.000	0.000	1.300	0.000
Network / System Certification and Accreditation (C&A) - LBTS AWS Cyber Maintenance - MC09	C/CPFF	TBD : TBD	0.000	0.000		0.000		1.260	Nov 2023	-		1.260	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - LM	SS/CPAF	Lockheed Martin : Moorestown NJ	11.813	0.000		0.000		0.000		-		0.000	0.000	11.813	0.000
Network / System Certification and Accreditation (C&A) - PHD	MIPR	NSWC/PHD : Port Hueneme CA	0.501	0.000		0.000		0.000		-		0.000	0.000	0.501	0.000

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MC09 / Cyber Operations
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Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Network / System Certification and Accreditation (C&A) - Program Operations - MC09 - CivSal	Allot	MDA : VA	0.944	0.195	Nov 2021	0.161	Oct 2022	0.195	Oct 2023	-		0.195	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - RMS	SS/CPAF	Raytheon : Tucson, AZ	4.106	0.000		0.000		0.000		-		0.000	0.000	4.106	0.000
Network / System Certification and Accreditation (C&A) - Security Operations - Secure Communications/ Equipment	C/CPFF	Jacobs Technology : TN	0.946	0.619	Nov 2021	0.661	Dec 2022	0.678	Dec 2023	-		0.678	Continuing	Continuing	Continuing
RF Link Improvements - SM-3	SS/CPFF	Raytheon : Tucson, AZ	8.390	0.000		0.000		0.000		-		0.000	0.000	8.390	0.000
RF Link Improvements - Weapon System	SS/CPIF	Lockheed Martin : Moorestown, NJ	0.400	0.000		0.000		0.000		-		0.000	0.000	0.400	0.000
Subtotal			45.948	3.661		4.431		5.972		-		5.972	Continuing	Continuing	N/A

Remarks
N/A

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	45.948	3.661	4.431	5.972	-	5.972	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-4A, RDT&E Schedule Details: PB 2024 Missile Defense Agency **Date:** March 2023

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MC09 / Cyber Operations
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MC09 Cyber Operations	1	2022	4	2028

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MX09 / Aegis BMD Development Support
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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
MX09: Aegis BMD Development Support	837.174	136.589	138.909	173.105	-	173.105	177.638	188.903	207.636	212.658	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Increase from FY 2023 to FY 2024 provides Ballistic Missile Defense (BMD) 6.0 and Integrated Air and Missile Defense (IAMMD) capability analysis, IAMMD/BMD Mission Planner integration, doctrine development, and BMD/IAMMD scenario development; increased development lab usage driven by the 6.x baseline test site usage as well as hardware and software refresh upgrades at the land based test sites used for the development of Aegis BMD baselines; and additional hardware upgrades for the BMDS Test Bed San Diego (BTS) in alignment with current baseline development and testing schedules.

A. Mission Description and Budget Item Justification

Provides Government, contractor, and Federally Funded Research and Development Center (FFRDC) workforce that manage the overall Sea-Based Weapon Systems program and enables the program to develop, build, and test standard missiles and associated Aegis Weapons Systems. Sea-Based Weapon Systems, in accordance with negotiated agreements between the U.S. Navy and the Missile Defense Agency (MDA) has identified and segregated funding for Developmental Support of Sea-Based Weapon Systems specific elements resident aboard Aegis capable U.S. Navy ships. Computer Program Support consists of, but is not limited to, reviews of Technical Observation Reports (TORs) that are generated by ship crews during exercises or deployments, determination of root causes and preparation of Computer Program Change Request (CPCR) to correct TORs, updates to the in-service computer program to apply, test and certify multiple CPCRs, and tests installation of Aegis Weapon System (Army/Navy Surface Radar Surveillance and Control radar/Fire Control System) alignment updates as required. Sea-Based Weapon Systems provides support to Annual Integration Events to ensure any updated Aegis Combat System computer programs do not degrade BMD equipped ships and provides distance and technical support for BMD equipped ships. Provides Fleet operations and mission support to enable the conduct of sustained BMD operation.

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

	FY 2022	FY 2023	FY 2024
Title: Program Operations	85.833	86.366	90.708
Articles:	-	-	-
Description: This activity includes the Government, contractor, and FFRDC workforce that manage the overall Sea-Based Weapon Systems program and enables the program to develop, build, and test standard missiles and the associated Aegis Weapon Systems. This project includes all operations support for the Aegis program office in Engineering, Testing, Logistics, Acquisition, Safety, Quality Assurance, Finance, Budget Formulation and Execution, Cost Estimation, and Earned Value Management in support of development activities.			
Specific and/or unique accomplishments to each FY are as follows:			
FY 2023 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MX09 / Aegis BMD Development Support		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2022	FY 2023	FY 2024
- SEE ABOVE. FY 2024 Plans: - SEE ABOVE. FY 2023 to FY 2024 Increase/Decrease Statement: N/A				
Title: Aegis Ballistic Weapon System Support		22.468	21.766	38.468
Articles:		-	-	-
Description: Provides system engineering for fielded Sea-Based Weapon Systems from warfighter feedback, investigation of BMDS Discrepancy Reports, and BMDS ground test observation analysis. It includes computer program defect corrections and supports assessment of flight test readiness. Recurring Accomplishments: - Update threat adaptation data to keep pace with emergent threats - Provide operation and sustainment of land based test sites used for the development of Aegis BMD baselines. Operation and sustainment includes Engineering, Logistics, Quality Assurance, Configuration Management and other support activities to both baseline development and the sites. - Provide support for contingency operations of national interest - Support upgrades to fielded Aegis BMD computer programs baselines approved as an Operational Capability Baseline (OCB) - Provide engineering support to Operationally Capable Baseline ships that participate in BMD test events - Provide test site usage for maintenance and support of baselines under development - Sustain the classified computing infrastructure needed for development efforts Specific and/or unique accomplishments to each FY are as follows: FY 2023 Plans: SEE ABOVE FY 2024 Plans: - Provide capacity for increased development lab usage - Conduct hardware and software refresh at the land based test sites used for Aegis BMD baseline software development FY 2023 to FY 2024 Increase/Decrease Statement: Increase from FY 2023 to FY 2024 provides increased development lab usage driven by the 6.x baseline test site usage as well as hardware and software refresh upgrades at the land based test sites used for the development of Aegis BMD baselines.				
Title: Fleet Integration		16.924	19.268	26.196

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MX09 / Aegis BMD Development Support

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
<p align="right"><i>Articles:</i></p> <p>Description: Provide Fleet operations and mission support to enable the conduct of sustained BMD operations; advocate war fighter requirements and fleet feedback in baseline development and capability upgrades to Aegis BMD weapon system; provide analysis and Mission Planning support for Geographic Combatant Commanders for operational application of Maritime BMD capabilities; and provide BMD Capabilities Analysis and Exercise Support for Aegis BMD baselines under development or currently deployed in the Operational Fleet.</p> <p>Recurring Accomplishments:</p> <ul style="list-style-type: none"> - Define, develop and review Joint and Fleet Doctrine for incorporation of Aegis BMD capability transition to warfighter and baseline acceptance into MDA OCB - Research and define certification and warfighter acceptance requirements for Aegis BMD baselines to ensure successful capability delivery - Develop Aegis BMD training simulations and scenarios to support shipboard training including BMD Qualification and higher level exercises - Execute warfighter feedback process to enhance Aegis BMD functional capability development and influence future Aegis BMD requirements and support MDA Test Community and Combatant Commanders in BMD Exercises and Wargames - Provide analysis for Anti-Ship Ballistic Missile Defense - Provide analysis on parametric organic sensor sensitivity - Provide analysis on up-range ship/sensor support for Launch on Remote, Engage on Remote, and Cued engagements - Provide analysis on impacts of countermeasures - Provide analysis on developing threats <p>Specific and/or unique accomplishments to each FY are as follows:</p> <p>FY 2023 Plans:</p> <ul style="list-style-type: none"> - SEE ABOVE. <p>FY 2024 Plans:</p> <ul style="list-style-type: none"> - Support recurring cloud based services costs - Integrate MTC2 Battle Management Aids (BMAs) to support integrated IAMD planning - Continue design, development, and delivery of IAMD planning capabilities in the Cerberus IAMD Planner to include new BMD baselines, new sensors, SBT Increment 2 and Increment 3, additional threats and begin planning for Hypersonic glide vehicle threats - Conduct Fleet Requests For Analysis (RFAs) in response to the evolving threat - Updates to shipboard and Fleet Maritime Operations Centers (MOC) mission planning systems 	-	-	-

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency		Date: March 2023		
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MX09 / Aegis BMD Development Support		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2022	FY 2023	FY 2024
<ul style="list-style-type: none"> - Conduct capability analysis, IAMD/BMD MP integration, doctrine development, and BMD/IAMD scenario development for BMD 6.0 with SPY-6 radar - Develop scenarios for the Navy's new Advanced Training Domain (ATD) system <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase from FY 2023 to FY 2024 provides BMD 6.0 BMD and IAMD capability analysis, IAMD/BMD Mission Planning integration, doctrine development, and BMD/IAMD scenario development.</p> <p>Title: Infrastructure Upgrades</p> <p>Description: Provides management of Command, Control, Computer, Communications and Intelligence (C4I) aspects of the BTS San Diego upgrade plan to maintain Fleet representative C4I configurations to support testing, troubleshooting, and Fleet operations. Includes Information Technology (IT) services in support of the Aegis Research, Development, Testing and Evaluation mission to include: IT help-desk services; portal and data services; records management; business automation services; and desktop and Special Purpose Processing Nodes (SPPNs) maintenance and licenses. In addition, replaces critical IT infrastructure at end-of-life and to implement Department of Defense (DoD) mandated projects in support of the Joint Information environment (JIE) initiative.</p> <p>Recurring accomplishments:</p> <ul style="list-style-type: none"> - Conduct Aegis IT services such as IT help-desk; portal and data services; records management; business automation services; and desktop and SPPN maintenance and licenses - Replacement of critical end-of-life equipment - Upgrades to IT infrastructure planning and implementation efforts to accomplish DoD mandated IT Projects (JIE and DoD Chief Information Officer Information Resources Management initiatives). <p>FY 2023 Plans: SEE ABOVE</p> <p>FY 2024 Plans: - Update BTS San Diego with two additional Technology Insertion hardware baselines to align with Baseline 9 and Baseline 10 hardware configurations to support development testing and Ground/Flight Test requirements</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase from FY 2023 to FY 2024 provides additional hardware upgrades for BTS San Diego in alignment with current baseline development and testing schedules.</p>		11.364	11.509	17.733
Articles:		-	-	-
Accomplishments/Planned Programs Subtotals		136.589	138.909	173.105

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MX09 / Aegis BMD Development Support
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C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
• 0208866C MD09: MD09 <i>Aegis BMD O&M</i>	77.170	69.071	72.224	-	72.224	85.696	99.209	96.412	93.554	Continuing	Continuing
• 0604878C: Aegis BMD Test	111.206	175.619	193.484	-	193.484	135.473	183.024	203.676	135.080	Continuing	Continuing
• 0604880C: Land <i>Based SM-3 (LBSM3)</i>	42.156	27.678	22.163	-	22.163	20.479	21.193	21.620	21.736	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Sea-Based Weapon Systems element acquisition approach supports evolutionary development, continuously building upon demonstrated capabilities to advance overall BMDS capability. After considering all the technical and management aspects of the program and to meet the requirements presented by an evolving ballistic missile threat, the Sea-Based Weapon Systems program awarded sole source contracts to Raytheon and Lockheed Martin to continue development of the Standard Missile-3 and the Aegis BMD Weapon System, respectively.

Competition will be maximized for purchase of any products or services as appropriate.

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MX09 / Aegis BMD Development Support
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Product Development (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	N/A

Remarks
N/A

Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Operations - MX09 - GSA Procurement for MDA Historical Project	C/CPFF	Gryphon Technologies : VA	0.316	0.000		0.000		0.000		-		0.000	0.000	0.316	0.000
Program Operations - MX09 - Civ Sal	Allot	MDA : VA	126.323	33.895	Nov 2021	33.869	Nov 2022	34.975	Nov 2023	-		34.975	Continuing	Continuing	Continuing
Program Operations - MX09 - DD PM	MIPR	NSWC/DD : Dahlgren, VA	10.968	0.000		0.000		0.000		-		0.000	0.000	10.968	0.000
Program Operations - MX09 - IT	Various	MDA : VA, AL	6.214	0.703	Dec 2021	1.774	Dec 2022	0.740	Dec 2023	-		0.740	Continuing	Continuing	Continuing
Program Operations - MX09 - MDA Travel	Allot	MDA : VA	5.887	0.992	Oct 2021	1.139	Oct 2022	1.253	Oct 2023	-		1.253	Continuing	Continuing	Continuing
Program Operations - MX09 - NAVSEA Civ Sal/ Training, Various	MIPR	NAVSEA : Washington, DC	54.259	12.702	Nov 2021	13.160	Nov 2022	15.614	Nov 2023	-		15.614	Continuing	Continuing	Continuing
Program Operations - MX09 - NAVSEA RB Sal	MIPR	NAVSEA : Washington, DC	8.955	1.880	Nov 2021	1.851	Nov 2022	1.907	Nov 2023	-		1.907	Continuing	Continuing	Continuing
Program Operations - MX09 - NAVSEA Travel	MIPR	NAVSEA : Washington, DC	2.496	0.000		0.000		0.000		-		0.000	0.000	2.496	0.000
Program Operations - MX09 - Security/USACE Litigation efforts	MIPR	Various : VA	2.918	0.584	Nov 2021	0.300	Nov 2022	0.300	Nov 2023	-		0.300	Continuing	Continuing	Continuing
Program Operations - MX09 - TEAMS	C/CPFF	Various : VA, AL	162.918	35.077	Nov 2021	4.314	Nov 2022	4.070	Nov 2023	-		4.070	Continuing	Continuing	Continuing
Program Operations - MX09 TEAMS Acquisition	C/CPFF	BCF SOLUTIONS, INC. : VA	0.000	0.000		2.315	Nov 2022	2.426	Nov 2023	-		2.426	Continuing	Continuing	Continuing

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MX09 / Aegis BMD Development Support
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Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Operations - MX09 TEAMS Business Ops	C/CPFF	Veterans Technology, LLC : VA	0.000	0.000		3.679	Nov 2022	3.856	Nov 2023	-		3.856	Continuing	Continuing	Continuing
Program Operations - MX09 TEAMS MDS Engineering	C/CPFF	PARSONS GOVERNMENT SERVICES INC. : VA	0.000	0.000		15.269	Nov 2022	16.002	Nov 2023	-		16.002	Continuing	Continuing	Continuing
Program Operations - MX09 TEAMS Office Admin	C/CPFF	YORKTOWN SYSTEMS GROUP, INC. : VA	0.000	0.000		2.085	Nov 2022	2.186	Nov 2023	-		2.186	Continuing	Continuing	Continuing
Program Operations - MX09 TEAMS Predictive Eng	C/CPFF	TORCH TECHNOLOGIES INC : TBD	0.000	0.000		1.348	Nov 2022	1.413	Nov 2023	-		1.413	Continuing	Continuing	Continuing
Program Operations - MX09 TEAMS QMA	C/CPFF	AI SOLUTIONS, INC. : VA	0.000	0.000		2.174	Nov 2022	2.729	Nov 2023	-		2.729	Continuing	Continuing	Continuing
Program Operations - MX09 TEAMS Warfighter Integration	C/CPFF	STRATEGIC ALLIANCE BUSINESS GROUP LLC : VA	0.000	0.000		3.089	Nov 2022	3.237	Nov 2023	-		3.237	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - D - Strategic Investment	MIPR	039664375 - TAMERAN GRAPHIC SYSTEMS, INC. : TBD	0.000	2.140	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - ABS Various	MIPR	Various : Various	0.000	0.766	Nov 2021	0.954	Nov 2022	1.063	Nov 2023	-		1.063	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - AW APL	SS/CPFF	JHU/APL : Columbia, MD	7.855	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - AW DD	MIPR	NSWC DD : Dahlgren, VA	27.398	1.410	Nov 2021	3.223	Nov 2022	2.129	Nov 2023	-		2.129	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - AW LM	C/CPFF	Lockheed Martin : Moorestown, NJ	75.486	3.177	Nov 2021	4.215	Nov 2022	11.251	Nov 2023	-		11.251	Continuing	Continuing	Continuing

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MX09 / Aegis BMD Development Support
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Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis Ballistic Weapon System Support - MX09 - AW NAVSEA	MIPR	NAVSEA : Washington, DC	68.558	13.225	Nov 2021	11.624	Nov 2022	20.881	Nov 2023	-		20.881	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - AW TECH REP	MIPR	Aegis Tech Rep : Moorestown, NJ	1.594	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - AW Wallops	MIPR	SCSC : Wallops Island, VA	6.493	1.750	Nov 2021	1.750	Nov 2022	3.144	Nov 2023	-		3.144	Continuing	Continuing	Continuing
Aegis Ballistic Weapon System Support - MX09 - TD Various	MIPR	Various : San Diego, CA	33.163	0.000		0.000		0.000		-		0.000	0.000	33.163	0.000
Aegis Ballistic Weapon System Support - MX09 - AW PHD	MIPR	NSWC PHD : Port Hueneme, CA	0.956	0.000		0.000		0.000		-		0.000	0.000	0.956	0.000
Fleet Integration - MX09 - ABS	MIPR	NIWC : San Diego, CA	2.000	0.500	Nov 2021	1.019	Nov 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Fleet Integration - MX09 - ABS APL	SS/CPFF	JHU/APL : Columbia, MD	0.000	6.979	Nov 2021	6.050	Nov 2022	10.274	Nov 2023	-		10.274	Continuing	Continuing	Continuing
Fleet Integration - MX09 - ABS Fleet	C/CPFF	LM : VA	5.058	0.000		0.000		0.000		-		0.000	0.000	5.058	0.000
Fleet Integration - MX09 - Fleet APL	SS/CPFF	JHU/APL/MD : Columbia, MD	54.269	4.305	Nov 2021	6.456	Nov 2022	8.195	Nov 2023	-		8.195	Continuing	Continuing	Continuing
Fleet Integration - MX09 - Fleet DD	MIPR	NSWC DD : Dahlgren, VA	14.967	2.612	Nov 2021	3.160	Nov 2022	4.734	Nov 2023	-		4.734	Continuing	Continuing	Continuing
Fleet Integration - MX09 - Fleet PEO C41	MIPR	PEO C41 : San Diego, CA	5.008	0.000		0.000		0.000		-		0.000	0.000	5.008	0.000
Fleet Integration - MX09 - Fleet SMDC	MIPR	SMDC/ARSTRST : Huntsville, AL	3.782	0.858	Nov 2021	0.930	Nov 2022	0.940	Nov 2023	-		0.940	Continuing	Continuing	Continuing
Fleet Integration - MX09 - TG & Cerberus Integration	C/CPFF	NORTHROP GRUMMAN : AL	0.315	0.000		0.000		0.000		-		0.000	0.000	0.315	0.000
Fleet Integration - MX09 - Fleet CSCS	MIPR	CSCS : Dahlgren, VA	6.875	1.670	Nov 2021	1.653	Nov 2022	2.053	Nov 2023	-		2.053	Continuing	Continuing	Continuing

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MX09 / Aegis BMD Development Support
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Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Infrastructure Upgrades - MX-09 S Jacobs	C/CPAF	Jacobs Engineering : AL, CA, CO, NM, VA, HI	0.096	0.000		0.000		0.000		-		0.000	0.000	0.096	0.000
Infrastructure Upgrades - MX-09 S Network	C/CPFF	Network Management Resources : Chantilly, VA	0.171	0.000		0.000		0.000		-		0.000	0.000	0.171	0.000
Infrastructure Upgrades - MX09 - ICT Funding	C/CPAF	JACOBS TECHNOLOGY INC. : Various	70.820	11.364	Nov 2021	11.509	Nov 2022	11.898	Nov 2023	-		11.898	Continuing	Continuing	Continuing
Infrastructure Upgrades - MX09 - S	MIPR	DOD - USN - NAVAL INFORMATION WARFARE SYSTEMS COMMAND (NAVWAR) : CA	0.446	0.000		0.000		0.000		-		0.000	0.000	0.446	0.000
Infrastructure Upgrades - MX09 - S APL	SS/CPAF	JHU/APL : Laurel, MD	6.957	0.000		0.000		0.000		-		0.000	0.000	6.957	0.000
Infrastructure Upgrades - MX09 - S Corona	MIPR	NSWC Corona : Corona, CA	5.332	0.000		0.000		0.000		-		0.000	0.000	5.332	0.000
Infrastructure Upgrades - MX09 - S LM	C/CPAF	Lockheed Martin : Moorestown, NJ	21.629	0.000		0.000		0.000		-		0.000	0.000	21.629	0.000
Infrastructure Upgrades - MX09 - S MIT	C/CPAF	MIT : Lexington, MA	1.306	0.000		0.000		0.000		-		0.000	0.000	1.306	0.000
Infrastructure Upgrades - MX09 - S RMS	C/CPAF	Raytheon : Tucson, AZ	6.920	0.000		0.000		0.000		-		0.000	0.000	6.920	0.000
Infrastructure Upgrades - MX09- NIWC	MIPR	DOD - USN - NAVAL INFORMATION WARFARE SYSTEMS COMMAND (NAVWAR) : CA	18.244	0.000		0.000		5.835	Nov 2023	-		5.835	Continuing	Continuing	Continuing
Infrastructure Upgrades - MX09- S DD	MIPR	NSWC DD : Dahlgren, VA	3.843	0.000		0.000		0.000		-		0.000	0.000	3.843	0.000

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MX09 / Aegis BMD Development Support
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Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Infrastructure Upgrades - MX09-Variou	MIPR	Various : Various	1.579	0.000		0.000		0.000		-		0.000	0.000	1.579	0.000
Joint Emerging Operational Need (JEON) - MX09 AW JHU/APL	SS/CPFF	JHU/APL : Columbia, MD	0.480	0.000		0.000		0.000		-		0.000	0.000	0.480	0.000
Joint Emerging Operational Need (JEON) - MX09 AW Lockheed Martin	C/CPFF	Lockheed Martin : Moorestown, NJ	3.635	0.000		0.000		0.000		-		0.000	0.000	3.635	0.000
Joint Emerging Operational Need (JEON) - MX09 AW NSWC	MIPR	NSWC DD : Dahlgren, VA	0.685	0.000		0.000		0.000		-		0.000	0.000	0.685	0.000
Subtotal			837.174	136.589		138.909		173.105		-		173.105	Continuing	Continuing	N/A

Remarks
N/A

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

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			
Subtotal			-	-		-		-		-		-	-	-	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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MX09 / Aegis BMD Development Support
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	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	837.174	136.589	138.909	173.105	-	173.105	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-4A, RDT&E Schedule Details: PB 2024 Missile Defense Agency		Date: March 2023
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MX09 / Aegis BMD Development Support

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MX09 Aegis BMD Development Support	1	2022	4	2028

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency										Date: March 2023		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD				Project (Number/Name) MD40 / Program-Wide Support			
COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
MD40: <i>Program-Wide Support</i>	406.321	31.595	21.789	25.847	-	25.847	22.489	28.081	27.357	28.120	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

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

A. Mission Description and Budget Item Justification

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

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

	FY 2022	FY 2023	FY 2024
Title: Program Wide Support	31.595	21.789	25.847
Articles:	-	-	-
Description: PWS contains non-headquarters management costs in support of MDA functions and activities across the entire Missile Defense System. These functions include Government Civilians and Contract Support Services. This effort provides integrity and oversight of the Missile Defense System as well as supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes personnel to support global deployments performing deployment site preparation and activation, and provides facility capabilities for MDA Executing Agent locations worldwide. Other MDA wide costs include: physical and technical security; civilian drug testing; audit readiness; the Science, Technology, Engineering, and Mathematics (STEM) program; legal services and settlements; travel and agency training; office, equipment, vehicle, and warehouse leases; utilities and base operations across multiple geographic locations; commercial and ancillary facility services; management of all facility aspects regardless of lifecycle stage; supplies and maintenance; compliance with statutory environmental requirements; data and unified communications support; materiel and readiness and central property management of equipment; Facilities Sustainment, Restoration and Modernization (FSRM) program (formerly Real Property			

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Missile Defense Agency	Date: March 2023
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Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD40 / Program-Wide Support
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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2022	FY 2023	FY 2024
<p>Maintenance) to keep the Department's inventory of facilities in good working order; and similar operating expenses. PWS is allocated on a pro-rata basis across most Agency PEs and therefore fluctuates per PE by fiscal year based on the total Agency budget in that fiscal year.</p> <p>FY 2023 Plans: - SEE ABOVE.</p> <p>FY 2024 Plans: - SEE ABOVE.</p> <p>FY 2023 to FY 2024 Increase/Decrease Statement: Increase from FY 2023 to FY 2024 provides the PWS allocation 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.</p>			
Accomplishments/Planned Programs Subtotals	31.595	21.789	25.847

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD40 / Program-Wide Support
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Support (\$ in Millions)				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Wide Support - Agency Facilities and Maintenance SRM	MIPR	Various : Various	0.000	0.000		0.239	Nov 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations Management	C/CPAF	Various : Multi: AL, CA, CO, VA	3.662	0.000		0.000		0.000		-		0.000	0.000	3.662	0.000
Program Wide Support - Agency Operations and Support Civilian Salaries	Allot	MDA : Multi: AK, AL, CO, CA, VA	320.142	31.595	Oct 2021	17.826	Oct 2022	25.847	Oct 2023	-		25.847	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Other Agency Services	MIPR	Various : Multi: AK/AL/CA/CO/HI/MD/VA/NJ/NY/OCONUS	31.368	0.000		0.924	Nov 2022	0.000		-		0.000	0.000	32.292	0.000
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, CA, CO, VA	46.459	0.000		0.000		0.000		-		0.000	0.000	46.459	0.000
Program Wide Support - Agency Operations, Sustainment and GPC	C/CPFF	021 - CDSA DAM NECK - DODN63273 : TBD	0.000	0.000		2.800	Nov 2022	0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Prior year no longer funded in the FYDP	Various	Various : Various	4.690	0.000		0.000		0.000		-		0.000	0.000	4.690	0.000
Subtotal			406.321	31.595		21.789		25.847		-		25.847	Continuing	Continuing	N/A

Remarks
N/A

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	406.321	31.595	21.789	25.847	-	25.847	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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD40 / Program-Wide Support
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Significant Event Complete ▲	Milestone Decision Complete ★	Element Test Complete ◆	System Level Test Complete ●	Complete Activity ◆																
Significant Event Planned △	Milestone Decision Planned ☆	Element Test Planned ◇	System Level Test Planned ○	Planned Activity ◇																
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;"></th> <th style="width: 10%;">FY 2022</th> <th style="width: 10%;">FY 2023</th> <th style="width: 10%;">FY 2024</th> <th style="width: 10%;">FY 2025</th> <th style="width: 10%;">FY 2026</th> <th style="width: 10%;">FY 2027</th> <th style="width: 10%;">FY 2028</th> </tr> </thead> <tbody> <tr> <td>MD40 Program-Wide Support</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	MD40 Program-Wide Support	◇	◇	◇	◇	◇	◇	◇
	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028													
MD40 Program-Wide Support	◇	◇	◇	◇	◇	◇	◇													

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

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603892C / AEGIS BMD	Project (Number/Name) MD40 / Program-Wide Support
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Schedule Details

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