Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Missile Defense Agency											**Date:** February 2018	

Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	1,702.637	435.203	465.642	540.926	-	540.926	542.326	608.210	489.637	496.313	Continuing	Continuing
MD24: *System Engineering & Integration*	640.571	150.748	166.558	170.348	-	170.348	156.422	151.341	148.663	158.262	Continuing	Continuing
MT23: *Enabling - Test*	34.268	17.187	22.767	39.288	-	39.288	20.666	21.328	21.081	21.373	Continuing	Continuing
MD28: *Intelligence & Security*	147.039	44.696	44.708	44.078	-	44.078	47.226	46.859	47.581	48.905	Continuing	Continuing
MD30: *BMD Information Management Systems*	325.017	84.671	84.499	79.979	-	79.979	88.786	87.686	90.970	93.890	Continuing	Continuing
MC30: *Cyber Operations*	58.697	43.589	41.458	63.112	-	63.112	66.286	72.775	68.150	56.599	Continuing	Continuing
MD31: *Modeling & Simulation*	165.404	46.513	49.824	89.786	-	89.786	97.004	135.297	48.670	49.030	Continuing	Continuing
MC31: *Engineering Cyber Operations*	0.817	2.980	3.838	4.466	-	4.466	11.564	34.665	10.697	13.383	Continuing	Continuing
MD32: *Quality, Safety, and Mission Assurance*	206.246	29.813	30.516	29.319	-	29.319	31.135	30.766	31.398	32.286	Continuing	Continuing
MD40: *Program-Wide Support*	124.578	15.006	21.474	20.550	-	20.550	23.237	27.493	22.427	22.585	Continuing	Continuing

Program MDAP/MAIS Code: 362

Note

FY 2017 MISSILE DEFEAT ENCHANCEMENTS REPROGRAMMING (FY17-26 PA): +$1.100 million to address emergency warfighting requirements in support of a Joint Emergent Operational Need. Additional details are available at a higher classification level. This is a base budget requirement.

FY 2018 MISSILE DEFEAT AND DEFENSE ENCHANCEMENT (MDDE) BUDGET AMENDMENT: +$16.200 million is required to address emergency warfighting requirements in support of USFK Joint Emergent Operational Need Statement (JEON). Additional details are available at a higher classification level.

A. Mission Description and Budget Item Justification

The Ballistic Missile Defense System (BMDS) Enabling Programs provide critical products and processes needed to combine element missile defense systems into a single, integrated and layered BMDS to provide new defensive capabilities and evaluate existing capabilities against the emerging threats. Specifically, the Enabling Programs:
- Define BMDS architectures and functional requirements, conduct Analyses of Alternatives (AoA) for the DoD, and provide engineering requirements, execution support, and pre- and post-mission analysis for BMD System tests
- Provide validated models and simulations for BMD System assessment

Exhibit R-2, **RDT&E Budget Item Justification:** PB 2019 Missile Defense Agency	**Date:** February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*

- Assess BMDS performance and deliver capabilities to the Warfighter
- Provide multi-disciplinary security and intelligence support for BMDS acquisition, development, test, and deployment
- Identify potential threats and vulnerabilities to MDA and the BMDS and develop and implement strategies to mitigate those risks
- Assess architecture alternatives to address advanced threats and provide recommendations for future BMDS configurations to keep pace with evolving threats
- Provide Information Management tools and products supporting the development of BMDS capabilities while safeguarding networks and critical program information
- Provide MDA secure communication networks, IT systems, special purpose processing nodes, operations and monitoring centers, and disaster recovery and continuity of operations requirements
- Evaluate quality, technical safeguards, and mission assurance effectiveness
- Assess System ability to maintain integrity and superiority with advances in technology development

This Program Element includes BMDS threat discrimination improvements, which will enhance BMDS effectiveness against the evolving adversary threat. The end result will be a BMDS 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. BMDS threat discrimination improvements are funded from the Enabling (0603890C), Midcourse (0603882C), BMD Sensors (0603884C), BMD Command, Control, Battle Management and Communications (C2BMC) (0603896C), and Aegis BMD (0603892C) PEs.

B. Program Change Summary ($ in Millions)

	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	408.594	449.442	466.760	-	466.760
Current President's Budget	435.203	465.642	540.926	-	540.926
Total Adjustments	26.609	16.200	74.166	-	74.166
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	25.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	9.985	0.000			
• SBIR/STTR Transfer	-9.476	0.000			
• FY 2017 Request for Additional Appropriations	0.000	0.000	0.000	-	0.000
• Missile Defeat and Defense Enhancement	1.100	16.200	0.000	-	0.000
• Other Adjustment	0.000	0.000	74.166	-	74.166

Change Summary Explanation

The increase in FY 2019 from PB18 to PB19 supports emerging Department of Defense priorities, including capability enhancements to address USFK Joint Emergent Operational Need; establishing a continuous integration and agile ground testing capability; enhanced modeling and simulation in support of BMD System Assessment to give Warfighters confidence in BMDS performance; enhanced Verification, Validation, and Accreditation (VV&A) to provide confidence in

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BMDS modeling and simulation results; and the consolidation of cybersecurity investments to implement the Office of the Secretary of Defense four lines of effort and Risk Management Framework (RMF) activities across MDA programs.

FY 2017 CONGRESSIONAL ADDS: +25.000 million is a Congressional add for Cybersecurity training and enhancements and cybersecurity investments for Secretary of Defense priority effort in the Cybersecurity Four Lines of Effort.

FY 2017 MISSILE DEFEAT ENCHANCEMENTS REPROGRAMMING (FY17-26 PA): +$1.100 million to address emergency warfighting requirements in support of a Joint Emergent Operational Need. Additional details are available at a higher classification level. This is a base budget requirement.

FY 2017 OTHER ADJUSTMENTS: +$9.985 million reflects MDA realignments to support acceleration of systems engineering efforts to address analysis of emerging BMD threats, filtering and tracking capabilities, and spaced-based architecture alternatives.

FY 2018 MISSILE DEFEAT AND DEFENSE ENCHANCEMENT (MDDE) BUDGET AMENDMENT: +$16.200 million is required to address emergency warfighting requirements in support of USFK Joint Emergent Operational Need Statement (JEON). Additional details are available at a higher classification level.

PB19 reflects approved out year Missile Defeat and Defense Enhancement (MDDE) tails.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency										Date: February 2018	

Appropriation/Budget Activity 0400 I 4				R-1 Program Element (Number/Name) PE 0603890C I BMD Enabling Programs					Project (Number/Name) MD24 I System Engineering & Integration		

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
MD24: System Engineering & Integration	640.571	150.748	166.558	170.348	-	170.348	156.422	151.341	148.663	158.262	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
 N/A

A. Mission Description and Budget Item Justification

The System Engineering & Integration (SE&I) workforce, including Industry and Contractor Support Services (CSS), defines, designs, tests and integrates the BMDS, and provides analysis, decision support and planning activities for real-world operations to the National Command Authority, Joint Staff, Military Services, Combatant Commanders, Operational Test Agencies, Director of Operational Test and Evaluation, Allies, and others.

The SE&I Major Program Goals are:
- Plan, design, develop, integrate, and test a layered BMDS that provides the required BMD performance
- Provide system-level engineering support to the BMDS Elements, and lead collaborative cross-Element, cross-Component engineering
- Lead the engineering required to achieve Enhanced Homeland Defense capability
- Develop architectures and requirements to respond to the proliferation of short and medium range ballistic missiles
- Provide a more effective missile defense capability for U.S. deployed forces, allies, and partners, and enhance homeland defense
- Develop discrimination improvements for the Homeland and Regional Defense missions
- As technical authority for Integrated Air and Missile Defense (IAMD), provide a consistent, disciplined systems engineering process using a multi-Service team to integrate Joint IAMD systems
- Provide technical direction to Element and Component developers and provide System-level forums to track, assess, and improve hardware and software reliability
- Identify BMDS capabilities and limitations
- Develop performance assessment requirements, verify BMDS performance through testing, and conduct assessments to form the basis for technical capability declarations in support of fielding decisions
- Identify Critical Engagement Conditions and data required to develop the test campaigns to demonstrate BMDS performance
- Define the test objectives necessary to anchor BMDS-level models and simulations, enable independent verification and validation
- Identify System issues occurring in ground and flight tests and lead the effort to resolve them
- Analyze architecture alternatives and new technologies to establish technical roadmaps for future capabilities
- Ensure the BMDS is complementary to and interoperable with NATO and other theater systems
- Develop anti-tamper approaches to enable international fielding of the BMDS

The BMDS discrimination improvements effort will develop and field integrated Element capabilities to improve the BMDS ability to identify lethal and non-lethal objects. SE&I will conduct BMDS performance analysis and engineering to specify the BMDS requirements and interfaces to achieve the improved capability.

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD24 *I System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2017**	**FY 2018**	**FY 2019**
Title: Requirements and Design	32.395	34.118	31.223
Articles:	-	-	-

Description: The Requirements and Design effort develops the BMD System level requirements and specifications for the Phased Adaptive Approach (PAA) Phases and beyond, and drives the integration of the BMDS. Requirements and Design allocates requirements to BMDS Elements and adjudicates Element level specifications to provide required capabilities for the Warfighter.
- Define BMDS technical content expectations and develop system requirements.
- Develop and allocate functional performance, interface, and design suitability requirements to Programs, in collaboration with BMDS element engineers.
- Deliver system technical baseline updates to document integrated system build content as identified in the R4 summary.
- Identify and resolve technical disconnects through the requirements trace process and element certifications; conduct engineering analyses and perform trade studies.
- Participate in Element Requirements Reviews.
- Develop Specification Change Notices (SCN) for future requirements changes, to include mitigation strategies to address BMDS Discrepancy Reports.
- Ensure reporting of Element functionality and software / hardware integration in the BMDS Accountability Report (BAR) and Director's Program Reviews.
- Assess and add emerging threats to MDA`s lethality prediction models.
- Incorporate updates to lethality assessments, collateral effects, and consequences of intercept into the BMDS Lethality Program Plan.
Specific and/or unique accomplishments to each FY are as follows:

FY 2018 Plans:
FY 2018 increase is due to requirements and design work required to incorporate Post Intercept Assessment (PIA) into the BMDS.
- Define BMDS technical content expectations and develop system requirements, to include integration of new capabilities, such as Overhead Persistent Infrared (OPIR) interfaces and improved regional sensor discrimination
- Develop requirements for Additional Protection Techniques.
- Conduct initial experimentation for Post Intercept Assessment (PIA).
- Refine approach to implement and assess BMD System Track capability.
- Assure the successful integration of evolving DoD Position, Navigation, and Timing services into the BMDS.

FY 2019 Plans:
- Complete system requirements and interface definition for the Homeland Defense Radar in Hawaii.

FY 2018 to FY 2019 Increase/Decrease Statement:

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 *I* 4	R-1 Program Element (Number/Name) PE 0603890C *I BMD Enabling Programs*	Project (Number/Name) MD24 *I System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
N/A			
Title: Integrated Air and Missile Defense (IAMD)	19.292	16.911	16.996
Articles:	-	-	-

Description: The IAMD effort provides a consistent, disciplined systems engineering process using a joint service systems engineering team to develop the technical requirements necessary to support integration of joint service IAMD systems, implementing capabilities required by the Geographic Combatant Commands. This effort includes systems engineering analysis, development of technical and interface control requirements and documents, definition of candidate Joint IAMD increments, and configuration control across the joint systems. IAMD provides improved performance such as an improved air picture to enable engagement coordination decision making, increase battlespace, and improve track continuity. Additional efforts will address critical joint Command and Control and interoperability needs such as integrated fire control.

Specific and/or unique accomplishments to each FY are as follows:

FY 2018 Plans:
- Update IAMD M&S capabilities to support requirements development for the option(s) selected at the improved air picture Alternative System Review
- Continue to conduct additional systems engineering and prototyping to address issues uncovered for IAMD Increment 1
-- Conduct Joint IAMD System Requirements Reviews with the affected service systems to incorporate IAMD Increment 1 capability
- Improve upon the IAMD joint system architecture description by incorporating IAMD Increment 2 capabilities such as Combat Identification and/or planning capabilities as appropriate
- Continue to conduct long-range planning for future capability increments

FY 2019 Plans:
- Continue IAMD Increment 2 engineering efforts:
-- Develop Combat Identification models and conduct analyses
-- Develop Joint Force Planner options
-- Work with the Combatant Commands, Joint Staff, and Services to understand and prioritize existing and emerging capability gaps
-- Conduct studies and analysis to assess and advocate for the development of technologies to address these technical gaps
-- Monitor and assess the implementation of technical requirement compliance within Service and MDA Programs of Record
- Conduct long-range planning for future capabilities
FY 2018 to FY 2019 Increase/Decrease Statement:

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Missile Defense Agency		**Date:** February 2018
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2017**	**FY 2018**	**FY 2019**
N/A			
Title: System-Level Verification and Assessment	15.196	18.462	28.758
Articles:	-	-	-
Description: This activity funds BMD System Assessment and Verification, Validation, and Accreditation (VV&A) activities to support BMDS Operational Capacity Baseline (OCB) delivery decisions and Technical Capability Declarations (TCDs), and anchor System modeling & simulation. - Develop and manage assessment plans and requirements for BMDS capability increments: -- Map assessment requirements to data collection venues (i.e., ground tests, flight tests, and exercises). -- Evaluate current Modeling & Simulation (M&S) capability to address assessment requirements, and provide recommendations for new or improved M&S. - Maintain assessment documentation per the R4 summary. - Conduct extensive analysis of data collected in BMDS ground and flight test events, instrumental to understanding BMDS interoperability and performance, and anchoring models and simulations. - Identify mitigation approaches for system performance issues uncovered during the course of analysis and assessment. - Monitor development and recommend improvements to the simulation enterprise based on an evaluation of the validity of Component, Element and System-level models (and frameworks) and participation in assessment activities and Modeling and Simulation events. - Conduct assessments of BMD System capabilities and limitations prior to capability delivery decisions. - Produce independent assessments of each incremental BMDS Capability Delivery to support fielding readiness determinations. - Verify BMDS performance against specified requirements, and produce BMDS verification status reports. - Maintain M&S VV&A database and toolkit. - Maintain verification data for BMD System Specification Change Notices. - Recommend solutions to improve assessment confidence, including M&S and testing issue resolutions. Specific and/or unique accomplishments to each FY are as follows: *FY 2018 Plans:* FY 2018 increase is based on additional work required to implement Operational Test Agency (OTA) Accreditation Plan. - Conduct system assessment in support of BMDS EPAA Phase 3 TCD. - Develop assessment plans and requirements for BMDS 2020 Homeland Defense and Mid-term Discrimination Improvements. - Implement the BMDS OTA Accreditation Plan by generating additional VV&A evidence to meet M&S accreditation requirements for ground tests in support of BMDS TCDs and Operational Acceptance. *FY 2019 Plans:* - Complete system assessment in support of BMDS EPAA Phase 3 TCD.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 *I* 4	R-1 Program Element (Number/Name) PE 0603890C *I BMD Enabling Programs*	Project (Number/Name) MD24 *I System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
- Increase verification documentation and analyze additional performance parameters for each BMDS model. - Improve VV&A process for M&S used in ground tests, per MDA-BMDS OTA joint prioritized M&S limitations list -- Develop new analysis tools to verify that the Objective Simulation Framework correctly presents threat data to all Element M&S -- Develop threat implementation verification reports for all Element M&S -- Conduct verification and validation for additional environmental models -- Identify root cause for and resolve sensor model track accuracy issues - Continue analysis of tactical system outputs to increase confidence in ground test data ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase from FY 2018 to FY 2019 reflects an increased effort to address shortcomings outlined in yearly DOT&E reporting and provide additional confidence in BMDS performance to the Warfighter.			
Title: Knowledge Centers ***Articles:*** ***Description:*** Knowledge Centers serve as independent technical advisors to BMDS program offices in the C2BMC, Interceptor, Space, and Sensor areas to support development of technical approaches and improve reliability. - Provide Federally Funded Research and Development Centers (FFRDC) and University Affiliated Research Centers (UARC) subject matter expertise, to include reach-back capability as needed, for Element program managers: -- Provide Subject Matter Expertise and analytical support for Independent Review Teams, mission assurance assessments, Failure Review Boards and Failure Investigation Teams -- Identify and provide recommendations to mitigate technical risks, including innovative and unconventional approaches -- Promote knowledge sharing between external technical sources and MDA. - Perform independent technical assessments of critical BMDS and Element program issues: -- Define element knowledge points (KPs), establish closure criteria, and provide closure recommendations -- Continue to provide BMD System and Element performance assessments. - Conduct assessments of emerging technologies as required. Specific and/or unique accomplishments to each FY are as follows: ***FY 2018 Plans:*** - SEE ABOVE. ***FY 2019 Plans:*** - SEE ABOVE. ***FY 2018 to FY 2019 Increase/Decrease Statement:***	14.142 -	15.469 -	14.819 -

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 *I* 4	R-1 Program Element (Number/Name) PE 0603890C *I BMD Enabling Programs*	Project (Number/Name) MD24 *I System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
N/A			
Title: Future Concepts and Planning	22.370	13.120	12.988
Articles:	-	-	-
Description: This activity funds BMDS architecture and future concept development, and efforts and studies to address the BMDS emergent threat, including DoD Analyses of Alternatives (AoA). - Perform BMDS capability gap analysis, and analyze and document architecture alternatives and/or new technologies to address gaps - Develop Initial Requirements Documents (IRDs) to establish functional, performance and integration planning requirements for next generation BMD weapons and sensors - Identify architecture alternatives that improve BMDS performance and are complementary to and interoperable with North Atlantic Treaty Organization (NATO) systems and theaters around the world - Conduct technology development reviews for future/follow-on BMDS Element development efforts. - Update concept capability documentation based on architectural options, trade studies, and technology development experiments. - Maintain and update Phased Implementation Plan to document integrated requirements for improvements to, or augmentations of, current system capabilities. - Develop Preliminary Specification Change Notices for selected future BMDS capabilities and technologies. - Maintain a dialog with the warfighter community for all BMDS engineering and technical issues -- Inform Warfighter development of the Prioritized Capabilities List (PCL) by providing relevant BMD System data -- Develop updates to the Achievable Capabilities List (ACL) as required - Lead collaborative effort to improve foreign partners' understanding of existing system capabilities, architectural performance and operational concepts of the BMDS Specific and/or unique accomplishments to each FY are as follows: *FY 2018 Plans:* FY 2018 decrease reflects transfer of Hypersonic Defense activities to Project MD29, Hypersonic Defense, in PE 0604181C. - Conduct activities listed in Description section (SEE ABOVE). - Participate in designated OSD activities or analyses, as directed by Congress - Conduct analyses of architecture alternatives, including: -- Space sensor technologies -- Boost phase concepts *FY 2019 Plans:* - Participate in designated OSD activities or analyses, as directed by Congress - Conduct analyses of architecture alternatives, including:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 **I** 4	R-1 Program Element (Number/Name) PE 0603890C **I** *BMD Enabling Programs*	Project (Number/Name) MD24 **I** *System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
-- Directed energy technologies -- Improvements recommended by the Ballistic Missile Defense Review (BMDR) ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A			
Title: Systems Engineering, Engineering Analysis and Quick Response Team **Articles:**	9.865 -	10.620 -	10.690 -
Description: This task provides rapid response, high quality systems engineering analysis products and supporting technical data to address external and internal Agency inquiries and decisions: - Conduct system level analyses to support ongoing BMDS Architecture and Systems Engineering efforts. - Analyze expected performance of BMDS Architecture options: -- Analyze and predict the performance of future BMDS capabilities -- Provide technical assessments, and collaborate with BMDS Elements to define and track technical performance measures. - Respond to Warfighter, Combatant Command (CCMD) and Congressional requests for information and analysis (RFIs/RFAs) - Provide analytical support for real-world events. - Maintain analysis parameters database and standards per the R4 summary to ensure consistency. - Develop analytical data to respond to information requests from MDA and DoD leadership. Specific and/or unique accomplishments to each FY are as follows: ***FY 2018 Plans:*** - SEE ABOVE. ***FY 2019 Plans:*** - SEE ABOVE. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A			
Title: Discrimination **Articles:**	19.854 -	12.774 -	22.322 -
Description: For Mid-term and Far-term discrimination, SE&I will establish performance goals for the technology development phase; develop functional, performance, and interface requirements to address the Mid-term and Far-term threat sets. SE&I will establish ground and flight test requirements for the Mid-term and Far-term phases, and generate threat data to support analysis and testing activities. Specific and/or unique accomplishments to each FY are as follows:			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2017**	**FY 2018**	**FY 2019**
FY 2018 Plans: FY 2018 decrease is in-line with efforts to transition focus from top-level systems engineering to element engineering. - Identify and address Mid-term discrimination integration issues and work resolution with BMDS Elements in preparation for 2021 Technical Capability Declaration. - Support modifications to Mid-term discrimination content in the integrated master assessment plan and integrated master test plan. - Develop detailed plan to support Mid-term discrimination Technical Capability Declaration. *FY 2019 Plans:* - Develop and refine requirements to integrate new and improved discrimination capabilities. - Complete integration phase of ground testing for Mid-term discrimination capabilities via GTI-08. - Monitor Mid-term ground testing and analyze test results. - Support planning of distributed phase of ground testing for Mid-term discrimination capabilities via GTD-08. *FY 2018 to FY 2019 Increase/Decrease Statement:* Increase from FY 2018 to FY 2019 reflects providing system-level engineering for required discrimination capabilities, including electronic protection based on threat requirements and emergent threats, to improve communications and sensor performance for Homeland defense.			
Title: Risk Management	7.619	8.145	7.768
Articles:	-	-	-
Description: The Risk Management task identifies BMDS element and component technical risks, and tracks status and risk mitigation progress. - Convene and chair Risk Management Working Group. - Execute the risk management and mission readiness working group process. - Maintain a risk database using the Failure Reporting and Corrective Action System. - Review and approve program element risks, on quarterly basis. Specific and/or unique accomplishments to each FY are as follows: *FY 2018 Plans:* - SEE ABOVE. *FY 2019 Plans:* - SEE ABOVE. *FY 2018 to FY 2019 Increase/Decrease Statement:*			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2017**	**FY 2018**	**FY 2019**
N/A			
Title: Anti-Tamper & Engineering Manufacturing Readiness Level Development	5.353	5.795	5.637
Articles:	-	-	-
Description: This task develops anti-tamper approaches to inhibit reverse engineering of critical technologies, and oversees the use of Engineering and Manufacturing Readiness Levels (EMRLs) to assess BMDS element, component, or system maturity. - Develop anti-tamper approaches to enable international fielding, support coalition warfare, and extend the effective operational life of the BMDS. - Engage and support the Services in understanding and transitioning BMDS Element Anti-Tamper activities. - Participate in Element reviews to assess proposed Anti-Tamper solutions and assist programs in developing and implementing Anti-Tamper detection and response technologies to mitigate risk. - Monitor application of EMRLs to evaluate engineering and manufacturing maturity of BMDS elements, systems, and components. - Assess and report readiness of MDA development efforts for transition to production. Specific and/or unique accomplishments to each FY are as follows: *FY 2018 Plans:* - SEE ABOVE. *FY 2019 Plans:* - SEE ABOVE. *FY 2018 to FY 2019 Increase/Decrease Statement:* N/A			
Title: Manufacturing and Producibility	4.662	4.944	4.647
Articles:	-	-	-
Description: This activity supports a system-level manufacturing and producibility team to address materials, key component, and subsystem design and development to reduce cycle time, part count, and risk. This activity also supports a system-level reliability team to reduce risk of test failures and performance shortcomings and drive reliability into system and component designs. - Assess BMDS industrial base and determine critical manufacturing technologies -- Conduct assessments of critical component supply base and update critical technologies database -- Collaborate with national security space components on investment strategies for critical technologies -- Develop engineering management tool to characterize industrial base risks. - Utilize supply chain risk identification and mitigation tracking system to mitigate manufacturing supply issues for critical components			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 I 4	R-1 Program Element (Number/Name) PE 0603890C I BMD Enabling Programs	Project (Number/Name) MD24 I System Engineering & Integration

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
- Assess the effectiveness of reliability programs for each MDA Product (Radar, Launcher, Missile/Interceptor, etc.) to achieve/ sustain required reliability. - Perform reliability, composite risk, and probability of mission success assessments for flight tests. - Identify failure trends/modes and evaluate impact on the Probability of Mission Success; evaluate potential corrective actions -- Provide element/program scorecard data to support reliability evaluations/assessments. - With Logistics Support, develop MDA Reliability and Logistic Policies/Plans to promote an integrated Sustainability efforts - Ensure that BMDS products have achieved the required maturity in Reliability, Availability, and Maintainability (RAM) to support the transition from MDA to the appropriate service organization; provide RAM expertise as needed to Element Program Offices. - Provide updates to MDA RAM policy and guidance. Specific and/or unique accomplishments to each FY are as follows: **_FY 2018 Plans:_** - SEE ABOVE. **_FY 2019 Plans:_** - SEE ABOVE. **_FY 2018 to FY 2019 Increase/Decrease Statement:_** N/A			
Title: Aegis Ashore Defense **_Articles:_**	0.000 -	10.000 -	0.000 -
Description: Consistent with direction in Public Law 114-92, National Defense Authorization Act for FY 2016, the Department is required to provide defense of Aegis Ashore sites in Romania and Poland by mid-year 2019. This effort will build upon a previously-conducted study that assessed potential options to fulfill this requirement. Specific and/or unique accomplishments to each FY are as follows: **_FY 2018 Plans:_** - Demonstrate a viable, organic capability for Aegis Ashore sites in Romania and Poland in accordance with the NDAA. -- Conduct testing, analysis and assessment utilizing the land-based test facility at White Sands Missile Range (WSMR). -- Partner with MDA Functional and Navy/Army Program Offices to conduct two demonstrations at WSMR in FY18. - Develop and implement an architecture, and prove a target track provided by an Army sensor can effectively provide enough track data to allow the Aegis Combat System (ACS) to develop an engagement order. - Integrate Navy's Sea Rolling Airframe Missile (SeaRAM) with the ACS to characterize architecture and functionality. - Conduct a live missile test to prove missile performance over land. **_FY 2019 Plans:_**			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD24 *I System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
N/A			
FY 2018 to FY 2019 Increase/Decrease Statement: Effort is scheduled for completion in FY 2018.			
Title: USFK JEON Capability	0.000	16.200	14.500
Articles:	-	-	-
Description: In conjunction with the Lower Tier Project Office (LTPO), MDA requested and was approved funding for a four-phased capability enhancement project in response to a U.S. Forces-Korea (USFK) Joint Emergent Operational Need (JEON). Congress approved $74.1 million in an FY 2017 Rapid Acquisition Authority (RAA), and an FY 2018 Budget Amendment was submitted for $16.2 million in the Enabling PE to continue this effort to meet this emergent requirement. System-level engineering activities will enable the development, testing and deployment of an integrated solution for upper tier/lower tier integration by achieving enhanced interoperability between the Terminal High Altitude Area Defense (THAAD) and PATRIOT capabilities: -- Develop threat updates to inform requirements -- Develop functional, performance, and interface requirements -- Develop test requirements -- Update Modeling and Simulation (M&S) frameworks and core truth models -- Provide M&S integration for testing, and provide Wargame and training support -- Develop requirements for capability assessments -- Provide test and performance analysis -- Perform Element integration **FY 2018 Plans:** - Improve THAAD and Aegis BMD system performance against emerging threats. - Improve command and control infrastructure and interoperability. **FY 2019 Plans:** - Improve THAAD performance against defended area and emerging threats. **FY 2018 to FY 2019 Increase/Decrease Statement:** N/A			
Accomplishments/Planned Programs Subtotals	150.748	166.558	170.348

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018

Appropriation/Budget Activity 0400 I 4	R-1 Program Element (Number/Name) PE 0603890C I BMD Enabling Programs	Project (Number/Name) MD24 I System Engineering & Integration

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0603881C: Ballistic Missile Defense Terminal Defense Segment	197.171	292.262	214.173	-	214.173	199.399	197.451	174.161	152.174	Continuing	Continuing
• 0603882C: Ballistic Missile Defense Midcourse Defense Segment	1,034.861	957.097	926.359	-	926.359	1,046.235	847.537	585.956	572.619	Continuing	Continuing
• 0603884C: Ballistic Missile Defense Sensors	252.665	278.145	220.876	-	220.876	250.238	267.502	263.758	260.273	Continuing	Continuing
• 0603892C: AEGIS BMD	889.489	860.788	767.539	-	767.539	780.085	707.901	693.256	562.748	Continuing	Continuing
• 0603896C: Ballistic Missile Defense Command and Control, Battle Management & Communication	465.433	454.862	475.168	-	475.168	515.239	494.873	492.119	515.529	Continuing	Continuing
• 0603914C: Ballistic Missile Defense Test	294.441	316.193	365.681	-	365.681	349.388	320.909	320.332	327.584	Continuing	Continuing

Remarks

D. Acquisition Strategy

In order to optimize the performance of the BMDS, MDA leverages the nation's engineering Centers of Excellence at government agencies and Military Services, FFRDCs, UARCs, and industry. The executing agents utilize various contracting strategies in a flexible manner to maximize their contribution to the BMDS. Products and Services will be acquired by competitive means to the extent that is possible and practical.

E. Performance Metrics

N/A

Exhibit R-3, **RDT&E Project Cost Analysis:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD24 *I System Engineering & Integration*

Product Development ($ in Millions)				**FY 2017**		**FY 2018**		**FY 2019 Base**		**FY 2019 OCO**		**FY 2019 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**
Subtotal			-	-		-		-		-		-	-	-	N/A

Remarks
 N/A

Support ($ in Millions)				**FY 2017**		**FY 2018**		**FY 2019 Base**		**FY 2019 OCO**		**FY 2019 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**
Requirements and Design - Reqts & Design - Lethality Spt - FFRDC/UARC	MIPR	Various : CA	1.041	0.364	Nov 2016	1.046	Nov 2017	0.947	Nov 2018	-		0.947	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - Lethality Spt - CSS	C/CPAF	TEAMS : NC	1.459	0.758	Nov 2016	0.000		0.592	Nov 2018	-		0.592	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - ATMD Requirements	Various	Various : AL, VA	0.000	3.295	Oct 2016	0.000		0.000		-		0.000	0.000	3.295	0.000
Requirements and Design - Reqts & Design - CSS 1	C/CPFF	MiDAESS / TEAMS : AL	34.147	1.886	Nov 2016	3.654	Nov 2017	4.557	Nov 2018	-		4.557	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - CSS 3	C/CPFF	MEI : AL	0.881	0.286	Nov 2016	0.509	Nov 2017	0.000		-		0.000	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - FFRDC/UARC 1	MIPR	ORNL : TN	0.984	0.000		0.391	Nov 2017	0.399	Nov 2018	-		0.399	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - FFRDC/UARC 2	MIPR	MITRE : VA	0.555	0.762	Nov 2016	2.074	Nov 2017	1.196	Nov 2018	-		1.196	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - HAENS Spt	MIPR	NSWC Crane : IN	0.974	0.469	Nov 2016	0.479	Nov 2017	0.488	Nov 2018	-		0.488	Continuing	Continuing	Continuing

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency | | | | | | | | | | | | Date: February 2018 |

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PE 0603890C *I BMD Enabling Programs* | Project (Number/Name)
MD24 *I System Engineering & Integration* |

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Requirements and Design - Reqts & Design - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	1.300	Nov 2016	0.000		0.000		-		0.000	0.000	1.300	0.000
Requirements and Design - Reqts & Design - Industry	C/CPFF	Boeing : AL	97.346	9.486	Nov 2016	8.077	Nov 2017	7.095	Nov 2018	-		7.095	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - MDA	Allot	MDA : AL, VA	34.770	11.917	Oct 2016	8.800	Oct 2017	8.018	Oct 2018	-		8.018	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - OGA	MIPR	AMRDEC : AL	5.587	1.872	Nov 2016	2.188	Nov 2017	2.231	Nov 2018	-		2.231	Continuing	Continuing	Continuing
Requirements and Design - Reqts & Design - Post Intercept Assessment	Various	Various : Various	0.000	0.000		6.900	Dec 2017	5.700	Nov 2018	-		5.700	Continuing	Continuing	Continuing
Integrated Air and Missile Defense (IAMD) - IAMD - FFRDC	Various	Various : AL, VA, MD	2.547	3.303	Nov 2016	0.000		0.000		-		0.000	0.000	5.850	0.000
Integrated Air and Missile Defense (IAMD) - IAMD - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	0.670	Nov 2016	0.000		0.000		-		0.000	0.000	0.670	0.000
Integrated Air and Missile Defense (IAMD) - IAMD - OGA	MIPR	AMRDEC : AL	0.000	4.319	Nov 2016	4.448	Nov 2017	4.627	Nov 2018	-		4.627	Continuing	Continuing	Continuing
Integrated Air and Missile Defense (IAMD) - IAMD - Support	C/CPFF	MiDAESS / TEAMS : AL, VA, CO	3.391	0.499	Nov 2016	1.498	Nov 2017	2.202	Nov 2018	-		2.202	Continuing	Continuing	Continuing
Integrated Air and Missile Defense (IAMD) - IAMD - Various	MIPR	DoD Activities : Various	22.158	10.501	Nov 2016	10.965	Nov 2017	10.167	Nov 2018	-		10.167	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - CSS	C/CPFF	MiDAESS / TEAMS : AL	5.365	1.044	Nov 2016	3.368	Nov 2017	5.723	Nov 2018	-		5.723	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - CSS 2	C/CPFF	MiDAESS / TEAMS : AL, CO	0.000	2.046	Nov 2016	0.000		0.000		-		0.000	0.000	2.046	0.000

| Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency | | | | | | | | | | | | Date: February 2018 | | |

| Appropriation/Budget Activity 0400 / 4 | | R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs | | Project (Number/Name) MD24 / System Engineering & Integration | | |

Support ($ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 1	MIPR	Aerospace : CA	16.791	1.433	Nov 2016	1.700	Nov 2017	1.750	Nov 2018	-		1.750	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 2	MIPR	JHU/APL : MD, VA	9.996	0.962	Nov 2016	1.100	Nov 2017	0.000		-		0.000	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 3	MIPR	GTRI : AL	0.000	0.000		0.000		1.125	Nov 2018	-		1.125	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 6	MIPR	MIT/LL : MA	18.526	1.372	Nov 2016	1.400	Nov 2017	1.425	Nov 2018	-		1.425	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - FFRDC/UARC 7	MIPR	MITRE : VA	16.567	1.599	Nov 2016	1.618	Nov 2017	1.619	Nov 2018	-		1.619	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.993	1.200	Nov 2016	0.000		0.000		-		0.000	0.000	2.193	0.000
System-Level Verification and Assessment - Sys V&A - M&S Accreditation	Various	AMRDEC / Various : AL	0.000	0.000		2.000	Nov 2017	10.581	Nov 2018	-		10.581	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - MDA	Allot	MDA : VA, AL	6.649	0.619	Oct 2016	2.389	Oct 2017	2.306	Nov 2018	-		2.306	Continuing	Continuing	Continuing
System-Level Verification and Assessment - Sys V&A - OGA	MIPR	AMRDEC : AL	8.828	1.043	Nov 2016	1.369	Oct 2017	1.332	Nov 2018	-		1.332	Continuing	Continuing	Continuing
System-Level Verification and Assessment - V&A Industry Support	C/CPFF	Boeing : AL	10.104	3.878	Nov 2016	3.518	Nov 2017	2.897	Nov 2018	-		2.897	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 5	MIPR	Draper : VA	0.000	0.000		0.000		0.639	Nov 2018	-		0.639	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 1	MIPR	Aerospace : CA	11.464	1.716	Nov 2016	1.793	Nov 2017	1.828	Nov 2018	-		1.828	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency													Date: February 2018		
Appropriation/Budget Activity 0400 *I* 4					**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*							**Project (Number/Name)** MD24 *I System Engineering & Integration*			

Support ($ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			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	Cost To Complete	Total Cost	
Knowledge Centers - KC - FFRDC/UARC 2	MIPR	MIT/LL : MA	7.017	0.983	Nov 2016	1.027	Nov 2017	1.048	Nov 2018	-		1.048	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 3	FFRDC	MITRE : VA	7.068	0.998	Nov 2016	1.042	Nov 2017	1.063	Nov 2018	-		1.063	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 4	FFRDC	JHU/APL : VA	6.478	0.657	Nov 2016	0.820	Nov 2017	0.700	Nov 2018	-		0.700	Continuing	Continuing	Continuing
Knowledge Centers - KC - FFRDC/UARC 7	MIPR	GTRI : GA	3.939	0.347	Nov 2016	0.363	Nov 2017	0.370	Nov 2018	-		0.370	Continuing	Continuing	Continuing
Knowledge Centers - KC - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	1.332	1.700	Nov 2016	0.000		0.000		-		0.000	0.000	3.032	0.000
Knowledge Centers - KC - MDA	Various	MDA : AL, VA	24.051	6.125	Nov 2016	5.099	Oct 2017	4.460	Oct 2018	-		4.460	Continuing	Continuing	Continuing
Knowledge Centers - KC - TEAMS	C/CPFF	MiDAESS / TEAMS : AL	0.000	0.000		3.276	Nov 2017	2.725	Nov 2018	-		2.725	Continuing	Continuing	Continuing
Knowledge Centers - KC - Various	MIPR	Various : Various	4.023	1.616	Nov 2016	2.049	Nov 2017	1.986	Dec 2018	-		1.986	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - Architecture CSS	C/CPFF	MiDAESS / TEAMS : AL	6.615	3.371	Nov 2016	3.740	Nov 2017	2.920	Nov 2018	-		2.920	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - Architecture Support	Various	Various : VA, AL	6.407	1.109	Nov 2016	1.780	Oct 2017	0.471	Nov 2018	-		0.471	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - CSS	C/CPFF	MiDAESS / TEAMS : AL	21.534	1.498	Nov 2016	0.000		0.000		-		0.000	0.000	23.032	0.000
Future Concepts and Planning - Future Concepts - FFRDC / UARC 1	MIPR	SNL : CA	2.682	0.385	Nov 2016	0.391	Nov 2017	0.399	Nov 2018	-		0.399	Continuing	Continuing	Continuing
Future Concepts and Planning - Future	MIPR	MIT/LL : MA	3.531	0.385	Nov 2016	0.783	Nov 2017	0.797	Nov 2018	-		0.797	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency														Date: February 2018

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD24 / System Engineering & Integration

Support ($ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Concepts - FFRDC / UARC 3															
Future Concepts and Planning - Future Concepts - FFRDC / UARC 4	MIPR	JHU/APL : MD, VA	4.453	0.790	Nov 2016	0.000		0.000		-		0.000	0.000	5.243	0.000
Future Concepts and Planning - Future Concepts - FFRDC / UARC 5	MIPR	MITRE : VA	1.982	0.462	Nov 2016	0.478	Nov 2017	0.080	Nov 2018	-		0.080	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - FFRDC / UARC 6	MIPR	Aerospace : CA	2.338	1.727	Nov 2016	0.391	Nov 2017	0.399	Nov 2018	-		0.399	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	0.450	Nov 2016	0.000		0.000		-		0.000	0.000	0.450	0.000
Future Concepts and Planning - Future Concepts - Industry	C/CPFF	Boeing : AL	28.556	2.420	Nov 2016	2.000	Nov 2017	2.000	Nov 2018	-		2.000	Continuing	Continuing	Continuing
Future Concepts and Planning - Future Concepts - Support	Allot	MDA : VA / AL	7.472	2.573	Oct 2016	3.557	Oct 2017	5.922	Oct 2018	-		5.922	Continuing	Continuing	Continuing
Future Concepts and Planning - Hypersonic Defense - CSS	C/CPFF	MiDAESS / TEAMS : AL, VA	0.000	0.800	Apr 2017	0.000		0.000		-		0.000	0.000	0.800	0.000
Future Concepts and Planning - Hypersonic Defense - FFRDC	Various	Various : AL, NM, MA, VA	0.000	2.017	Apr 2017	0.000		0.000		-		0.000	0.000	2.017	0.000
Future Concepts and Planning - Hypersonic Defense - Industry	C/CPAF	Boeing : AL	0.000	1.000	Apr 2017	0.000		0.000		-		0.000	0.000	1.000	0.000
Future Concepts and Planning - Hypersonic Defense - UARC	MIPR	JHU / APL : MD, VA	0.000	1.413	Apr 2017	0.000		0.000		-		0.000	0.000	1.413	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency												Date: February 2018		
Appropriation/Budget Activity 0400 *I* 4						**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*						**Project (Number/Name)** MD24 *I System Engineering & Integration*		

Support ($ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Future Concepts and Planning - Hypersonic Defense - Various	Various	Various : Various	0.000	1.970	Apr 2017	0.000		0.000		-		0.000	0.000	1.970	0.000
Systems Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	1.025	0.270	Nov 2016	0.000		0.000		-		0.000	0.000	1.295	0.000
Systems Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - CSS	C/CPFF	MiDAESS / TEAMS : AL	31.360	4.682	Nov 2016	2.421	Nov 2017	2.063	Nov 2018	-		2.063	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - CSS 2	C/CPFF	SAIC : VA, AL	13.787	4.556	Nov 2016	7.650	Nov 2017	7.636	Nov 2018	-		7.636	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - Industry Spt	C/CPFF	Boeing : VA, AL	0.000	0.000		0.000		0.520	Nov 2018	-		0.520	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team - Sys Engrg, QRT - MDA	Various	MDA : VA, AL	2.912	0.357	Nov 2016	0.549	Oct 2017	0.471	Oct 2018	-		0.471	Continuing	Continuing	Continuing
Discrimination - Discrimination - CSS	C/CPFF	MiDAESS / TEAMS : AL	12.738	1.998	Nov 2016	2.489	Nov 2017	2.450	Nov 2018	-		2.450	Continuing	Continuing	Continuing
Discrimination - Discrimination - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	2.006	Nov 2016	0.000		0.000		-		0.000	0.000	2.006	0.000
Discrimination - Discrimination - Industry	C/CPAF	Boeing : AL, VA	19.572	3.100	Nov 2016	3.172	Nov 2017	12.769	Nov 2018	-		12.769	Continuing	Continuing	Continuing
Discrimination - Discrimination - Support	Allot	MDA : AL, VA	17.015	8.400	Oct 2016	3.337	Oct 2017	3.260	Oct 2018	-		3.260	Continuing	Continuing	Continuing
Discrimination - Discrimination - Various	Various	Various : AL, VA	9.851	4.350	Nov 2016	3.776	Nov 2017	3.843	Nov 2018	-		3.843	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency														Date: February 2018	

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD24 / System Engineering & Integration

Support ($ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Discrimination - Prior year Discrimination Improvements no longer funded in FYDP	Various	Various : Various	25.213	0.000		0.000		0.000		-		0.000	0.000	25.213	0.000
Risk Management - Risk Mgt - Analysis	Various	MDA : VA, AL	12.731	5.892	Oct 2016	6.824	Oct 2017	6.403	Oct 2018	-		6.403	Continuing	Continuing	Continuing
Risk Management - Risk Mgt - Analysis Spt	C/CPAF	MiDAESS / TEAMS : AL	2.713	0.250	Nov 2016	0.733	Nov 2017	0.767	Nov 2018	-		0.767	Continuing	Continuing	Continuing
Risk Management - Risk Mgt - FFRDC/UARC	MIPR	MITRE : VA	4.247	0.577	Nov 2016	0.588	Nov 2017	0.598	Nov 2018	-		0.598	Continuing	Continuing	Continuing
Risk Management - Risk Mgt - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	1.225	0.900	Nov 2016	0.000		0.000		-		0.000	0.000	2.125	2.125
Anti-Tamper & Engineering Manufacturing Readiness Level Development - AT & EMRL - Anti-Tamper Support	MIPR	NSWC Crane : IN	6.268	0.213	Nov 2016	0.498	Nov 2017	0.508	Nov 2018	-		0.508	Continuing	Continuing	Continuing
Anti-Tamper & Engineering Manufacturing Readiness Level Development - AT & EMRL - MDA	Allot	MDA : AL, VA	15.998	4.927	Oct 2016	5.297	Oct 2017	5.129	Oct 2018	-		5.129	Continuing	Continuing	Continuing
Anti-Tamper & Engineering Manufacturing Readiness Level Development - OGA Support	MIPR	AMRDEC : AL	0.769	0.213	Nov 2016	0.000		0.000		-		0.000	0.000	0.982	0.000
Anti-Tamper & Engineering Manufacturing Readiness Level Development - Prior year AT & EMRL no longer funded in FYDP	Various	Various : Various	2.001	0.000		0.000		0.000		-		0.000	0.000	2.001	0.000
Manufacturing and Producibility - Core Standards	C/CPFF	Boeing : AL	2.200	1.113	Nov 2016	1.500	Nov 2017	1.282	Nov 2018	-		1.282	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency												Date: February 2018		
Appropriation/Budget Activity 0400 / 4					**R-1 Program Element (Number/Name)** PE 0603890C / BMD Enabling Programs						**Project (Number/Name)** MD24 / System Engineering & Integration			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Manufacturing and Producibility - Mfg and Producibility	Allot	MDA : AL	1.932	0.491	Oct 2016	1.475	Oct 2017	2.154	Oct 2018	-		2.154	Continuing	Continuing	Continuing
Manufacturing and Producibility - Mfg and Producibility - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.500	0.950	Nov 2016	0.000		0.000		-		0.000	0.000	1.450	0.000
Manufacturing and Producibility - Mfg and Producibility - OGA Support	MIPR	AMRDEC : AL	5.913	2.108	Nov 2016	1.969	Nov 2017	1.211	Nov 2018	-		1.211	Continuing	Continuing	Continuing
Aegis Ashore Defense - Concept Dev	Various	Various : Various	0.000	0.000		10.000	Nov 2017	0.000		-		0.000	0.000	10.000	0.000
USFK JEON Capability - CSS	C/CPFF	TEAMS : VA, AL	0.000	0.000		0.652	Dec 2017	0.562	Nov 2018	-		0.562	Continuing	Continuing	Continuing
USFK JEON Capability - FFRDC/UARC	MIPR	MITRE : VA	0.000	0.000		0.528	Jan 2018	0.499	Nov 2018	-		0.499	Continuing	Continuing	Continuing
USFK JEON Capability - Framework, Truth Models	Various	Various : CO, AL	0.000	0.000		1.064	Jan 2018	1.628	Nov 2018	-		1.628	Continuing	Continuing	Continuing
USFK JEON Capability - Industry Support	C/CPFF	Boeing : AL, VA	0.000	0.000		2.106	Jan 2018	0.000		-		0.000	Continuing	Continuing	Continuing
USFK JEON Capability - Industry Support - IRES	C/CPAF	Northrop Grumman : AL, VA	0.000	0.000		2.445	Dec 2017	2.494	Nov 2018	-		2.494	Continuing	Continuing	Continuing
USFK JEON Capability - OGA	MIPR	AMRDEC : AL	0.000	0.000		0.984	Dec 2017	1.016	Nov 2018	-		1.016	Continuing	Continuing	Continuing
USFK JEON Capability - Systems Engineering	Various	MDA Various : VA, AL, CO	0.000	0.000		1.179	Dec 2017	2.996	Nov 2018	-		2.996	Continuing	Continuing	Continuing
USFK JEON Capability - Test & Performance Analysis	Various	Various : VA, AL	0.000	0.000		3.268	Jan 2018	3.967	Nov 2018	-		3.967	Continuing	Continuing	Continuing
USFK JEON Capability - UARC	MIPR	JHU / APL : MD, VA	0.000	0.000		3.974	Dec 2017	1.338	Nov 2018	-		1.338	Continuing	Continuing	Continuing
Subtotal			640.571	150.748		166.558		170.348		-		170.348	Continuing	Continuing	N/A

Exhibit R-3, **RDT&E Project Cost Analysis:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD24 *I System Engineering & Integration*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks
N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A

Remarks
N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A

Remarks
N/A

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	640.571	150.748	166.558	170.348	-	170.348	Continuing	Continuing	N/A

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

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Missile Defense Agency				Date: February 2018
Appropriation/Budget Activity 0400 *I* 4		**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*		**Project (Number/Name)** MD24 *I System Engineering & Integration*

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 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Update to BMD SDD - FY 2018		△					
Update to IMAP - 1Q FY 2018		△					
Element Design Reviews - FY 2018		△					
BMD SS - FY 2018		△					
BMD SER - FY 2018		△					
Update Achievable Capabilities List - FY 2018		△					
Update to IMAP - 3Q FY 2018		△					
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY 2018		△					
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY 2018		△					
Update MIP - FY 2018		△					
Update to BMD SDD - FY 2019			△				
Deliver Assessment for EPAA Phase 3 – FY 2019			△				
BMD SS - FY 2019			△				
Element Design Reviews - FY 2019			△				
SEP Update - FY 2019			△				
Update to IMAP - 3Q FY 2019			△				
BMDS Engineering Review - FY 2019			△				
Update MIP - FY 2019				△			
E/CCA 4Q - FY 2019				△			
Update to BMD SDD - FY 2020				△			
Update Achievable Capabilities List - FY 2020				△			
SEP Update - FY 2020				△			
BMD SS - FY 2020				△			
BMDS Engineering Review - FY 2020					△		

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD24 / *System Engineering & Integration*

Significant Event Complete ▲	Milestone Decision Complete ★	Element Test Complete ◆
Significant Event Planned △	Milestone Decision Planned ☆	Element Test Planned ◇

System Level Test Complete ●	Complete Activity ◆
System Level Test Planned ○	Planned Activity ◈

Event	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Update to IMAP - 3Q FY 2020				△			
Update MIP - FY 2020				△			
E/CCA - 4Q - FY 2020				△			
Update to BMD SDD - FY 2021					△		
SEP Update FY 2021					△		
BMD SS - FY 2021					△		
BMDS Engineering Review - FY 2021					△		
Update to IMAP - 3Q FY 2021					△		
Update Achievable Capabilities List - FY 2022					△		
Update MIP - FY 2021						△	
E/CCA - 4Q FY 2021						△	
Update to BMD SDD - FY 2022						△	
SEP Update FY 2022						△	
BMD SS - FY 2022						△	
Updates to IMAP -3Q FY 2022						△	
BMDS Engineering Review - FY 2022						△	
Update MIP - FY2022							△
E/CCA - 4Q FY 2022							△
Update to BMD SDD - FY 2023							△
BMD SS - FY 2023							△
Update to IMAP - 3Q FY 2023							△
E/CCA - 4Q - FY 2023							△
Update MIP - FY 2023							△

Exhibit R-4A, **RDT&E Schedule Details:** PB 2019 Missile Defense Agency			**Date:** February 2018	

Appropriation/Budget Activity 0400 **I** 4	**R-1 Program Element (Number/Name)** PE 0603890C **I** *BMD Enabling Programs*	**Project (Number/Name)** MD24 **I** *System Engineering & Integration*

Schedule Details

Events	Start		End	
	Quarter	**Year**	**Quarter**	**Year**
Update to BMD SDD - FY 2018	1	2018	1	2018
Update to IMAP - 1Q FY 2018	1	2018	1	2018
Element Design Reviews - FY 2018	2	2018	2	2018
BMD SS - FY 2018	2	2018	2	2018
BMD SER - FY 2018	3	2018	3	2018
Update Achievable Capabilities List - FY 2018	3	2018	3	2018
Update to IMAP - 3Q FY 2018	3	2018	3	2018
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY 2018	4	2018	4	2018
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY 2018	4	2018	4	2018
Update MIP - FY 2018	4	2018	4	2018
Update to BMD SDD - FY 2019	1	2019	1	2019
Deliver Assessment for EPAA Phase 3 FY 2019	1	2019	1	2019
BMD SS - FY 2019	2	2019	2	2019
Element Design Reviews - FY 2019	2	2019	2	2019
SEP Update - FY 2019	2	2019	2	2019
Update to IMAP - 3Q FY 2019	3	2019	3	2019
BMDS Engineering Review - FY 2019	3	2019	3	2019
Update MIP - FY 2019	4	2019	4	2019
E/CCA 4Q - FY 2019	4	2019	4	2019
Update to BMD SDD - FY 2020	1	2020	1	2020
Update Achievable Capabilities List - FY 2020	1	2020	1	2020
SEP Update - FY 2020	2	2020	2	2020
BMD SS - FY 2020	2	2020	2	2020

Exhibit R-4A, **RDT&E Schedule Details:** PB 2019 Missile Defense Agency		**Date:** February 2018	
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD24 *I System Engineering & Integration*	

Events	**Start**		**End**	
	Quarter	**Year**	**Quarter**	**Year**
BMDS Engineering Review - FY 2020	3	2020	3	2020
Update to IMAP - 3Q FY 2020	3	2020	3	2020
Update MIP - FY 2020	4	2020	4	2020
E/CCA - 4Q - FY 2020	4	2020	4	2020
Update to BMD SDD - FY 2021	1	2021	1	2021
SEP Update FY 2021	2	2021	2	2021
BMD SS - FY 2021	2	2021	2	2021
BMDS Engineering Review - FY 2021	3	2021	3	2021
Update to IMAP - 3Q FY 2021	3	2021	3	2021
Update Achievable Capabilities List - FY 2022	3	2021	3	2021
Update MIP - FY 2021	4	2021	4	2021
E/CCA - 4Q FY 2021	4	2021	4	2021
Update to BMD SDD - FY 2022	1	2022	1	2022
SEP Update FY 2022	2	2022	2	2022
BMD SS - FY 2022	2	2022	2	2022
Updates to IMAP -3Q FY 2022	3	2022	3	2022
BMDS Engineering Review - FY 2022	3	2022	3	2022
Update MIP - FY2022	4	2022	4	2022
E/CCA - 4Q FY 2022	4	2022	4	2022
Update to BMD SDD - FY 2023	1	2023	1	2023
BMD SS - FY 2023	2	2023	2	2023
Update to IMAP - 3Q FY 2023	3	2023	3	2023
E/CCA - 4Q - FY 2023	4	2023	4	2023
Update MIP - FY 2023	4	2023	4	2023

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Missile Defense Agency										**Date:** February 2018	

Appropriation/Budget Activity 0400 *I* 4				**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*				**Project (Number/Name)** MT23 *I Enabling - Test*			
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
MT23: *Enabling - Test*	34.268	17.187	22.767	39.288	-	39.288	20.666	21.328	21.081	21.373	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Increase from FY 2018 to FY 2019 reflects additional requirements for the Continuous Integration and Agile Test (CI/CAT) capability for HWIL / Ground Test, incorporation of cyber security test engineering, and Non-MDA Element (NME) test engineering support for System Post Flight Reconstructions (SPFRs) previously funded in Program Element 0603914C.

A. Mission Description and Budget Item Justification

The Enabling Test project includes the SE&I that drives BMDS test planning, execution, and post-test analysis and assessment, and the M&S tools and framework required to prepare for and execute ground and flight tests.

SE&I allocates test requirements to individual test events, designs test architectures, defines target requirements, and generates ground and flight test scenarios to collect data essential for model validation and system verification. SE&I works with the Service Operational Test Agencies (OTA) to incorporate operational test requirements into BMDS events to ensure the incremental capability being transferred to the Warfighter will be operationally effective, suitable, and survivable. The resulting data ensures BMDS requirements are being met by the system under test and confirms proper BMD System operation. It also helps to anchor system and element M&S for use in simulations to characterize BMDS performance across the battle space, including areas where no live-fire-testing is performed.

Engineering ground test (GT) responsibilities include BMDS performance sensitivity analysis; scenario design and optimization; analysis to mitigate test data collection risks; test architecture certification analysis; and test result analysis. Flight test (FT) responsibilities include pre-mission scenario analysis to identify and mitigate test execution risk in advance; range safety analysis; mission analysis during test execution; extensive post-mission analysis; and event analysis reporting products. These efforts inform senior leaders' decisions on BMDS development and evolution and underpin the BMDS capability declarations that deliver new capabilities to the Warfighter.

Pre-mission predictions use the test framework and Hardware in the Loop (HWIL) and digital models of the test configuration to exercise system interfaces, calculate expected BMDS performance, and gauge readiness for test execution. Post-mission, MDA uses test results to anchor System and element M&S and provide confidence in their ability to correctly predict BMDS behavior and performance.

Reliability, Availability and Maintainability data collected through BMDS test events increases confidence in BMDS performance over the entire lifecycle. SE&I documents any abnormal system behavior observed during tests and alerts MDA to issues with test article reliability. SE&I leads test failure review boards, identifies data collection shortfalls, and reallocates objectives to future test events as needed until all required model validation data is collected. The Failure Reporting, Analysis, and Corrective Action System provides a framework to investigate test failures and anomalies and identify solutions that will ultimately improve BMDS performance and reliability.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MT23 / Enabling - Test

MDA's M&S systems and products provide the BMDS, the Warfighter, and the OTA with the capability to evaluate individual BMDS components and the overall M&S system-of-systems. MDA validates and accredits system-level models and simulations to support accurate and comprehensive assessments of the BMDS. M&S System and product testing follows the test program outlined in MDA's IMTP and serves as a necessary precursor to conducting BMD System-level testing. Resources for the planning, design, execution and management of this testing are provided in accordance with the BMDS Test Policy, as listed in the most current version of the IMTP.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
Title: Engineering and Analysis	17.187	22.767	34.131
Articles:	-	-	-

Description: The Engineering and Analysis effort provides essential BMDS ground and flight test event planning, execution, and evaluation activities for each test event:
- Designing test architecture, defining test objectives and evaluation criteria, defining target requirements, and generating ground and flight test scenarios appropriate to the data collection requirements to assess BMDS performance and anchor Models and Simulations.
- Producing the threat data for BMDS ground and flight tests.
- Coordinating with BMDS Operational Test Agency (OTA) to address test issues, disposition them, coordinate them, with the OTA and recommend action plans to achieve closure.
- Delivering HWIL M&S integration test cases.
- Conducting M&S HWIL Integration Benchmark and integrating the BMDS HWIL M&S framework with MDA and non-MDA Elements into the test event BMDS architecture.
- Integrating, testing, functionally qualifying, and delivering end-to-end BMDS simulations supporting ground test missions.
- Deploying and maintaining M&S System Interface Units (SIUs) for BMDS testing.
- Analyzing System-level interoperability.
- Conducting modeling and technical analysis for Combatant Command wargames and exercises.
- Utilizing M&S for pre-test assessment and post-test review, as well as M&S updates.
- Providing test configuration management; risk assessments; and anomaly/deficiency review, assessment and closure.
- Analyzing test results to identify verification and validation data collection shortfalls and reassigning objectives to future test events as required.
- Documenting BMDS test observations for system-level test anomalies and coordinating the resulting BMDS Discrepancy Reports within the Failure Reporting, Analysis, and Corrective Action System (FRACAS)
- Upgrading test analysis tools in concert with the BMDS evolution (e.g., Modular Analysis and Reporting Suite (MARS)) to enhance analysis capability and efficiency.
Specific unique accomplishments per FY are as follows:

FY 2018 Plans:

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018	
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MT23 / *Enabling - Test*	

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
FY 2018 increase keeps pace with projected FY 2018-FY 2022 IMTP events, and reflects System-level test analyses, M&S integration, and supporting validation and assessment activities required for EPAA Phase 3 Technical Capability Declaration (TCD). - Validate test event data collection and conduct post-test analyses supporting the EPAA Phase 3 TCD. *FY 2019 Plans:* - Provide more robust BMDS architecture analysis for Ground Test to support expanded assessment requirements. - Increase Cybersecurity requirements across Ground Test venues and cybersecurity events. - Purchase additional System Interface Units (SIUs) for new BMDS hardware under test (i.e., LRDR, Clear UEWR) - Augment test and performance analysis capability in response to: -- Increased number of flight and ground test events requiring system analysis -- Extended analysis timeline due to early analysis requirements - Develop/refine requirements for Continuous Integration and Agile Test (CI/CAT) capability - Begin implementation of M&S infrastructure upgrades to support CI/CAT *FY 2018 to FY 2019 Increase/Decrease Statement:* Increase from FY 2018 to FY 2019 reflects incorporation of cyber security test engineering, and Non-MDA Element (NME) test engineering support for SPFRs previously funded in Program Element 0603914C.			
Title: Continuous Integration and Agile Test (CI/CAT) *Articles:*	0.000 -	0.000 -	5.157 -
Description: MDA Engineering will provide test planning, analysis, M&S integration, M&S execution, and post-event analysis to support the BMDS-wide Continuous Integration / Continuous Agile Testing approach for integrated ground testing. Specific unique accomplishments per FY are as follows: *FY 2018 Plans:* N/A *FY 2019 Plans:* - Develop/refine requirements for Continuous Integration and Agile Test (CI/CAT) capability - Begin implementation of M&S infrastructure upgrades to support CI/CAT *FY 2018 to FY 2019 Increase/Decrease Statement:* Increase from FY 2018 to FY 2019 reflects additional requirements for the Continuous Integration and Agile Test (CI/CAT) capability for HWIL / Ground Test.			
Accomplishments/Planned Programs Subtotals	17.187	22.767	39.288

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MT23 *I Enabling - Test*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0603914C: *Ballistic Missile Defense Test*	294.441	316.193	365.681	-	365.681	349.388	320.909	320.332	327.584	Continuing	Continuing
• 0604878C: *Aegis BMD Test*	131.012	137.783	95.756	-	95.756	80.684	94.138	146.910	137.601	Continuing	Continuing

Remarks

D. Acquisition Strategy

In order to optimize the performance of the BMDS, MDA leverages the nation's engineering Centers of Excellence at government agencies and Military Services, FFRDCs, UARCs, and industry. The executing agents utilize various contracting strategies in a flexible manner to maximize their contribution to the BMDS. MDA will acquire products and services by competitive means to the extent practical.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / BMD Enabling Programs	**Project (Number/Name)** MT23 / Enabling - Test

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	N/A

<u>Remarks</u>
 N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Engineering and Analysis - Engineering & Analysis - CSS Support	C/CPFF	MiDAESS / TEAMS : AL	1.494	1.514	Oct 2016	1.526	Nov 2017	2.147	Nov 2018	-		2.147	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - FFRDC	MIPR	Aerospace : AL	0.346	0.385	Nov 2016	0.391	Nov 2017	0.399	Nov 2018	-		0.399	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - Industry	C/CPAF	Boeing : VA, AL	7.705	2.382	Nov 2016	4.486	Nov 2017	5.405	Nov 2018	-		5.405	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - Integration Support CSS	C/CPAF	COLSA : AL, CO	7.866	5.328	Nov 2016	7.505	Nov 2017	8.774	Nov 2018	-		8.774	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - OGA Support	MIPR	AMRDEC : AL	12.739	7.301	Nov 2016	7.032	Nov 2017	10.441	Nov 2018	-		10.441	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - OGA Support - NME	MIPR	LTPO : AL	0.000	0.000		1.652	Nov 2017	4.375	Nov 2018	-		4.375	Continuing	Continuing	Continuing
Engineering and Analysis - Engineering & Analysis - Technical Support	C/CPAF	Northrop Grumman : VA, AL	2.559	0.000		0.000		2.340	Nov 2018	-		2.340	0.000	4.899	0.000
Engineering and Analysis - Engineering & Analysis - Test Engineering Support	Various	Various : AL, CO, VA	1.559	0.277	Nov 2016	0.175	Nov 2017	0.250	Nov 2018	-		0.250	Continuing	Continuing	Continuing

Exhibit R-3, **RDT&E Project Cost Analysis:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MT23 / *Enabling - Test*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Continuous Integration and Agile Test (CI/CAT) - CSS	Various	Various : Various	0.000	0.000		0.000		2.734	Nov 2018	-		2.734	Continuing	Continuing	Continuing
Continuous Integration and Agile Test (CI/CAT) - Hardware	C/CPFF	TBE : AL	0.000	0.000		0.000		2.423	Nov 2018	-		2.423	Continuing	Continuing	Continuing
Subtotal			34.268	17.187		22.767		39.288		-		39.288	Continuing	Continuing	N/A

Remarks
 N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A

Remarks
 N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A

Remarks
 N/A

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	34.268	17.187	22.767	39.288	-	39.288	Continuing	Continuing	N/A

Exhibit R-3, **RDT&E Project Cost Analysis:** PB 2019 Missile Defense Agency					**Date:** February 2018				
Appropriation/Budget Activity 0400 **/** 4				**R-1 Program Element (Number/Name)** PE 0603890C **/** *BMD Enabling Programs*		**Project (Number/Name)** MT23 **/** *Enabling - Test*			
	Prior Years	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**

Remarks
  N/A

Exhibit R-4, **RDT&E Schedule Profile:** PB 2019 Missile Defense Agency | **Date:** February 2018

Appropriation/Budget Activity 0400 **/** 4	**R-1 Program Element (Number/Name)** PE 0603890C **/** *BMD Enabling Programs*	**Project (Number/Name)** MT23 **/** *Enabling - Test*

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 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
IMTP v19.1 flight and ground test event details are at a higher classification.	✧ ✧ ✧ ✧	✧ ✧ ✧ ✧	✧ ✧ ✧ ✧	✧ ✧ ✧ ✧	✧ ✧ ✧ ✧	✧ ✧ ✧ ✧	✧ ✧ ✧ ✧
Integrated Master Test Plan (IMTP) Engineering Inputs - 1Q - FY 2018		△					
IMTP Engineering Inputs - 3Q - FY 2018		△					
IMTP Engineering Inputs - 1Q - FY 2019			△				
IMTP Engineering Inputs - 3Q - FY 2019			△				
IMTP Engineering Inputs - 1Q - FY 2020				△			
IMTP Engineering Inputs - 3Q - FY 2020				△			
IMTP Engineering Inputs - 1Q - FY 2021					△		
IMTP Engineering Inputs - 2Q - FY 2021					△		
IMTP Engineering Inputs - 1Q - FY2022						△	
IMTP Engineering Inputs - 3Q - FY 2022						△	
IMTP Engineering Inputs - 1Q - FY 2023							△
IMTP Engineering Inputs - 3Q - FY 2023							△

Exhibit R-4A, **RDT&E Schedule Details:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MT23 / *Enabling - Test*

Schedule Details

Events	Start		End	
	Quarter	**Year**	**Quarter**	**Year**
IMTP v19.1 flight and ground test event details are at a higher classification.	1	2017	4	2023
Integrated Master Test Plan (IMTP) Engineering Inputs - 1Q - FY 2018	1	2018	1	2018
IMTP Engineering Inputs - 3Q - FY 2018	3	2018	3	2018
IMTP Engineering Inputs - 1Q - FY 2019	1	2019	1	2019
IMTP Engineering Inputs - 3Q - FY 2019	3	2019	3	2019
IMTP Engineering Inputs - 1Q - FY 2020	1	2020	1	2020
IMTP Engineering Inputs - 3Q - FY 2020	3	2020	3	2020
IMTP Engineering Inputs - 1Q - FY 2021	1	2021	1	2021
IMTP Engineering Inputs - 2Q - FY 2021	3	2021	3	2021
IMTP Engineering Inputs - 1Q - FY2022	1	2022	1	2022
IMTP Engineering Inputs - 3Q - FY 2022	3	2022	3	2022
IMTP Engineering Inputs - 1Q - FY 2023	1	2023	1	2023
IMTP Engineering Inputs - 3Q - FY 2023	3	2023	3	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency											Date: February 2018	

Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD28 / Intelligence & Security				
COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
MD28: *Intelligence & Security*	147.039	44.696	44.708	44.078	-	44.078	47.226	46.859	47.581	48.905	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

 Beginning in FY 2018, funding for Cyber related portion of Insider Threat mitigation has been transferred to project MC31, Engineering - Cyber.

A. Mission Description and Budget Item Justification

 The Intelligence and Security program provides multi-disciplinary intelligence and security for the BMDS acquisition, development, test and deployment. The Intelligence and Security Major Program Goals are:

-- Ensure the Intelligence Community (IC) understands and fulfills MDA's current and future prioritized intelligence requirements; advocate BMDS test intelligence requirements; and work closely with the IC.

-- Leverage available National and DoD Counterintelligence resources. Ensure counterintelligence products and services are fully integrated into all RDT&E programs and activities to protect classified information and critical technologies and to protect MDA and BMDS personnel, facilities, information and activities.

-- Define cybersecurity systems engineering requirements for BMDS assets. Identify cybersecurity systems engineering and infrastructure intelligence requirements to focus IC collection, analysis and production to target MDA/BMDS cyber vulnerabilities. Incorporate cybersecurity engineering requirements into the BMDS systems engineering process.

-- Provide cross-Agency acquisition security oversight and support for the identification and protection of Critical Program Information (CPI), and evaluation and implementation of developing Supply Chain Risk Management (SCRM) requirements. Provide physical security for BMDS weapons/sensor system deployments, including Foreign Military Sales (FMS). Implement MDA's information security and declassification programs. Strengthen Test and Operations Security (OPSEC) across the Agency.

The Security and Intelligence Project captures five specific areas: 1) Intelligence; 2) Counterintelligence; 3) Cybersecurity Engineering; 4) Program Protection (formerly Research, Development, and Acquisition (RDA) Security); and 5) Threat Systems Engineering. Collectively, these efforts provide critical information regarding threat ballistic missile system capabilities; protection of personnel, activities, and technology from espionage and terrorism; and identification and mitigation of BMDS system vulnerabilities.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
Title: Intelligence	9.203	10.324	10.186
Articles:	-	-	-
Description: The Intelligence program provides expertise to develop intelligence products on threat ballistic missile system capabilities, and leverages unique intelligence-community developed, owned, and operated capabilities for the benefit and advocacy of the missile defense community. Program goals include: - Serve as designated intelligence broker between MDA and the Intelligence Community			

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 **/** 4	**R-1 Program Element (Number/Name)** PE 0603890C **/** *BMD Enabling Programs*	**Project (Number/Name)** MD28 **/** *Intelligence & Security*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2017**	**FY 2018**	**FY 2019**
-- Maintain and communicate prioritized, specific BMDS intelligence requirements to the Intelligence Community. -- Maintain a focused dialog with members of the Intelligence Community to ensure understanding, urgency and context of MDA intelligence requirements. - Provide Current, Technical, Acquisition, Collection and Cyber intelligence to the BMDS throughout the acquisition life cycle. - Maintain and update MDA's knowledge base of foreign ballistic missile threats, including development, enhancement, and population of the Missile Threat Portals with Intelligence Community produced documents at the appropriate security classification levels. - Characterize all ballistic missile threat systems from adversaries for use by the MDA Systems Engineer, Program Managers, and Director for Test to perform modeling, simulation, and testing of the BMDS. - Maintain Missile Intelligence Secure Link (MISL) classified portal (full operational capability). Specific and/or unique accomplishments to each FY are as follows: *FY 2018 Plans:* FY 2018 increase reflects need for additional, dedicated support to new BMDS programs (e.g., LRDR). - SEE ABOVE. *FY 2019 Plans:* - SEE ABOVE. *FY 2018 to FY 2019 Increase/Decrease Statement:* N/A			
Title: Counterintelligence **Articles:**	6.389 -	6.919 -	6.776 -
Description: The Counterintelligence Program detects, exploits or neutralizes espionage, foreign intelligence collection activities and terrorist activities conducted for or on behalf of foreign powers, organizations, persons, or their agents directed against U.S. national security interests, or DoD/MDA and its personnel, information, material, facilities, and activities. Program goals include: - Serve as MDA Liaison with Federal, State and Local Law Enforcement and Counterintelligence (CI) Organizations to report and resolve incidents involving MDA personnel, information and technologies. -- Engage National, Combatant Command and DoD CI resources to share and obtain threat information impacting MDA personnel, facilities, information, technologies, programs and activities, worldwide. -- Provide CI, technical and cyber threat support to MDA flight tests, conferences, and BMDS deployment activities worldwide, including FMS Programs, to detect, deter, or neutralize criminal, terrorist and foreign intelligence collection threats targeting MDA and BMDS technologies, personnel, facilities and activities.			

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD28 *I Intelligence & Security*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2017**	**FY 2018**	**FY 2019**
- Execute life cycle replacement of outdated technical surveillance countermeasures and cyber forensics gear to employ the latest technologies during conferences, flight tests and other classified activities to detect, deter and prevent the loss or compromise of classified or sensitive information to foreign adversary collection activities. - Conduct CI in Cyberspace activities to detect malicious and insider threat activities targeting MDA administrative and fire control networks. - Conduct MDA Insider Threat Program to identify, deter and mitigate potential insider threats. - Provide required CI Awareness and Reporting training to MDA workforce. - Provide CI research and assistance for cyber forensics and analysis to identify insider and foreign entity cyber threats to MDA computer networks and BMDS fire control systems. - Conduct CI research and analysis to produce CI threat products that address foreign intelligence, cyber and international terrorist threats to MDA personnel, facilities, information, systems and activities worldwide. - Maintain technical surveillance countermeasures and cyber forensic gear to detect, identify and neutralize adversary collection platforms and capabilities used to gain unauthorized access to MDA classified and controlled unclassified information. Specific and/or unique accomplishments to each FY are as follows: *FY 2018 Plans:* FY 2018 increase reflects need for additional Cyber Assessment Team assets. - SEE ABOVE. *FY 2019 Plans:* - SEE ABOVE. *FY 2018 to FY 2019 Increase/Decrease Statement:* N/A			
Title: Cybersecurity Engineering Program *Articles:* **Description:** The Cybersecurity Engineering Program is focused on developing designs and solutions to protect the BMDS from existing and emerging cyber threats through coherent cybersecurity systems engineering. Program goals include: - Ensure Cybersecurity is integrated into the Acquisition Process. - Assess the Cybersecurity Architecture to address gaps/disconnects, enhance interoperability, and realize efficiencies across all mission systems. Define the "As Built" and "To Be" Cybersecurity Systems Engineering concepts to strengthen technical assessments and cybersecurity design solutions and implementation recommendations impacted by the change in requirements. -- Develop and coordinate near-term and long-term engineering changes to the BMDS -- Develop requirements for building cybersecurity into incremental BMDS Hardware and Software builds -- Monitor allocation of these requirements to the Elements.	4.958 -	4.537 -	4.572 -

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD28 *I Intelligence & Security*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2017**	**FY 2018**	**FY 2019**
-- Recommend updates to the BMDS Core Standards, including Cyber-related requirements specified by the Agency, the Combatant Commanders (CCMDs), the DoD, and the Federal Government. -- Perform cybersecurity systems engineering assessments for proposed BMD System Specification and interface changes and additions. - Provide and recommend updates to cybersecurity systems engineering policy and guidance for BMDS system design and acquisition to enhance BMDS resiliency against cyber threats - Implement cybersecurity engineering resiliency techniques. - Provide objectives and requirements for Cybersecurity testing. - Provide independent cybersecurity reviews at critical engineering milestones. - Provide information system security engineering by assessing cybersecurity requirements, design, and implementations and provide recommendations to address architecture gaps or shortfalls. - Implement cyber threat mitigation strategies within BMDS architecture, design, system requirements, and specifications documentation to ensure traceability to necessary components and interfaces that make up the BMDS mission. - Coordinate evaluation of cybersecurity capability during BMDS tests. - Develop verification and assessment strategies for system cybersecurity requirements. Specific and/or unique accomplishments to each FY are as follows: *FY 2018 Plans:* Beginning in FY 2018, funding for Cyber related portion of Insider Threat mitigation has been transferred to project MC31, Engineering - Cyber. - SEE ABOVE. *FY 2019 Plans:* - SEE ABOVE. *FY 2018 to FY 2019 Increase/Decrease Statement:* N/A			
Title: Program Protection	10.965	11.998	11.889
Articles:	-	-	-
Description: Program Protection (formerly RDA Security) protects BMDS information, Critical Program Information, technologies, and deploying systems; develops and coordinates Security Classification Guides; and performs declassification reviews to identify equities that warrant continued protection in order to preserve the technological advantage of the BMDS. Program Protection also coordinates MDA intelligence, counterintelligence and security to help BMDS test activities. Program goals include:			

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD28 / *Intelligence & Security*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2017**	**FY 2018**	**FY 2019**
- Perform reviews required for all Agency public release, security classification, and FOIA and Mandatory Declassification Reviews to ensure sensitive BMDS information is not inadvertently released into the public domain. - Perform Information Security program management and oversee implementation by MDA programs -- Perform internal program reviews, policy oversight and implementation, and training to identify and fix deficiencies and protect critical BMDS information -- Collect information required for annual reports and communicate security posture to leadership - Provide security oversight for the Agency's classified contracts by drafting and coordinating DD254 "Contract Security Classification Specification" documents. - Execute an effective SCRM program to prevent unmitigated risks from degrading the performance of components and systems across the BMDS supply chain. - Provide dedicated on-site security and protection of BMDS resources and personnel at operational sites in Alaska, California and Colorado to ensure security protection coverage of the BMDS mission operations and test assets based in those regions. - Perform systematic Declassification reviews on historical Agency information to prevent unauthorized disclosures due to automatic declassification requirements. - Identify and integrate Physical Security requirements for overseas sites with existing or planned missile defense weapons or sensor systems to ensure protection of deployed sites. - Provide effective physical protection to low density/high demand emerging warfighter capability. - Expand security activities to include FMS. - Conduct program protection planning for the continuing assessment of candidate critical program information for Advanced Technology programs and reassessment of other BMDS programs affected by technical baseline changes; ensure critical technologies embedded in missile defense systems are not vulnerable to compromise. - Keep pace with mission growth in program protection, system security engineering, acquisition security, and SCRM. Specific and/or unique accomplishments to each FY are as follows: ***FY 2018 Plans:*** - SEE ABOVE. ***FY 2019 Plans:*** - SEE ABOVE. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A			
Title: Threat Systems Engineering	13.181	10.930	10.655
Articles:	-	-	-

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD28 *I Intelligence & Security*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2017**	**FY 2018**	**FY 2019**
Description: Threat Engineering provides representations of adversary missile capabilities based on available intelligence information, and develops, coordinates, and baselines BMDS-level targets and countermeasures requirements to define target capabilities required to meet BMDS flight test objectives. Program goals include: - Develop threat definitions for system specifications -- Produce threat / scenario data for BMDS development events -- Perform Threat Verification and Validation analysis to verify missile models meet specifications and are consistent with intelligence assessments. - Produce Adversary Data Package (ADP) updates. - Develop target requirements to ensure flight test targets meet operationally realistic conditions. - Produce Target Assessment and Certification Reports. - Assess threat representation of flight test targets. - Develop target system specifications and guide targets requirements development, planning, and certification for BMDS flight tests. - Analyze flight test target performance relative to threat intelligence assessments to support target system verification and certification. - Provide Technical Data for major reviews (System Requirements Reviews, Critical Design Reviews, etc.) - Complete Target Specification builds. - Update MDA INS 5000.06, Target Class Capabilities and Requirements documents as necessary. Specific and/or unique accomplishments to each FY are as follows: *FY 2018 Plans:* - SEE ABOVE. *FY 2019 Plans:* - SEE ABOVE. *FY 2018 to FY 2019 Increase/Decrease Statement:* N/A			
Accomplishments/Planned Programs Subtotals	44.696	44.708	44.078

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0305103C: *Cyber Security Initiative*	0.945	0.986	0.985	-	0.985	1.140	1.163	1.187	1.209	Continuing	Continuing

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD28 / *Intelligence & Security*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost

Remarks

D. Acquisition Strategy

This project leverages expertise in the intelligence community, counterintelligence community, and information assurance community, including the Military Services, Federally Funded Research and Development Centers (FFRDCs), University Affiliated Research Centers (UARCs), and industry. The executing agents utilize various contracting strategies in a flexible manner to maximize their contribution to the BMDS. Products and Services will be acquired by competitive means to the extent that is beneficial and practical.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD28 / *Intelligence & Security*

Product Development ($ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Subtotal			-	-		-		-		-		-	-	-	N/A

Remarks
 N/A

Support ($ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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
Intelligence - Intelligence Analysis & Support	Allot	MDA : VA, AL, CO	16.867	3.832	Oct 2016	4.779	Oct 2017	4.046	Oct 2018	-		4.046	Continuing	Continuing	Continuing
Intelligence - Intelligence Support	C/CPFF	MIDAESS / TEAMS : AL, VA, CO	16.850	4.746	Nov 2016	4.988	Nov 2017	5.832	Nov 2018	-		5.832	Continuing	Continuing	Continuing
Intelligence - Intelligence Support (2)	C/CPFF	Northrop Grumman : AL, CO	1.431	0.625	Nov 2016	0.557	Nov 2017	0.308	Nov 2018	-		0.308	Continuing	Continuing	Continuing
Intelligence - Prior year Intelligence Support no longer funded in FYDP	Various	Various : Various	7.770	0.000		0.000		0.000		-		0.000	0.000	7.770	0.000
Counterintelligence - CI Analysis & Support	Allot	MDA : AL, CO, VA	6.938	1.468	Oct 2016	1.892	Oct 2017	3.075	Oct 2018	-		3.075	Continuing	Continuing	Continuing
Counterintelligence - CI Analysis and Support 3	C/CPFF	MIDAESS / TEAMS : AL, CO, VA	10.925	4.514	Nov 2016	4.020	Nov 2017	2.667	Nov 2018	-		2.667	Continuing	Continuing	Continuing
Counterintelligence - CI Insider Threat Analysis	C/CPFF	MIDAESS / TEAMS : VA	0.662	0.407	Nov 2016	0.000		0.000		-		0.000	0.000	1.069	0.000
Counterintelligence - CI Surveillance Gear	Various	Various : Various	0.000	0.000		1.007	Dec 2017	1.034	Dec 2018	-		1.034	Continuing	Continuing	Continuing
Cybersecurity Engineering Program - Cybersecurity - FFRDC	FFRDC	Aerospace : CA, VA	2.525	0.754	Nov 2016	0.384	Nov 2017	0.398	Nov 2018	-		0.398	Continuing	Continuing	Continuing
Cybersecurity Engineering Program - Cybersecurity - FFRDC (2)	FFRDC	MITRE : VA, AL	1.959	0.754	Nov 2016	1.145	Nov 2017	1.196	Nov 2018	-		1.196	Continuing	Continuing	Continuing

Exhibit R-3, **RDT&E Project Cost Analysis:** PB 2019 Missile Defense Agency														**Date:** February 2018
Appropriation/Budget Activity 0400 / 4						**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*						**Project (Number/Name)** MD28 / *Intelligence & Security*		

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Cybersecurity Engineering Program - Cybersecurity Engineering	Allot	MDA : VA, AL	9.331	2.355	Oct 2016	2.467	Oct 2017	2.241	Oct 2018	-		2.241	Continuing	Continuing	Continuing
Cybersecurity Engineering Program - Cybersecurity Engineering CSS	C/CPFF	MIDAESS / TEAMS : VA, AL	1.733	1.095	Nov 2016	0.541	Nov 2017	0.737	Nov 2018	-		0.737	Continuing	Continuing	Continuing
Program Protection - Declassification Analysis	C/CPFF	MIDAESS / TEAMS : VA, AL	5.643	1.853	Nov 2016	2.183	Nov 2017	2.055	Nov 2018	-		2.055	Continuing	Continuing	Continuing
Program Protection - Program Protection Analysis	Allot	MDA : VA, AL	16.642	4.250	Oct 2016	4.550	Oct 2017	4.654	Oct 2018	-		4.654	Continuing	Continuing	Continuing
Program Protection - Program Protection Analysis & Support	C/CPFF	MIDAESS / TEAMS : AL, AK, CA, CO, VA	15.212	4.322	Nov 2016	4.665	Nov 2017	4.648	Nov 2018	-		4.648	Continuing	Continuing	Continuing
Program Protection - Program Protection Support	Various	Various : AL, VA, CO	2.177	0.540	Nov 2016	0.600	Nov 2017	0.532	Nov 2018	-		0.532	Continuing	Continuing	Continuing
Threat Systems Engineering - Threat Systems Engineering	Various	MDA : VA, AL, CO	8.433	5.558	Oct 2016	5.353	Oct 2017	4.522	Oct 2018	-		4.522	Continuing	Continuing	Continuing
Threat Systems Engineering - Threat Systems Engineering - CSS	C/CPFF	MIDAESS / TEAMS : AL, MD, VA	11.557	4.218	Nov 2016	0.000		0.000		-		0.000	15.775	31.550	0.000
Threat Systems Engineering - Threat Systems Engineering - CSS (2)	C/CPFF	MIDAESS / TEAMS : VA, AL	4.007	2.230	Nov 2016	2.971	Nov 2017	3.343	Nov 2018	-		3.343	Continuing	Continuing	Continuing
Threat Systems Engineering - Threat Systems Engineering - FFRDC	FFRDC	MIT/LL : MA	1.869	0.000		1.174	Nov 2017	1.196	Nov 2018	-		1.196	Continuing	Continuing	Continuing
Threat Systems Engineering - Threat	FFRDC	JHU/APL : MD	2.233	0.000		1.432	Nov 2017	1.594	Nov 2018	-		1.594	Continuing	Continuing	Continuing

Exhibit R-3, **RDT&E Project Cost Analysis:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 **/** 4	**R-1 Program Element (Number/Name)** PE 0603890C **/** *BMD Enabling Programs*	**Project (Number/Name)** MD28 **/** *Intelligence & Security*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering - UARC															
Threat Systems Engineering - Unique RCS	FFRDC	NSWC Corona : CA, MD	2.275	1.175	Nov 2016	0.000		0.000		-		0.000	3.450	6.900	0.000
Subtotal			147.039	44.696		44.708		44.078		-		44.078	Continuing	Continuing	N/A

Remarks
NASIC - National Air and Space Intelligence Center

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A

Remarks
N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A

Remarks
N/A

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	147.039	44.696	44.708	44.078	-	44.078	Continuing	Continuing	N/A

Exhibit R-3, **RDT&E Project Cost Analysis:** PB 2019 Missile Defense Agency									**Date:** February 2018
Appropriation/Budget Activity 0400 *I* 4				**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*			**Project (Number/Name)** MD28 *I Intelligence & Security*		

	Prior Years	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Remarks Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, Military Interdepartmental Purchase Requests, and civilian salaries on the R-3.									

Exhibit R-4, **RDT&E Schedule Profile:** PB 2019 Missile Defense Agency | **Date:** February 2018

| **Appropriation/Budget Activity**
0400 / 4 | **R-1 Program Element (Number/Name)**
PE 0603890C / *BMD Enabling Programs* | **Project (Number/Name)**
MD28 / *Intelligence & Security* |

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 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
MD28 Intelligence & Security		◇ ◇ ◇ ◇	◇ ◇ ◇ ◇	◇ ◇ ◇ ◇	◇ ◇ ◇ ◇	◇ ◇ ◇ ◇	◇ ◇ ◇ ◇
Adversary Data Package (ADP) - 2018			△				
Submit Annual MDA OPSEC Report to USD(I) - 2018			△				
Complete Annual Declassification Review - 2018			△				
ADP - 2019				△			
Submit Annual MDA OPSEC Report to USD(I) - 2019				△			
Complete Annual Declassification Review - 2019				△			
ADP - 2020					△		
Submit Annual MDA OPSEC Report to USD(I) - 2020					△		
Complete Annual Declassification Review - 2020					△		
ADP - 2021						△	
Submit Annual MDA OPSEC Report to USD(I) - 2021						△	
Complete Annual Declassification Review - 2021						△	
ADP - 2022							△
Submit Annual MDA OPSEC Report to USD(I) - 2022							△
Complete Annual Declassification Review - 2022							△
ADP - 2023							△
Submit Annual MDA OPSEC Report to USD(I) - 2023							△
Complete Annual Declassification Review - 2023							△

Exhibit R-4A, **RDT&E Schedule Details:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 **/** 4	**R-1 Program Element (Number/Name)** PE 0603890C **/** *BMD Enabling Programs*	**Project (Number/Name)** MD28 **/** *Intelligence & Security*

Schedule Details

Events	Start		End	
	Quarter	**Year**	**Quarter**	**Year**
MD28 Intelligence & Security	1	2018	4	2023
Adversary Data Package (ADP) - 2018	4	2018	4	2018
Submit Annual MDA OPSEC Report to USD(I) - 2018	4	2018	4	2018
Complete Annual Declassification Review - 2018	4	2018	4	2018
ADP - 2019	4	2019	4	2019
Submit Annual MDA OPSEC Report to USD(I) - 2019	4	2019	4	2019
Complete Annual Declassification Review - 2019	4	2019	4	2019
ADP - 2020	4	2020	4	2020
Submit Annual MDA OPSEC Report to USD(I) - 2020	4	2020	4	2020
Complete Annual Declassification Review - 2020	4	2020	4	2020
ADP - 2021	4	2021	4	2021
Submit Annual MDA OPSEC Report to USD(I) - 2021	4	2021	4	2021
Complete Annual Declassification Review - 2021	4	2021	4	2021
ADP - 2022	4	2022	4	2022
Submit Annual MDA OPSEC Report to USD(I) - 2022	4	2022	4	2022
Complete Annual Declassification Review - 2022	4	2022	4	2022
ADP - 2023	4	2023	4	2023
Submit Annual MDA OPSEC Report to USD(I) - 2023	4	2023	4	2023
Complete Annual Declassification Review - 2023	4	2023	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency										Date: February 2018	

Appropriation/Budget Activity 0400 I 4			R-1 Program Element (Number/Name) PE 0603890C I BMD Enabling Programs					Project (Number/Name) MD30 I BMD Information Management Systems			

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
MD30: *BMD Information Management Systems*	325.017	84.671	84.499	79.979	-	79.979	88.786	87.686	90.970	93.890	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2018, consolidated $4.343 million of IT funding from MD24 to MD30 for more efficient execution.

A. Mission Description and Budget Item Justification

The BMD Information Management Systems budget project funds information technology mission critical functions necessary for the efficient operations and safeguarding of BMD information in compliance with DoD policies and in keeping with the President's declaration on 29 May 2009, "cyber threat is one of the most serious economic and national security challenges we face as a nation". IT is critical to the day-to-day functions of MDA personnel to communicate (classified and unclassified) with each other, Congress, senior DoD and other U.S. government agency personnel, Combatant Commander's, NATO partners, and other industry partners. Communication among these organizations facilitates the MDA mission of developing and fielding an integrated BMDS to defend the United States, our deployed forces, allies, and friends against all ranges of enemy ballistic missiles in all phases of flight.

MDA information management systems capabilities support rigorous missile defense Research, Development, Test and Engineering (RDT&E) and facilitate the development of technologies to guard against evolving missile threat. Communications are vital for missile defense to continue a viable homeland defense against rogue threats and to provide the integration required to defend deployed forces, allies, and friends against theater threats. The BMD information management consists of MDA Special Purpose Processing Nodes (SPPNs), IT systems, data centers, operations and monitoring centers which are vital to support the strategic mission of the Agency and necessary to meet disaster recovery and continuity of operations requirements. This infrastructure is required to sustain access to the Secret Internet Protocol Router Network (SIPRNET), Non secure Internet Protocol Router Network (NIPRNET), MDA classified and unclassified networks, classified and unclassified video teleconferencing services, test and business knowledge data centers, the Defense Research Engineering Network (DREN). These mission critical functions provide for the efficient operation and safeguarding of all agency information in locations supporting MDA around the world.

Project MD30 was realigned into the following inter-agency mission critical IT services and the associated plans to align with the Federal Information Technology Shared Services Strategy.

1. End User Support
2. Special Purpose Processing Nodes (SPPNs)
3. IT Planning and Solutions
4. Unified Communications
5. Portal and Data Services
6. Business Automation Services

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 I 4	**R-1 Program Element (Number/Name)** PE 0603890C I BMD Enabling Programs	**Project (Number/Name)** MD30 I BMD Information Management Systems

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
Title: End User Support	15.211	19.694	20.791
Articles:	-	-	-
Description: Provides IT operations, support and maintenance (18 hours a day, six days a week) to over 10,500 MDA worldwide users (classified and unclassified) executing the Research, Development, Test and Engineering (RDT&E) mission. Services include Integrated Service Desk support (Help Desk and Client Support Services); management of hardware and software maintenance and licensing; and monitoring network activity to ensure users comply with DoD policies for the proper use of information systems. Services also include printing and copying; email and file; directory and authentication services. Includes investments in equipment at end-of-life to comply with Federal and DoD mandated cybersecurity policies. Provides life-cycle management of over 190,000 IT assets including IT procurement, receiving, shipping/transportation, warehousing, transfers and disposal using the Defense Property Accountability System (DPAS). Specific and/or unique accomplishments to each FY are as follows: ***FY 2018 Plans:*** - SEE ABOVE. ***FY 2019 Plans:*** - SEE ABOVE. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A			
Title: Special Purpose Processing Nodes (SPPNs) (formerly Network and Infrastructure Services)	28.130	19.301	10.964
Articles:	-	-	-
Description: Provides for the developmental engineering and operational strategies and concepts; and planning, design, implementation and maintenance for MDA Research, Development, Test and Evaluation (RDT&E) Special Purpose Processing Nodes (SPPNs) in Huntsville, AL and Colorado Springs, CO. The SPPN infrastructure consists of routers, switches, firewalls, compute, storage and intrusion detection systems that provide IT support to over 10,500 MDA classified/unclassified users worldwide. The SPPNs support dynamic and rapid modifications and reconfigurations of network infrastructure in support of RDT&E mission and event unique configurations. Funds provide for network operations and performance monitoring; development of detailed solutions, designs, and plans; Disaster Recovery and Continuity of Operations (DR/COOP) rehearsals; Internet access management; and web filtering. Sustains core communications distribution services across the MDA Enterprise. Includes investments in equipment at end-of-life to comply with Federal and DoD mandated cybersecurity policies. Plan, engineer and implement sustainment projects for general IT services and business systems consistent with the IT architecture roadmap. Specific and/or unique accomplishments to each FY are as follows:			

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD30 *I BMD Information Management Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2017**	**FY 2018**	**FY 2019**
FY 2018 Plans: The $11.335 million decrease from FY 2017 to FY 2018 reflects the cost sharing strategy for SPPN services used by the MDA BMDS Programs to accomplish their RDT&E mission. - SEE ABOVE. *FY 2019 Plans:* - SEE ABOVE. *FY 2018 to FY 2019 Increase/Decrease Statement:* The $7.587 million decrease from FY 2018 to FY 2019 reflects the cost sharing strategy for SPPN services used by the MDA BMDS Programs to accomplish their RDT&E mission and funded from multiple Program Elements.			
Title: Information Technology (IT) Planning and Solutions *Articles:*	13.793 -	14.998 -	14.431 -
Description: Provides IT engineering support for new requirements analysis, design, planning and implementation of IT solutions for real-world issues. Addresses the increasing demand for more complex IT products and highly specialized IT services. Manages the prioritization and integration of investments in the MDA IT Portfolio to ensure compliance with Federal and DoD polices. Supports the MDA Chief Information Officer Enterprise Architecture Board, Project Steering Committee and the Change Control Board. Ensures compliance with Federal Laws, DoD policies, directives and regulations including: Clinger-Cohen Act, the Federal Information Security Management Act (FISMA), and Office of Management and the Office of Management and Budget (OMB) IT budget reporting policies. Specific and/or unique accomplishments to each FY are as follows: *FY 2018 Plans:* - SEE ABOVE. *FY 2019 Plans:* - SEE ABOVE. *FY 2018 to FY 2019 Increase/Decrease Statement:* N/A			
Title: Unified Communications *Articles:*	15.548 -	14.998 -	16.973 -

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD30 *I BMD Information Management Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
Description: Provides for the management, operations and sustainment of classified and unclassified globally deployed video teleconferencing capabilities and equipment. Also includes unclassified desktop instant messaging, wireless services, and collaboration capabilities. Provides and implements engineering solutions for all unified communications services. Supports MDA global RDT&E mission for classified and unclassified voice and data circuits (wide area, local area and metropolitan area networks) and interfaces with the Defense Information System Network (DISN) Video Services Global (DVSG), the Defense Research and Engineering Network (DREN), Joint Service Provider (JSP) and commercial vendors. Maintenance agreements and licenses for MDA Enterprise network and telecommunications equipment (classified and unclassified mobile and desktop telephony devices). Specific and/or unique accomplishments to each FY are as follows: *FY 2018 Plans:* - SEE ABOVE. *FY 2019 Plans:* - SEE ABOVE. *FY 2018 to FY 2019 Increase/Decrease Statement:* The increase from FY 2018 to FY 2019 reflects additional support and sustainment requirements for asset management, test operations tempo and bandwidth expansion due to the increased global mission.			
Title: Business Automation Services	6.052	8.087	9.255
Articles:	-	-	-
Description: Provides for the management, operation and maintenance of enterprise business applications for the MDA community to access and share various sources of available data, information and knowledge and enable improved organization, retrieval, manipulation, and storage. Operate and maintain nine Defense Business Systems that meet the reporting requirements of Title 10 United States Code section 2222; these include portal-based Electronic Learning Management System (E-LMS), Program Resource Internet Database Environment (PRIDE), Information Management Program Activity control Tool (IMPACT), Standard Procurement System (SPS), Human Resource Tracking System/Personnel Tracking System (HRTS/PTS), TEAMMATE, E-TASKER, Comprehensive Cost and Requirements (CCaR), Electronic Content and Records Tool (ECART). Specific and/or unique accomplishments to each FY are as follows: *FY 2018 Plans:* - SEE ABOVE. *FY 2019 Plans:*			

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD30 *I BMD Information Management Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
- SEE ABOVE. *FY 2018 to FY 2019 Increase/Decrease Statement:* The increase from FY 2018 to FY 2019 reflects evolving requirements for DoD mandated knowledge and records management and reporting, defense business system reporting and sustainment costs for business applications.			
Title: Portal and Data Services	5.937	7.421	7.565
Articles:	-	-	-
Description: Provides for the management, operation and maintenance support for the classified and unclassified MDA Portal application and the IT portal infrastructure. The support includes web-based developmental engineering and operations, planning, design, application implementation, content management and training. Also provides MDA Privacy Office and Civil Liberties compliance and reporting, and manages data storage capacity to accommodate MDA users. Specific and/or unique accomplishments to each FY are as follows: *FY 2018 Plans:* - SEE ABOVE. *FY 2019 Plans:* - SEE ABOVE. *FY 2018 to FY 2019 Increase/Decrease Statement:* N/A			
Accomplishments/Planned Programs Subtotals	84.671	84.499	79.979

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	14.534	12.996	13.017	-	13.017	14.267	14.899	15.235	16.224	Continuing	Continuing
• 0603178C: *Weapons Technology*	47.403	5.495	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• 0603180C: *Advanced Research*	27.185	20.184	20.365	-	20.365	20.778	21.194	21.652	22.036	Continuing	Continuing
• 0603294C: *Common Kill Vehicle Technology*	54.395	252.879	189.753	-	189.753	205.645	254.130	122.494	52.373	Continuing	Continuing
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	197.171	292.262	214.173	-	214.173	199.399	197.451	174.161	152.174	Continuing	Continuing

UNCLASSIFIED

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Missile Defense Agency									**Date:** February 2018		

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD30 / BMD Information Management Systems

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	1,034.861	957.097	926.359	-	926.359	1,046.235	847.537	585.956	572.619	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	252.665	278.145	220.876	-	220.876	250.238	267.502	263.758	260.273	Continuing	Continuing
• 0603892C: *AEGIS BMD*	889.489	860.788	767.539	-	767.539	780.085	707.901	693.256	562.748	Continuing	Continuing
• 0603893C: *Space Tracking and Surveillance System*	37.809	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• 0603895C: *Ballistic Missile Defense System Space Programs*	20.910	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	465.433	454.862	475.168	-	475.168	515.239	494.873	492.119	515.529	Continuing	Continuing
• 0603898C: *Ballistic Missile Defense Joint Warfighter Support*	47.402	48.954	48.767	-	48.767	53.418	51.448	54.076	54.061	Continuing	Continuing
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	53.483	53.265	54.925	-	54.925	58.498	57.764	59.020	61.915	Continuing	Continuing
• 0603907C: *Sea Based X-Band Radar (SBX)*	115.201	145.695	149.715	-	149.715	175.013	155.718	129.044	136.390	Continuing	Continuing
• 0603913C: *Israeli Cooperative Programs*	268.735	105.354	300.000	-	300.000	300.000	300.000	300.000	300.000	Continuing	Continuing
• 0603914C: *Ballistic Missile Defense Test*	294.441	316.193	365.681	-	365.681	349.388	320.909	320.332	327.584	Continuing	Continuing
• 0603915C: *Ballistic Missile Defense Targets*	521.784	460.125	517.852	-	517.852	441.827	383.739	405.909	417.800	Continuing	Continuing
• 0604880C: *Land Based SM-3 (LBSM3)*	40.452	30.486	27.692	-	27.692	29.263	28.370	27.228	28.225	Continuing	Continuing
• 0604881C: *AEGIS SM-3 Block IIA Co-Development*	102.272	9.739	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	112.011

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Missile Defense Agency		**Date:** February 2018
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0901598C: Management HQ - MDA	30.693	29.947	28.626	-	28.626	27.276	27.894	28.466	29.005	Continuing	Continuing

Remarks

D. Acquisition Strategy

This acquisition strategy to provide IT services for MDA consists of three MDA issued contracts. The Joint National Integration Center Research and Development Contract (JRDC) provides IT design, engineering, implementation and sustainment services. The JRDC contract expires January 2018 and was re-competed as Full and Open under the name of Integrated Research and Development for Enterprise Solutions (IRES). The IRES transition team was awarded with work started end of FY 2017.

The Network Management Resources (NMR) contract provides Video Teleconferencing, Portal, Data and Business Automation services. The NMR contract expires in March 2018 and is being re competed as a Service Disabled Veteran Owned Small Business Set Aside under the new name of Research & Development Enterprise Collaboration Services (RECS).

MDA issues multiple Military Interdepartmental Purchase Requisitions (MIPRs) for leased communications including DISA, DREN and the US Army.

E. Performance Metrics

N/A

Exhibit R-3, **RDT&E Project Cost Analysis:** PB 2019 Missile Defense Agency		**Date:** February 2018
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	N/A

Remarks
 N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
End User Support - Consolidated Support Logistics/Asset Mgmt	C/CPFF	Venturi : AL, CO	0.000	0.000		0.000		0.514	Nov 2018	-		0.514	Continuing	Continuing	Continuing
End User Support - End User Civilian Pay/Travel/PCS	Allot	MDA Civilian Pay/TDY/PCS : AL, CO, NM, VA	11.685	3.148	Oct 2016	3.213	Oct 2017	3.117	Oct 2018	-		3.117	Continuing	Continuing	Continuing
End User Support - End User Civilian Travel	Allot	MDA Civilian Travel : AL, AK, CA, CO, HI, NM, VA	0.875	0.218	Oct 2016	0.232	Oct 2017	0.000		-		0.000	0.000	1.325	0.000
End User Support - End User IT Hardware/Software Support	C/CPAF	Northrop Grumman / Jacobs Engineering : AL, AK, CA, CO, HI, NM, VA	25.167	5.075	Oct 2016	7.071	Feb 2018	6.130	Nov 2018	-		6.130	Continuing	Continuing	Continuing
End User Support - End User IT Licenses	C/CPAF	Northrop Grumman / Jacobs Engineering : AL, AK, CA, CO, HI, NM, VA	10.676	1.161	Oct 2016	1.744	Feb 2018	5.262	Nov 2018	-		5.262	Continuing	Continuing	Continuing
End User Support - End User Operational Support	C/CPAF	Northrop Grumman / Jacobs Engineering : AL, AK, CA, CO, HI, NM, VA	37.886	5.609	Oct 2016	7.434	Feb 2018	5.768	Oct 2018	-		5.768	Continuing	Continuing	Continuing
Special Purpose Processing Nodes (SPPNs) (formerly Network and Infrastructure	Allot	MDA Civilian Pay : AL, CO, VA	4.716	1.259	Oct 2016	1.280	Oct 2017	1.326	Oct 2018	-		1.326	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency		Date: February 2018
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Services) - SPPN Civilian Pay/Travel/PCS															
Special Purpose Processing Nodes (SPPNs) (formerly Network and Infrastructure Services) - SPPN Licenses	C/CPAF	Northrop Grumman / Jacobs Engineering : AL, CO, VA	51.350	13.450	Oct 2016	9.037	Feb 2018	6.525	Nov 2018	-		6.525	Continuing	Continuing	Continuing
Special Purpose Processing Nodes (SPPNs) (formerly Network and Infrastructure Services) - SPPN Operational Support	C/CPAF	Northrop Grumman / Jacobs Engineering : AL, CO, VA	49.997	13.421	Oct 2016	8.984	Feb 2018	3.113	Nov 2018	-		3.113	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions - Consolidated Support, IT Planning and Solutions	C/CPFF	Colsa : AL, CO, VA	10.633	4.423	Mar 2017	5.755	Mar 2018	5.423	Nov 2018	-		5.423	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions - IT Planning and Solutions Civilian Pay/Travel/PCS	Allot	MDA Civilian Pay : AL, CO, VA	3.632	1.785	Oct 2016	0.960	Oct 2017	1.823	Oct 2018	-		1.823	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions - IT Planning and Solutions OMB,OSD, and DOD Compliance Monitoring and Reporting/Contract Deliverable	C/CPFF	Colsa : AL, CO, VA	0.834	0.000		0.128	Mar 2018	0.000		-		0.000	0.000	0.962	0.000
Information Technology (IT) Planning and Solutions - IT Planning and Solutions Operational Support	C/CPAF	Northrop Grumman / Jacobs Engineering : AL, CO, VA	23.043	7.585	Feb 2017	8.155	Feb 2018	7.185	Oct 2018	-		7.185	Continuing	Continuing	Continuing
Information Technology (IT) Planning and Solutions	Allot	MDA Business Operations : AL, CO, VA	1.904	0.000		0.000		0.000		-		0.000	0.000	1.904	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency			Date: February 2018

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
- MDA Agency Business Operations															
Unified Communications - Unified Communications Civilian Pay/Travel/PCS	Allot	MDA Civilian Pay : Al, CO, VA	4.505	0.796	Oct 2016	1.120	Oct 2017	0.994	Oct 2018	-		0.994	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Leased Communications/ Licenses	MIPR	DISA/DREN/IT2S : AL, AK, CA, CO, HI, NM, VA	15.777	2.891	Oct 2016	2.813	Oct 2017	3.102	Oct 2018	-		3.102	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Operational Support	C/CPAF	JRDC / IRES : AL, CO, VA	6.835	2.047	Feb 2017	2.088	Feb 2018	4.062	Oct 2018	-		4.062	Continuing	Continuing	Continuing
Unified Communications - Unified Communications Wireless Services	C/FFP	AT&T : AL, CO, VA	2.121	1.471	Nov 2016	2.011	Nov 2017	1.998	Nov 2018	-		1.998	Continuing	Continuing	Continuing
Unified Communications - VTC HW Licenses	C/CPIF	NMR / TBD : AL, CO, VA	0.000	1.800		0.000		1.736	Nov 2018	-		1.736	Continuing	Continuing	Continuing
Unified Communications - VTC HW/Break-Fix	C/CPIF	NMR / TBD : AL, CO, VA	0.000	1.209		0.000		1.267	Nov 2018	-		1.267	Continuing	Continuing	Continuing
Unified Communications - VTC Operations Support	C/CPIF	NMR / TBD : AL, AK, CO, NM, VA	22.113	5.334	Nov 2016	6.966	Nov 2017	3.814	Nov 2018	-		3.814	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Civilian Pay/ Travel/PCS	Allot	MDA Civilian Pay : AL, CO, VA	2.715	0.318	Oct 2016	0.480	Oct 2017	0.331	Oct 2018	-		0.331	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Licenses	C/CPAF	Northrop Grumman / Jacobs Engineering : AL, CO, VA	3.562	0.934	Oct 2016	0.953	Feb 2018	0.972	Nov 2018	-		0.972	Continuing	Continuing	Continuing
Business Automation Services - Business Automation Operational Support	C/CPAF	Northrop Grumman / Jacobs Engineering : AL, CO, VA	10.246	4.779	Oct 2016	6.632	Feb 2018	7.930	Nov 2018	-		7.930	Continuing	Continuing	Continuing
Business Automation Services - Business	MIPR	CACI : AL, CO, VA	0.059	0.021	Oct 2016	0.022	Oct 2017	0.022	Mar 2019	-		0.022	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency											**Date:** February 2018		

Appropriation/Budget Activity 0400 *I* 4						R-1 Program Element (Number/Name) PE 0603890C *I BMD Enabling Programs*					Project (Number/Name) MD30 *I BMD Information Management Systems*		

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Automation Services Support															
Portal and Data Services - Portal and Data Services Civilian Pay/Travel/PCS	Allot	MDS Civilian Pay : AL, CO, VA	3.632	0.796	Oct 2016	0.800	Oct 2017	0.829	Oct 2018	-		0.829	Continuing	Continuing	Continuing
Portal and Data Services - Portal and Data Services Licenses and Maintenance	C/CPAF	Northrop Grumman / Jaobs Engineering : AL, CO, VA	6.789	1.800	Oct 2016	1.627	Feb 2018	1.661	Nov 2018	-		1.661	Continuing	Continuing	Continuing
Portal and Data Services - Portal and Data Services Operational	C/CPAF	Online Subscriptions Services : AL, CO, VA	1.430	0.419	Oct 2016	0.408	Oct 2017	0.417	Oct 2018	-		0.417	Continuing	Continuing	Continuing
Portal and Data Services - Portal and Data Services Operational Support	C/FFP	NMR / TBD : AL, CO, VA	12.835	2.922	Oct 2016	4.586	Nov 2017	4.658	Nov 2018	-		4.658	Continuing	Continuing	Continuing
Subtotal			325.017	84.671		84.499		79.979		-		79.979	Continuing	Continuing	N/A

Remarks
 N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	N/A

Remarks
 N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	N/A

Exhibit R-3, **RDT&E Project Cost Analysis:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD30 *I BMD Information Management Systems*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks
 N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	325.017	84.671		84.499		79.979		-		79.979	Continuing	Continuing	N/A

Remarks
 N/A

Exhibit R-4, **RDT&E Schedule Profile:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD30 *I BMD Information Management Systems*

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 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications Follow-On		✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - Follow-On		✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧
Operate and Maintain General Information Technology Services 18 hours per day, 6 days per week - Follow-On		✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧
Revise and Test Contingency Plans for Information Technology Systems - Follow-On		✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - Follow-On		✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧
Procure, Implement, and Asset Control for Information Technology Operational Systems -Follow-On		✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧
Provide 18 hours per day, 6 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - Follow-On		✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - Follow-On		✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - Follow-On		✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - Follow-On		✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - Follow-On		✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧
Sustain the Information Technology Infrastructure Across the MDA Enterprise - Follow-On		✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 I 4	**R-1 Program Element (Number/Name)** PE 0603890C I BMD Enabling Programs	**Project (Number/Name)** MD30 I BMD Information Management Systems

Schedule Details

Events	Start		End	
	Quarter	**Year**	**Quarter**	**Year**
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications Follow-On	1	2018	4	2023
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - Follow-On	1	2018	4	2023
Operate and Maintain General Information Technology Services 18 hours per day, 6 days per week - Follow-On	1	2018	4	2023
Revise and Test Contingency Plans for Information Technology Systems - Follow-On	1	2018	4	2023
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - Follow-On	1	2018	4	2023
Procure, Implement, and Asset Control for Information Technology Operational Systems -Follow-On	1	2018	4	2023
Provide 18 hours per day, 6 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - Follow-On	1	2018	4	2023
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - Follow-On	1	2018	4	2023
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - Follow-On	1	2018	4	2023
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - Follow-On	1	2018	4	2023
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - Follow-On	1	2018	4	2023
Sustain the Information Technology Infrastructure Across the MDA Enterprise - Follow-On	1	2018	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency										Date: February 2018	

Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs					Project (Number/Name) MC30 / Cyber Operations		

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
MC30: Cyber Operations	58.697	43.589	41.458	63.112	-	63.112	66.286	72.775	68.150	56.599	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

FY17 reflects a Congressional add for Cybersecurity training and enhancements of $20M and some internal realignments for cybersecurity investments for Secretary of Defense priority effort in the Cybersecurity Four Lines of Effort.

Beginning in FY 2018, this MC30 Cyber Operations Budget Project will consist of new Accomplishments that will map to the Office of Management and Budget (OMB) and Office of the Secretary of Defense (OSD) approved Cybersecurity Taxonomy. The new Accomplishments are: 1) Preventing Malicious Activity; 2) Detect, Analyze and Mitigate Intrusions, 3) Planning, Policy Development and Workforce Management and 4) Continuous Monitoring.

In FY 2018, $10.585 million of IT funding was realigned from MD24 to MC30 for Cyber Operations priority efforts.

In FY 2019, new Accomplishment "Outside Federal Outreach, Defense Industrial Base" was added with $162 thousand realigned from the Detect, Analyze and Mitigate.

A. Mission Description and Budget Item Justification

A number of key IT strategies were identified in the DoD Information Technology Enterprise Strategy and Roadmap issued by the Deputy Secretary of Defense in 2011. The IT Roadmap specifically addresses the need to improve Cybersecurity. It states that DoD networks are under constant attack from cybersecurity threats launched from various sources. MDA must meet the National Command Authority Directives for rapid deployment of the BMDS while complying with the key principles of the Cybersecurity standards to ensure MDA remains a secure member of the DoD Information Network (DODIN).

DoD Instruction 8500.01 Cybersecurity issued in March 2014, requires continuous monitoring, data analysis, reporting and incident mitigation of DoD classified and unclassified, mission, test and administrative networks. To comply with the Instruction, MDA must implement a multi-tiered cybersecurity risk management capability to protect critical BMD data and systems from rapidly evolving internal and external threats.

The issuance of DoD Instruction 8510.01, Risk Management Framework (RMF) Information Technology in March 2014 requires additional resources to implement, manage, monitor and report as a result of a thirty-five percent increase in controls (237 controls with 817 enhancements).   DoD 8510.01 also states that resources for implementing the RMF must be identified and allocated as part of the Defense planning, programming, budgeting, and execution process. The Controls must be tested on all IT supporting research, development, test and evaluation and DoD-controlled IT operated by a contractor or other entity on behalf of DoD and reported.

The Cyber Operations budget project in the Enabling Program Element is executed by the MDA Chief Information Officer who has responsibility over the Agency Authorizing Official (AO). The project provides funds to sustain the Risk Management Framework (RMF) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Systems Security Officer (PM/ISSO) Plan of Action and Milestones (POA&M) for the MDA mission, test and administrative systems. It maintains the Certification and Accreditation (C&A) data repository, capturing the RMF

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 **/** 4	**R-1 Program Element (Number/Name)** PE 0603890C **/** *BMD Enabling Programs*	**Project (Number/Name)** MC30 **/** *Cyber Operations*

documentation (artifacts, validation results, and Cybersecurity Risk Assessment results, and Authorizing Official (AO) accreditation decisions) and POA&M on all MDA information systems. It supports the monitoring and tracking of Cybersecurity mitigations detailed in IT security POA&Ms. Activities include preparation of C&A documentation and accreditation recommendations to the MDA PM/ISSO and AO. Independent Verification and Validation (IV&V) team actions ensure the availability, integrity, confidentiality and non-repudiation of the MDA mission, test and administrative systems. Activities in the Project are necessary to comply with Federal Information Security Management Act(FISMA).

This project funds the MDA Security Operations Center (SOC), responsible for monitoring, managing, patching, and maintaining MDA network and core IT services; issuing and tracking Technical Compliance Orders; and coordinating overarching Enterprise NetOps. The SOC provides the network security operations centers and supporting processes to protect and defend BMDS and the MDA Enterprise information and information systems.

The MDA Computer Emergency Response Team (CERT), funded in this project, monitors the classified and unclassified information technology MDA administrative IT networks and reports vulnerabilities. The MDA CERT coordinates with U.S. Cyber Command to identify and implement network vulnerability updates and patches to comply with U.S. Cyber Command vulnerabilities identified for DoD networks.

The project funds Cybersecurity governance management and administrative management support, annual Agency-wide computer-based IA training and metrics reporting, implementation of Public Key Infrastructure and Enabling and COMSEC related activities.

Beginning in FY 2018, new Accomplishments will map to the Cybersecurity Taxonomy approved by OMB and OSD. The following are the recurring activities in each new accomplishment.

Recurring Activities for the Prevent Malicious Cyber Attacks Accomplishment:
-Maintain a current Information Assurance risk and residual risk assessment of the BMDS.
-Provide coordination on all IT projects and remote sites for Cybersecurity compliance.
-Implement methodologies and goals to identify insecure and unauthorized vectors of access to networks or applications, analyze the threat, attempt to exploit the vectors and confirm existence and analyze the risk for exploiting an application, network or service.
-Track ports, protocols, and services.
-Coordinate with private partnerships to ensure the Defense Industrial Base protects MDA data.

Recurring Activities for the Detect, Analyze and Mitigate Intrusions Accomplishment:
-Test RMF controls on all IT supporting research, development, test and evaluation and DoD-controlled IT operated by a contractor or other entity on behalf of DoD and reported.
-Conduct RMF analysis and reporting for the BMDS such as evaluation of residual risk by incorporating current and proposed BMDS monitoring and mitigations.
-Maintain MDA Computer Emergency Response Team (MDA CERT) as a fully accredited Tier II Computer Network Defense Service provider (CNDSP) in accordance with CJCSI 6510.01F and DoD O-8530.1.
-Perform CNDSP services (protect, detect, respond and sustain) for all MDA Admin/General Services, MDA Mission and test networks and enclaves 24 hours per day, seven days a week, 365 days a year.

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Missile Defense Agency		**Date:** February 2018
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-Conduct application testing that looks for vulnerabilities and issues using a number of tactics, technical and procedures.
-Conduct vulnerability scanning of MDA network to assess risks to MDA data from inside and outside sources.
-Conduct monthly information assurance vulnerability audits.
-Issue and track implementation of Information Assurance Vulnerability Alerts (IAVA), Bulletins and Technical Advisories.
-Implement Information Assurance Vulnerability Alerts (IAVA) and Communication Tasking Orders remediation and patches.
-Perform network security monitoring of all MDA subscriber networks and enclaves.
-Conduct system forensic analysis, review content of compromised system, document files and data, and identify tactics, techniques and procedures used by an attacker to gain access.
-Develop and maintain the RMF package for the BMDS Mission System to support a full Authorization to Operation (ATO).
-Compile and validate BMDS Mission Element-level certification and accreditation documents to include BMDS Element-level SIPs, DIPs, C&A Scorecards, POA&M artifacts (CVT -Ensure MDA mission, test, and administrative systems are operated securely in accordance with DoD Information Assurance Certification and Accreditation policies.
-Prepare and maintain current certification and accreditation documentation for general service networks reported to DoD and Office of Management and Budget.

Recurring Activities for the Planning, Policy Development, Workforce Training and Force Management Accomplishment:
-Document and maintain Standard Operating Instructions/Procedures for consistent interface with the MDA BMDS Network Operations Support Center (BNOSC) and the BMDS elements.
-Publish MDA policies to incorporate new requirements stated in DoDI 8510.01 Risk Management Framework (RMF) to comply with 237 new controls and 817 control enhancements into controls validation testing of BMDS elements and networks.
-Manage the Information Assurance Workforce Improvement Program to certify Cybersecurity professionals and report compliance in accordance with Federal Information Security Management Act (FISMA) and Information Assurance Workforce Improvement Program (DoD Manual 8570.1), achieving the DoD certification goal; reports IA Risk Assessments, Primary RMF artifacts.
-Interface with Central Command (CENTCOM) to provide BMDS Mission RMF package.
-Conduct an annual IA Security review of the BMDS in accordance with DoDI 8510.01 and provide an analysis of changes in IA posture.
-Collect, analyze, and report vulnerability and cyber warfare attack metrics to the MDA CIO, MDA leadership, and U.S. Cyber Command.

-Provide Information Assurance engineering and planning guidance and vulnerability assessment for all MDA Information Technology acquisition programs.

Recurring Activities for the Continuous Monitoring Accomplishment:
-Manage data-at-rest encryption to ensure compliance with Global Information Grid mandated policies.
-Procure/renew cybersecurity software maintenance agreements for IT Security Tools.
-Procure/renew cybersecurity hardware maintenance for hardware.

New Accomplishment beginning in FY 2019:
Outside Federal Service Outreach - Defense Industrial Base

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018
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- Participate and liaison with the Defense Security Service (DSS), MDA organizations and industry partners to conduct site visits and inspections to improve network monitoring capabilities at classified contractor sites to ensure protection of MDA BMDS data.
-Assist with the analysis of network scans of industry partner networks and mitigation of risks to BMDS data.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
Title: Information Assurance/Computer Network Defense (IA/CND)	43.589	0.000	0.000
Articles:	-	-	-
Description: Provides for the certification of Information Technology networks and systems, monitoring and computer emergency response services. Beginning in FY18, new Accomplishments align to the OSD/OMB Cybersecurity Taxonomy. **FY 2018 Plans:** N/A **FY 2019 Plans:** N/A **FY 2018 to FY 2019 Increase/Decrease Statement:** N/A			
Title: Detect, Analyze and Mitigate Intrusions	0.000	24.300	36.057
Articles:	-	-	-
Description: Beginning in FY 2018, this new Accomplishment will map to the Office of Management and Budget (OMB) and the Office of the Secretary of Defense (OSD) approved Cybersecurity Taxonomy. The cybersecurity activities funded within this Accomplishment include: Federal Incident Response Centers; National Institute of Standards for Technology (NIST) SP 800.53 Implementation; Cyber Threat Analysis; Cyber Continuity of Operations (COOP); Incident Response and Remediation; Forensics and Damage Assessment; and Computer Emergency Response Teams. Specific and/or unique accomplishments to each FY are as follows: **FY 2018 Plans:** - SEE ABOVE. **FY 2019 Plans:** - SEE ABOVE. **FY 2018 to FY 2019 Increase/Decrease Statement:** The overall increase of $11,757 includes the realignment of $13,447 of Agency Cybersecurity funding from multiple RDT&E Program Elements for centralized visibility of cybersecurity investments to implement the Office of the Secretary of Defense four			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency			**Date:** February 2018		
Appropriation/Budget Activity 0400 / 4		**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MC30 / *Cyber Operations*		

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2017**	**FY 2018**	**FY 2019**
lines of effort and Risk Management Framework (RMF) activities across MDA programs. It also includes a proportional decrease of $1,690 for revised inflation rates and decreases for Defense Acquisition Workforce Development Fund based on MDA usage.			
Title: Preventing Malicious Cybersecurity Activity	0.000	9.685	18.738
Articles:	-	-	-
Description: Beginning in FY 2018, this new Accomplishment will map to the Office of Management and Budget (OMB) and the Office of the Secretary of Defense (OSD) approved Cybersecurity Taxonomy. The efforts funded in this Accomplishment include: Federal Information Security Management Activity Act (FISMA)-related activities; Intrusion Prevention Systems; Trusted Internet Connections; Identity Management and Authentication; Supply Chain Management; Network & Data Protection and Insider Threat Mitigation Activities. In FY2018, $4.2 million was added to this Accomplishment to execute BMDS Positioning, Navigation and Timing (PNT) Last Mile Integration for six (6) Ballistic Missile Defense System (BMDS) sites leveraging the DoD Chief Information Officer Regional Clock installations at BMDS locations. This effort includes integration and test capabilities for element interface verification and provide operations and sustainment of the deployed PNT Last Mile integration capabilities at BMDS locations. Specific and/or unique accomplishments to each FY are as follows: *FY 2018 Plans:* -SEE ABOVE. *FY 2019 Plans:* -SEE ABOVE. *FY 2018 to FY 2019 Increase/Decrease Statement:* The $9.053M increase from FY 2018 to FY 2019 reflects the realignment of cybersecurity activities previously identified in the Detect, Analyze and Mitigate Intrusions Accomplishment and also reflects the increasing requirements for support to accomplish cybersecurity activities necessary to protect and defend MDA systems and networks.			
Title: Continuous Monitoring	0.000	4.827	5.134
Articles:	-	-	-
Description: Beginning in FY 2018, this new Accomplishment will map to the Office of Management and Budget (OMB) and the Office of the Secretary of Defense (OSD) approved Cybersecurity Taxonomy. The cybersecurity activities funded within this Accomplishment include: IT Security Tools and Other Continuous Monitoring. Specific and/or unique accomplishments to each FY are as follows: *FY 2018 Plans:*			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MC30 / *Cyber Operations*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
- SEE ABOVE. *FY 2019 Plans:* - SEE ABOVE. *FY 2018 to FY 2019 Increase/Decrease Statement:* N/A			
Title: Planning, Policy Development, Workforce Training & Force Management *Articles:*	0.000 -	2.646 -	3.017 -
Description: Beginning in FY 2018, this new Accomplishment will map to the Office of Management and Budget (OMB) and the Office of the Secretary of Defense (OSD) approved Cybersecurity Taxonomy. The cybersecurity activities funded within this Accomplishment include: National Initiative for Cybersecurity Education (NICE); Workforce Development; Security Training for Employees with Significant Security Responsibilities; and Cybersecurity Strategic Planning, Policy, Oversight and Management. Specific and/or unique accomplishments to each FY are as follows: *FY 2018 Plans:* - SEE ABOVE. *FY 2019 Plans:* - SEE ABOVE. *FY 2018 to FY 2019 Increase/Decrease Statement:* N/A			
Title: Outside Federal Outreach - Defense Industrial Base *Articles:*	0.000 -	0.000 -	0.166 -
Description: Activities in this new Accomplishment includes reviewing current Cybersecurity Policies and coordinating with MDA BMDS Programs to ensure all applicable Cybersecurity clauses are included into MDA contracts with MDA Industry partners in the Defense Industrial Base (DIB) to ensure protection of Ballistic Missile Defense System (BMDS) Controlled Unclassified Information (CUI). Specific and/or unique accomplishments to each FY are as follows: *FY 2018 Plans:* N/A *FY 2019 Plans:*			

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 **/** 4	**R-1 Program Element (Number/Name)** PE 0603890C **/** *BMD Enabling Programs*	**Project (Number/Name)** MC30 **/** *Cyber Operations*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2017**	**FY 2018**	**FY 2019**
- SEE ABOVE.			
FY 2018 to FY 2019 Increase/Decrease Statement:			
N/A			
Accomplishments/Planned Programs Subtotals	43.589	41.458	63.112

C. Other Program Funding Summary ($ in Millions)
 N/A
Remarks

D. Acquisition Strategy
 N/A

E. Performance Metrics
 N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency			Date: February 2018

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A

Remarks
 N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Information Assurance/ Computer Network Defense (IA/CND) - BMDS IA Advisory and Assistance Services	C/CPFF	Booz Allen Hamilton : AL, CO, VA	2.950	2.446	Oct 2016	0.000		0.000		-		0.000	0.000	5.396	0.000
Information Assurance/ Computer Network Defense (IA/CND) - CND/IA Advisory and Assistance Services	C/CPFF	Torch Technologies : AL, CO, VA	7.950	2.805	Oct 2016	0.000		0.000		-		0.000	0.000	10.755	0.000
Information Assurance/ Computer Network Defense (IA/CND) - CND/ IA Civilian Travel	Allot	MDA Civilian Travel : AL, AK, CA, CO, HI, NM, VA	0.416	0.215	Oct 2016	0.000		0.000		-		0.000	0.000	0.631	0.000
Information Assurance/ Computer Network Defense (IA/CND) - CND/ IA Civilian pay/Travel/PCS	Allot	MDA Civilian Pay : AL, CO, VA	6.692	2.917	Oct 2016	0.000		0.000		-		0.000	0.000	9.609	0.000
Information Assurance/ Computer Network Defense (IA/CND) - CND/ IA Licenses	C/CPAF	Northrop Grumman : AL, CO, VA	6.661	5.218	Oct 2016	0.000		0.000		-		0.000	0.000	11.879	0.000
Information Assurance/ Computer Network Defense (IA/CND) - CND/ IA Operational Support	C/FFP	Northrop Grumman : AL, CO, VA	27.025	16.647	Oct 2016	0.000		0.000		-		0.000	0.000	43.672	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency													Date: February 2018	
Appropriation/Budget Activity 0400 / 4						**R-1 Program Element (Number/Name)** PE 0603890C / BMD Enabling Programs						**Project (Number/Name)** MC30 / Cyber Operations		

Support ($ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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**
Information Assurance/ Computer Network Defense (IA/CND) - CND/ IA, CCRI, Comsec	MIPR	NSA/DISA : AL, CO, VA	0.332	0.409	Oct 2016	0.000		0.000		-		0.000	0.000	0.741	0.000
Information Assurance/ Computer Network Defense (IA/CND) - Cyber Compliance Projects	C/CPAF	Northop Grumman : AL, CO, VA	6.671	12.932		0.000		0.000		-		0.000	0.000	19.603	0.000
Detect, Analyze and Mitigate Intrusions - A&AS Cyber IT Mgmt	C/CPFF	TEAMS, TBD : AL, CO, VA	0.000	0.000		0.164	Mar 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - A&AS, BMDS CSM/CND	C/CPFF	TEAMS, TBD : AL, CO, VA	0.000	0.000		1.140	Mar 2018	1.452	Mar 2019	-		1.452	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - A&AS, Cyber Risk Mgmt	C/CPFF	TEAMS, TBD : AL, CO, VA	0.000	0.000		2.856	Mar 2018	3.916	Mar 2019	-		3.916	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - Civilian Pay	Allot	Civilian Pay : AL, CO, NM,, VA	0.000	0.000		3.255	Oct 2017	2.320	Oct 2018	-		2.320	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - Cyber CSS	C/CPAF	JRDC / IRES : AL, CO, VA	0.000	0.000		12.685	Feb 2018	28.369	Jan 2019	-		28.369	Continuing	Continuing	Continuing
Detect, Analyze and Mitigate Intrusions - PNT, CSS	C/CPAF	JRDC / IRES : AL, CO, VA	0.000	0.000		4.200	Jan 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Preventing Malicious Cybersecurity Activity - A&AS IT Mgmt	C/CPFF	TEAMS, TBD : AL, CO, VA	0.000	0.000		0.328	Mar 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Preventing Malicious Cybersecurity Activity - Civpay	Allot	Civilian Pay : AL, CO, VA, NM	0.000	0.000		2.945	Oct 2017	1.740	Mar 2019	-		1.740	Continuing	Continuing	Continuing
Preventing Malicious Cybersecurity Activity -	C/CPFF	TEAMS, TBD : AL, CO, VA	0.000	0.000		0.570	Apr 2018	0.904	Mar 2019	-		0.904	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency													**Date:** February 2018	
Appropriation/Budget Activity 0400 / 4					**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*						**Project (Number/Name)** MC30 / *Cyber Operations*			

Support ($ in Millions)				**FY 2017**		**FY 2018**		**FY 2019 Base**		**FY 2019 OCO**		**FY 2019 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**
Consolidated Support CSM															
Preventing Malicious Cybersecurity Activity - Cyber CSS	C/CPAF	JRDC / IRES : AL, COL, VA	0.000	0.000		5.842	Feb 2018	16.094	Jan 2019	-		16.094	Continuing	Continuing	Continuing
Continuous Monitoring - Continuous Monitoring - IT Security Tools	C/CPAF	Northrop Grumman / TBD : AL, CO, VA	0.000	0.000		4.827		5.134	Jan 2019	-		5.134	Continuing	Continuing	Continuing
Planning, Policy Development, Workforce Training & Force Management - A&AS Cyber BMDS CSM/CND	C/CPFF	TEAMS, TBD : AL, CO, VA	0.000	0.000		0.612	Mar 2018	1.779		-		1.779	Continuing	Continuing	Continuing
Planning, Policy Development, Workforce Training & Force Management - A&AS Cyber CRM	C/CPFF	TEAMS, TBD : AL, CO, VA	0.000	0.000		0.329	Mar 2018	0.000		-		0.000	Continuing	Continuing	Continuing
Planning, Policy Development, Workforce Training & Force Management - Civilian PayTravel/PCS	Allot	Civilian Pay : AL, CO, NM, VA	0.000	0.000		1.705	Oct 2017	1.238		-		1.238	Continuing	Continuing	Continuing
Outside Federal Outreach - Defense Industrial Base - Civpay	Allot	MDA Civilian Pay : AL, CO, NM, VA	0.000	0.000		0.000		0.166	Oct 2018	-		0.166	Continuing	Continuing	Continuing
Subtotal			58.697	43.589		41.458		63.112		-		63.112	Continuing	Continuing	N/A

Remarks
 N/A

	Prior Years	**FY 2017**		**FY 2018**		**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Project Cost Totals	58.697	43.589		41.458		63.112	-	63.112	Continuing	Continuing	N/A

Exhibit R-3, **RDT&E Project Cost Analysis:** PB 2019 Missile Defense Agency									**Date:** February 2018
Appropriation/Budget Activity 0400 *I* 4				**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*			**Project (Number/Name)** MC30 *I Cyber Operations*		
	Prior Years	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**

Remarks
  N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MC30 / *Cyber Operations*

Significant Event Complete ▲	Milestone Decision Complete ★	Element Test Complete ◆
Significant Event Planned △	Milestone Decision Planned ☆	Element Test Planned ◇

	System Level Test Complete ●	Complete Activity ✦
	System Level Test Planned ○	Planned Activity ✧

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
PNT Operations and Maint		✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧
PNT Test Capabilities			✧✧✧				
PNT BMDS Last Mile Capability Operations & Sustainment			✧				
PNT Last Mile Integration 3 Additional BMDS Sites			✧				
PNT Last Mile Integration 3 BMDS Sites		✧	✧				
PNT interface testing equipment		✧✧	✧				
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - Follow-On		✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧
Monitor Networks and Systems to Defend Mission, Test, and Administrative Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - Follow-On		✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - Follow-On		✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧
Procure, Implement, and Asset Control of Hardware maintenance and Software Licenses for Monitoring Systems of Information Assurance - Follow-On		✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - Follow-On		✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧
Complete Annual Information Assurance user Training for MDA Workforce - Follow-On		✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - Follow-On		✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧	✧✧✧✧

Exhibit R-4A, **RDT&E Schedule Details:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MC30 / *Cyber Operations*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
PNT Operations and Maint	1	2019	4	2023
PNT Test Capabilities	2	2019	4	2019
PNT BMDS Last Mile Capability Operations & Sustainment	4	2018	4	2018
PNT Last Mile Integration 3 Additional BMDS Sites	4	2018	4	2018
PNT Last Mile Integration 3 BMDS Sites	3	2018	4	2018
PNT interface testing equipment	2	2018	4	2018
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - Follow-On	1	2018	4	2023
Monitor Networks and Systems to Defend Mission, Test, and Administrative Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - Follow-On	1	2018	4	2023
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - Follow-On	1	2018	4	2023
Procure, Implement, and Asset Control of Hardware maintenance and Software Licenses for Monitoring Systems of Information Assurance - Follow-On	1	2018	4	2023
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - Follow-On	1	2018	4	2023
Complete Annual Information Assurance user Training for MDA Workforce - Follow-On	1	2018	4	2023
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - Follow-On	1	2018	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency											Date: February 2018	
Appropriation/Budget Activity 0400 I 4				**R-1 Program Element (Number/Name)** PE 0603890C I *BMD Enabling Programs*					**Project (Number/Name)** MD31 I *Modeling & Simulation*			
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
MD31: *Modeling & Simulation*	165.404	46.513	49.824	89.786	-	89.786	97.004	135.297	48.670	49.030	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Increase from FY 2018 to FY 2019 reflects M&S updates required to improve BMDS VV&A outcomes to address required OTA accreditation plan for all BMDS Elements, which will provide additional confidence in BMDS performance to the Warfighter. Also reflects completion of BMDS-level Digital M&S prototype development/ risk reduction activities and transition to design and development of digital simulation capability, as well as increased effort to design and implement System-level ground test re-architecture improvements.

A. Mission Description and Budget Item Justification

MDA's Modeling and Simulation (M&S) program is essential to ensuring missile defense capabilities are affordable and effective. M&S develops system-level models, frameworks, truth, simulations, and operational environments as missile defense technologies continually advance and the threat changes, and evaluates performance of the Elements, Components, and overall BMD System for verification, validation and accreditation purposes. MDA's M&S program provides a cost effective means to assess and examine the performance space of the BMDS beyond what can be physically tested under current test range conditions and within the Agency's fiscal constraints. M&S future concept simulation activities provide the capability to design and develop technologies to hedge against future missile threats. MDA's M&S systems and products provide analysis and decision-making and planning capabilities for Real-World Operations to inform the National Command Authority, Joint Staff, Military Services, NATO, Combatant Commanders (CCMDs), Operational Test Authority (OTAs), Director of Operational Test & Evaluation (DOT&E), and Allies.

The strategy of MDA's M&S Program is 1) to execute a single, integrated, and synchronized program to manage M&S development and sustainment in support of MDA's BMDS acquisition, 2) to improve BMDS Flight and Ground Test execution, 3) to leverage MDA test activities to collect data to anchor M&S, and 4) to perform warfighter training and tactics validation. The strategy also incorporates key elements to address DOT&E's BMDS Assessment Report: Ensure that future M&S architectures are composable and flexible, and simplify the integration process to conserve resources and improve capabilities; Ensure that future M&S architectures incorporate and require the use of consistent truth representations (phenomenology, lethality, environmental factors, threat simulations, etc.); Improve cross-organizational system engineering processes to optimize requirements generation and ensure the inclusion of all stakeholders; Develop refined M&S accreditation criteria between MDA and the OTA.

MDA's M&S Program consists of system and product planning, development, integration, and operation; threat model development, verification, and analysis; and integration and deployment of MDA's Distributed BMDS real-time Hardware-in-the-Loop (HWIL) and digital M&S simulation capabilities. Models and simulations are tailored to the specific needs of the Agency's test events and to match BMDS components in their various stages of development, ranging from low-to-medium fidelity analyses supporting concept definitions studies, to high-fidelity models used to support engineering level activities. MDA validates and accredits system-level models and simulations by anchoring them to ground and flight test events, per the Integrated Master Test Plan (IMTP), to enable accurate and comprehensive assessments of the BMDS.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency			Date: February 2018

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / *BMD Enabling Programs*	Project (Number/Name) MD31 / *Modeling & Simulation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
Title: M&S Requirements, Design Support, Scenario Optimization	8.285	8.022	12.621
Articles:	-	-	-
Description: This activity provides the integrated program lifecycle planning and requirements definition of all BMDS M&S models and capabilities to enable assessment of BMDS capability deliveries. M&S capability development executes an integrated, synchronized program to manage M&S development in support of BMDS development, testing, and assessment. The following actions are required on a continuing basis to accomplish the M&S lifecycle planning and requirements definition mission: - Maintain traceability between the M&S Systems Requirements Documents and M&S product development. - Produce capability documents and specifications for M&S product development to enable BMDS flight and HWIL tests, training events, exercises, wargames, concept evaluation and development engineering. - Support MDA response to export requests for M&S software and technical data to nations or international organizations. - Participate in Technical Interchange Meetings and provide support for bilateral agreements with allies and partners. - Support system engineering capability trades for all BMDS capability deliveries (including BMDS capability deliveries for Phased Adaptive Approach and Homeland Defense). - Continue the transition to replace the Single Stimulation Framework (SSF) with the Objective Simulation Framework (OSF) to support M&S Intended Uses. - Provide integrated program lifecycle planning and scheduling of all BMDS M&S models and capabilities to enable assessment of BMDS capability deliveries for Phased Adaptive Approach (PAA) and Homeland Defense. Specific and/or unique accomplishments to each FY are as follows: *FY 2018 Plans:* - SEE ABOVE. *FY 2019 Plans:* -Upgrade the SUIU Fleet to current technical standards, interfaces, components and product line support to meet BMDS stakeholder needs for all BMDS Increments and associated test campaigns -Update Threat Modeling Tools to meet future threat data needs and event environments -Ensure Environment and Plume core truth model development, verification, maintenance and sustainment meets requirements -Incorporate emerging BMDS capabilities to include advanced threats into BMD simulations and ground test events *FY 2018 to FY 2019 Increase/Decrease Statement:* Increase from FY 2018 to FY 2019 reflects M&S updates required to improve BMDS VV&A outcomes to address required OTA accreditation plan for all BMDS Elements. This will provide additional confidence in BMDS performance to the Warfighter.			
Title: BMDS Simulations & Tools	12.384	11.593	12.326
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD31 *I Modeling & Simulation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2017**	**FY 2018**	**FY 2019**
Description: This activity funds the development and sustainment of digital products and the architecture framework, and delivery/maintenance of infrastructure for BMDS performance assessments, Warfighter events, and BMD International Simulation events. The following actions are required on a continuing basis: Event Integration/Support Operations: - Provide ground test architecture integration to meet IMTP requirements. Use the BMDS test framework to integrate distributed architectures in support of BMDS capability deployments for EPAA Phase 3. - Integrate, test, and verify the M&S enterprise supporting BMDS testing, assessment, exercises, and wargaming, including testing infrastructure. - 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 OSF to support Intended Uses. - Maintain simulations for Element M&S development laboratories used in the BMDS Integration & Development Lab and Digital M&S Integration Center (DMIC) in Huntsville, AL and in the MDIOC Simulation Center. - Conduct integration, testing and system-level verification per the digital System Requirements Document (SRD). Operate the testbed to mature the OSF-based digital system simulation. - Provide Event Integration Support for BMDS component models of PATRIOT weapon system for use in MDA test and validation events. - Provide HWIL/M&S benchmarking/integration, documentation and coordination. Sustain, integrate and execute ground tests, FAST Events and Exercises/Wargames. - Provide communications emulation (MTJ, STJ, and Link-16) and network analysis support via the Tactical Communications Environment Segment (TCES) for use in IMTP events, HWIL System Post Flight Reconstructions (SPFRs) and HWIL System Pre Mission Tests (SPMTs). - Perform operational planning for planned BMDS assessment events. - Conduct M&S system integration and verification to support M&S system architecture development. Conduct developmental integration testing. M&S Operations: - Provide digital representations of BMDS elements/components using MDA's BMD International Simulation (I-SIM) in support of CCMD and International Wargames, conceptual planning, BMD visualizations, BMD training/orientation, M&S demonstrations, and the Warfighter's Modification & Fielding Requirements List (MFRL) for exercises and training. - Implement I-SIM re-architecture requirements and emerging requirements such as IAMD/Fog of War to adapt to growing distributed event requirements. - Maintain the Missile Defense Space Warning Tool (MDST) to keep pace with fielded BMDS Overhead Persistent Infrared (OPIR) Architectures in support of Warfighter training events, BMDS exercise events, and BMDS development engineering.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD31 / Modeling & Simulation

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
- Provide software operations/maintenance support to the Extended Air Defense Simulation (EADSIM) code base for use in Warfighter exercises, training venues, and CCMD planning tools. - Upgrade legacy models and develop new designs or software as required to support BMDS simulation Re-Architecture. - Provide threat representations (kinematic trajectories, radar cross sections, and infrared signatures data) for use in real-world events, simulations, exercises, wargames, and test and evaluation activities across the DoD. Specific and/or unique accomplishments to each FY are as follows: *FY 2018 Plans:* - Provide Integrated Threat Packages of red-force representations (kinematic trajectories, radar cross sections, and infrared signature data) for use in BMDS Ground Test events only. - Begin transition off of Discrete Event Simulation (DESIM). *FY 2019 Plans:* - SEE ABOVE. *FY 2018 to FY 2019 Increase/Decrease Statement:* N/A			
Title: M&S Objective Simulation Framework (OSF) *Articles:*	14.592 -	14.049 -	14.680 -
Description: The following actions are required on a continuing basis to accomplish the OSF mission: - 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 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 BMDS test framework to integrate distributed architectures in support of BMDS. - 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. - Develop a BMDS-level integrated, high-fidelity end-to-end digital simulation, including hardware and software, data storage and transmission, and verification tools.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD31 / Modeling & Simulation

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
- 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. - Deploy System Interface Units (SIUs) for BMDS testing - materials, licenses, SIU fleet purchasing. Deploy SIUs and components to maintain and sustain SIU fleet including cybersecurity; enables Developmental and Operational testing with full BMDS as required in IMTP. - Continue maintenance of SSF in the required venues until the transition to OSF in the venues completes. Specific and/or unique accomplishments to each FY are as follows: *FY 2018 Plans:* - SEE ABOVE. *FY 2019 Plans:* - SEE ABOVE. *FY 2018 to FY 2019 Increase/Decrease Statement:* N/A			
Title: M&S Core Truth Modeling	11.252	10.840	12.373
Articles:	-	-	-
Description: The Core Truth Model (CTM) program provides consistent and common Phenomenology, Lethality, Environment, Communications, and Threat models for BMDS M&S venues utilized in all Digital and Ground Test Events and Wargaming Exercises. The CTM efforts are critical in the assessment of all BMDS capability deliveries. The following actions are required on a continuing basis to accomplish the CTM mission: - Implement next generation truth representations for signatures and lethality to address advanced BMDS capability needs for tracking, discrimination and engagement - Maintain legacy truth representations (e.g., Parametric Endoatmospheric-Exoatmospheric Lethality Simulation (PEELS), Kinetic Intercept Debris Distribution (KIDD) and Optical Signatures Code/Optical Signature Inline Generator (OSC/OPTISIG)) until fully transitioned. - Support integration of all applicable CTM functions into the OSF framework. - Provided support for scheduled events including training, exercises, Wargames, and the Distributed, Focused and Integrated HWIL Events as presented in the IMTP. - Deliver CTM Toolkit for integrated truth representations across the M&S enterprise. - Continue re-establishment of the Environments Program that will provide consistent environment models for system and element level simulations. - Continue development of Truth Interaction which includes infrared (IR) propagation and radio frequency (RF) propagation,. This will provide consistent models and truth to system and element level simulations.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / *BMD Enabling Programs*	Project (Number/Name) MD31 / *Modeling & Simulation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
- Generate CTM Sensitivity analysis to identify the sensitivity within system simulation of Core Truth Models and boundary. - Develop and maintain CTM design to support system and element level simulations. Specific and/or unique accomplishments to each FY are as follows: ***FY 2018 Plans:*** - SEE ABOVE. ***FY 2019 Plans:*** - Update Threat Modeling Tools to meet evolving threat data needs and event environments - Ensure Environment and Plume core truth model development, verification, maintenance and sustainment meets requirements ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase from FY 2018 to FY 2019 reflects M&S updates required to improve BMDS VV&A outcomes to address required OTA accreditation plan for all BMDS Elements. This will provide additional confidence in BMDS performance to the Warfighter.			
Title: M&S Improvements <div align=right>**Articles:**</div>	0.000 -	5.320 -	37.786 -
Description: This effort funds BMDS Enterprise-wide M&S improvements that will enhance digital and ground test capabilities. Planned improvements include an experimental, developmental M&S prototype capability necessary to achieve a BMDS-level integrated, high-fidelity end-to-end digital simulation. The prototype effort designs and develops a digital simulation capability that will provide assessment data for the BMDS, supplemental to Ground- and Flight tests, and in areas that those venues cannot address, with statistically significant numbers of runs. The end-to-end digital simulation will eventually replace the current stand-alone approach to digital predictive pre-mission analysis. Specific and/or unique accomplishments to each FY are as follows: ***FY 2018 Plans:*** This effort is a follow-on to planning and design efforts begun in FY 2016-2017. FY 2018 increase is due to additional MDA focus on improvement of M&S digital capability to support Technical Capability Declarations. - Design and develop prototype, including hardware for development and execution platforms, of enterprise-wide digital interface and new functionality in time-management and modeling of simulated BMDS communications, based on FY 2017 government/ CSS design work. ***FY 2019 Plans:*** - Develop M&S infrastructure needed to modify Element-level models to meet System-level requirements - Continue the development of initial digital capability for first use supporting BMDS Increment 6b in FY 2021 Timeframe -- Conduct Systems Engineering Design Reviews -- Implement software development for initial Digital M&S components			

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD31 / *Modeling & Simulation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2017**	**FY 2018**	**FY 2019**
-- Incorporate required M&S IT hardware infrastructure to enable statistically significant runs for Increment 6b FY21 assessment - Design and develop full BMDS-level high-fidelity digital capability: -- Conduct System Requirements Review (SRR) -- Build towards full Digital BMDS M&S architecture - Perform top-down systems engineering and software development to implement BMD System-level ground test improvements: -- Develop a ground test system design to align with the tactical BMDS for new and more complex systems and implement system-wide M&S improvements in truth data consistency, framework interfaces, consistent data formats and reduce integration timelines -- Implement Ground Test enterprise-wide re-architecture, to address Ground Test capability gaps and limitations that have hindered M&S ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase from FY 2018 to FY 2019 reflects completion of BMDS-level Digital M&S prototype development/risk reduction activities and transition to design and development of digital simulation capability, as well as major increased effort to design and implement System-level ground test re-architecture improvements.			
Accomplishments/Planned Programs Subtotals	46.513	49.824	89.786

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	197.171	292.262	214.173	-	214.173	199.399	197.451	174.161	152.174	Continuing	Continuing
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	1,034.861	957.097	926.359	-	926.359	1,046.235	847.537	585.956	572.619	Continuing	Continuing
• 0603892C: *AEGIS BMD*	889.489	860.788	767.539	-	767.539	780.085	707.901	693.256	562.748	Continuing	Continuing

Remarks

D. Acquisition Strategy

The M&S acquisition strategy utilizes full and open competition to develop, acquire and deliver the integrated architectures/frameworks while the Elements, using the same open competition methods, develop and deliver models of their 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 Element prime contractors, with additional technical standards and engineering oversight provided by FFRDCs and UARCs.

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 **I** 4	**R-1 Program Element (Number/Name)** PE 0603890C **I** *BMD Enabling Programs*	**Project (Number/Name)** MD31 **I** *Modeling & Simulation*
E. Performance Metrics		
N/A		

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency												**Date:** February 2018		

Appropriation/Budget Activity 0400 / 4						**R-1 Program Element (Number/Name)** PE 0603890C / BMD Enabling Programs						**Project (Number/Name)** MD31 / Modeling & Simulation		

Product Development ($ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 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**
M&S Requirements, Design Support, Scenario Optimization - 3rd generation SIU development	C/CPFF	TBE : AL	0.000	0.000		0.000		4.500	Nov 2018	-		4.500	Continuing	Continuing	Continuing
M&S Requirements, Design Support, Scenario Optimization - FFRDC & UARC	MIPR	Various : CO, AL	2.864	1.728	Nov 2016	1.632	Nov 2017	1.781	Nov 2018	-		1.781	Continuing	Continuing	Continuing
M&S Requirements, Design Support, Scenario Optimization - Prior Yr Requirements & Scenario Design no longer funded in FYDP	Various	Various : AL	1.933	0.000		0.000		0.000		-		0.000	0.000	1.933	0.000
M&S Requirements, Design Support, Scenario Optimization - Requirements & Design - CSS 2	C/CPFF	MiDAESS / TEAMS : CO	10.387	5.400	Nov 2016	6.390	Nov 2017	6.340	Nov 2018	-		6.340	Continuing	Continuing	Continuing
M&S Requirements, Design Support, Scenario Optimization - Requirements & Design - OGA	MIPR	SMDC : AL	0.932	0.482	Nov 2016	0.000		0.000		-		0.000	0.000	1.414	0.000
M&S Requirements, Design Support, Scenario Optimization - Requirements & Design Support	Various	MDA : CO, AL	4.510	0.675		0.000		0.000		-		0.000	0.000	5.185	0.000
BMDS Simulations & Tools - Digital Framework Development	C/CPAF	Northrop Grumman : CO	15.162	5.729	Nov 2016	6.884	Nov 2017	7.007	Nov 2018	-		7.007	Continuing	Continuing	Continuing
BMDS Simulations & Tools - Digital Simulation Development / Support	MIPR	SMDC : AL	3.547	0.000		0.000		0.000		-		0.000	0.000	3.547	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency													Date: February 2018	

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD31 / Modeling & Simulation

Product Development ($ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
BMDS Simulations & Tools - M&S / Digital Framework Support	Various	MDA : CO, AL	1.665	0.895	Nov 2016	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
BMDS Simulations & Tools - M&S / Digital Framework Support - CSS	C/CPFF	MiDAESS / TEAMS : CO	0.000	1.539	Nov 2016	1.300	Nov 2017	1.339	Nov 2018	-		1.339	Continuing	Continuing	Continuing
BMDS Simulations & Tools - M&S / Digital Framework Support - Industry	C/CPFF	TBE : AL	0.000	0.959	Nov 2016	0.891	Nov 2017	0.834	Nov 2018	-		0.834	Continuing	Continuing	Continuing
BMDS Simulations & Tools - M&S / Digital Framework Support - OGA	MIPR	AMRDEC : AL	10.679	3.262	Nov 2016	2.518	Nov 2017	3.146	Nov 2018	-		3.146	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - M&S HWIL - CSS	C/CPFF	MiDAESS / TEAMS : CO	0.000	2.200	Nov 2016	0.800	Nov 2017	1.016	Nov 2018	-		1.016	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - M&S HWIL - Industry	C/CPAF	Northrop Grumman : CO	5.570	0.620	Nov 2016	0.350	Nov 2017	0.350	Nov 2018	-		0.350	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - M&S HWIL Framework Development and Support	C/CPFF	MASC : AL, CO	15.645	4.593	Nov 2016	9.434	Nov 2017	9.849	Nov 2018	-		9.849	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - M&S HWIL Simulations / Models Development	MIPR	AMRDEC : AL	19.198	3.867	Nov 2016	0.550	Nov 2017	0.550	Nov 2018	-		0.550	Continuing	Continuing	Continuing
M&S Objective Simulation Framework (OSF) - M&S HWIL Support / GT re-architecture	Various	MDA : AL, CO	3.069	3.312	Nov 2016	2.915	Nov 2017	2.915	Nov 2018	-		2.915	Continuing	Continuing	Continuing
M&S Core Truth Modeling - M&S Core Truth Modeling - OGA	MIPR	AFRL : CO	0.000	1.300	Nov 2016	1.400	Nov 2017	1.400	Nov 2018	-		1.400	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency						Date: February 2018		

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD31 / Modeling & Simulation

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
M&S Core Truth Modeling - Core Truth Models Validation	Various	MDA : CO, AL	5.644	0.500	Oct 2016	1.000	Nov 2017	0.800	Nov 2018	-		0.800	Continuing	Continuing	Continuing
M&S Core Truth Modeling - M&S Core Truth Modeling - CSS	C/CPFF	Peopletec : AL, CO	0.000	0.916	Nov 2016	1.591	Nov 2017	1.990	Nov 2018	-		1.990	Continuing	Continuing	Continuing
M&S Core Truth Modeling - M&S Core Truth Modeling - CSS 2	C/CPFF	TEAMS : AL, CO	0.000	0.000		0.000		1.683	Nov 2018	-		1.683	Continuing	Continuing	Continuing
M&S Core Truth Modeling - M&S Core Truth Modeling - Lethality/ Phenomenology Modeling	MIPR	AMRDEC : AL	30.002	2.400	Nov 2016	1.310		1.110	Nov 2018	-		1.110	Continuing	Continuing	Continuing
M&S Core Truth Modeling - M&S Core Truth Modeling Simulation System	C/CPAF	Northrop Grumman : CO	34.597	6.136	Nov 2016	5.539	Nov 2017	5.390	Nov 2018	-		5.390	Continuing	Continuing	Continuing
M&S Improvements - Enterprise-wide ground test re-architecture improvements	Various	Various : CO, AL	0.000	0.000		0.000		18.000	Dec 2018	-		18.000	Continuing	Continuing	Continuing
M&S Improvements - M&S Improvement - Enterprise-wide digital capability development	Various	Various : CO, AL	0.000	0.000		5.320	Dec 2017	19.786	Nov 2018	-		19.786	Continuing	Continuing	Continuing
		Subtotal	165.404	46.513		49.824		89.786		-		89.786	Continuing	Continuing	N/A

Remarks
N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	N/A

Exhibit R-3, **RDT&E Project Cost Analysis:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 **/** 4	**R-1 Program Element (Number/Name)** PE 0603890C **/** *BMD Enabling Programs*	**Project (Number/Name)** MD31 **/** *Modeling & Simulation*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks
 N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A

Remarks
 N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A

Remarks
 N/A

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	165.404	46.513	49.824	89.786	-	89.786	Continuing	Continuing	N/A

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

UNCLASSIFIED

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / BMD Enabling Programs	**Project (Number/Name)** MD31 / Modeling & Simulation

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 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Release Update to OSF - FY 2018		△					
MDST v16.3		△					
International Simulation v8.5		△					
FTG-11 HWIL System Pre-Mission Test (SPMT)		△					
FTG-11 Count Down Exercise			△				
International Simulation v8.6			△				
Release Update to OSF - FY 2019			△				
International Simulation v8.7				△			
GTX-08 Part 2				△			
Release Update to OSF - 2Q FY 2020				△			
Release Update to OSF - FY 2021					△		
International Simulation v8.8 - 1Q-FY 2021					△		
GTX-09					△		
Release Update to OSF - FY 2022						△	
International Simulation v8.9 - 1Q FY 2022						△	
International Simulation v8.10 - 1Q FY 2023							△
Release Update to OSF - FY 2023							△

Exhibit R-4A, **RDT&E Schedule Details:** PB 2019 Missile Defense Agency			**Date:** February 2018	
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*		**Project (Number/Name)** MD31 *I Modeling & Simulation*	

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Release Update to OSF - FY 2018	1	2018	1	2018
MDST v16.3	1	2018	1	2018
International Simulation v8.5	1	2018	1	2018
FTG-11 HWIL System Pre-Mission Test (SPMT)	2	2018	2	2018
FTG-11 Count Down Exercise	4	2018	4	2018
International Simulation v8.6	1	2019	1	2019
Release Update to OSF - FY 2019	1	2019	1	2019
International Simulation v8.7	1	2020	1	2020
GTX-08 Part 2	1	2020	1	2020
Release Update to OSF - 2Q FY 2020	2	2020	2	2020
Release Update to OSF - FY 2021	1	2021	1	2021
International Simulation v8.8 - 1Q-FY 2021	1	2021	1	2021
GTX-09	4	2021	4	2021
Release Update to OSF - FY 2022	1	2022	1	2022
International Simulation v8.9 - 1Q FY 2022	1	2022	1	2022
International Simulation v8.10 - 1Q FY 2023	1	2023	1	2023
Release Update to OSF - FY 2023	1	2023	1	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency										Date: February 2018	
Appropriation/Budget Activity 0400 *I* 4				**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*				**Project (Number/Name)** MC31 *I Engineering Cyber Operations*			
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
MC31: *Engineering Cyber Operations*	0.817	2.980	3.838	4.466	-	4.466	11.564	34.665	10.697	13.383	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

 N/A

A. Mission Description and Budget Item Justification

This project supports the monitoring and tracking of Cybersecurity mitigations detailed in Information Technology security POAMs.   Activities include preparation of certification and accreditation documentation and accreditation recommendations to the MDA Senior Information Assurance Officer (SIAO)/Certification Authority (CA) and DAA. Independent Verification and Validation team actions ensure the availability, integrity, authentication, confidentiality and non-repudiation of the MDA mission, test and administrative systems. Activities in the Project are necessary to comply with the Federal Information Security Management Act.

This project implements Risk Management Framework (RMF) system engineering principles as specified within DOD 8510.01 to acquire, design, test, implement and field technical solutions throughout the systems architecture to ensure sufficient protections exist from a threat and risk based approach. MDA's goal is to ensure Cybersecurity engineering principles flow into system requirements and design specifications early to provide the most cost benefit and ensure security controls are aligned with the National Institute of Standards and Technology (NIST) 800-53a security controls as applicable to systems categorized as National Security Systems.

This project includes funding to conduct an MDA Insider threat program to identify, deter, and mitigate potential insider threats. This activity is Presidentially and DoD-mandated.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2017**	**FY 2018**	**FY 2019**
Title: Information Assurance / Cyber Network Defense	2.980	3.838	4.466
Articles:	-	-	-
Description: This activity funds network defense and Information System Security Manager (ISSM) activities for MDA Engineering. Specific tasks include: - Conduct Cybersecurity/information assurance engineering and architecture planning for Engineering information technology systems. - Plan and test the information assurance controls for Engineering systems. - Implement RMF system engineering principles to ensure sufficient protections exist from a threat and risk based approach - Conduct Controls Validation Testing of systems and provide Plan of Action and Milestones to mitigate information assurance deficiencies.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MC31 *I Engineering Cyber Operations*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	**FY 2017**	**FY 2018**	**FY 2019**
- Conduct annual information assurance reviews to assess compliance in implementing and maintaining information assurance controls. - Perform cybersecurity upgrades as needed to MDA Engineering systems to be in compliance with DoD mandates. Specific and/or unique accomplishments to each FY are as follows: ***FY 2018 Plans:*** FY 2018 increase is to fund additional cybersecurity support needed to ensure BMDS networks and MDA Engineering content on external networks is protected, and to monitor those networks in accordance with DoD mandates. Also beginning in FY 2018, funding for MDA Insider Threat mitigation has been transferred to this project from project MD28, Intelligence and Security. - Augment Insider Threat mitigation capabilities, including enhancements for defense of IT systems. - Complete upgrades to MDA Engineering networks, including the Threat Modeling Center network and the BMDS I-SIM development network. ***FY 2019 Plans:*** - Continue development and implementation of Software Assurance policies, processes, and guidelines. - Augment Cyber Assistance Teams to conduct assessments of MDA Defense Industrial Base partners' ability to safeguard MDA information. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Increase from FY 2018 to FY 2019 reflects requirements to address statutory requirements for Cybersecurity and Software Assurance.			
Accomplishments/Planned Programs Subtotals	2.980	3.838	4.466

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0305103C: *Cyber Security Initiative*	0.945	0.986	0.985	-	0.985	1.140	1.163	1.187	1.209	Continuing	Continuing

Remarks

D. Acquisition Strategy
 N/A

E. Performance Metrics
 N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MC31 *I Engineering Cyber Operations*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A

Remarks
N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Information Assurance / Cyber Network Defense - Cybersecurity Upgrades	C/CPAF	Northrop Grumman : CO	0.000	1.250	Jan 2017	1.150	Dec 2017	0.510	Dec 2018	-		0.510	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - IT / Cybersecurity Support	C/CPFF	MiDAESS / TEAMS : CO, AL, VA	0.817	0.886	Nov 2016	1.559	Nov 2017	1.194	Nov 2018	-		1.194	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Insider Threat Mitigation Cell IT Network Defense	Various	MDA : Various	0.000	0.500	Dec 2016	1.129	Dec 2017	0.862	Dec 2018	-		0.862	Continuing	Continuing	Continuing
Information Assurance / Cyber Network Defense - Software Assurance	Various	MDA : Various	0.000	0.344	Dec 2016	0.000		1.900	Nov 2018	-		1.900	Continuing	Continuing	Continuing
Subtotal			0.817	2.980		3.838		4.466		-		4.466	Continuing	Continuing	N/A

Remarks
N/A

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.817	2.980	3.838	4.466	-	4.466	Continuing	Continuing	N/A

Remarks
N/A

| **Exhibit R-4**, RDT&E Schedule Profile: PB 2019 Missile Defense Agency | | | | | | | | | **Date:** February 2018 |

| **Appropriation/Budget Activity**
0400 *I* 4 | **R-1 Program Element (Number/Name)**
PE 0603890C *I BMD Enabling Programs* | **Project (Number/Name)**
MC31 *I Engineering Cyber Operations* |

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 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
MC31 M&S Cyber Operations		✧ ✧ ✧ ✧	✧ ✧ ✧ ✧	✧ ✧ ✧ ✧	✧ ✧ ✧ ✧	✧ ✧ ✧ ✧	✧ ✧ ✧ ✧

Exhibit R-4A, **RDT&E Schedule Details:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MC31 *I Engineering Cyber Operations*

Schedule Details

Events	Start		End	
	Quarter	**Year**	**Quarter**	**Year**
MC31 M&S Cyber Operations	1	2018	4	2023

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency										Date: February 2018	

Appropriation/Budget Activity 0400 I 4				R-1 Program Element (Number/Name) PE 0603890C I BMD Enabling Programs				Project (Number/Name) MD32 I Quality, Safety, and Mission Assurance			

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
MD32: *Quality, Safety, and Mission Assurance*	206.246	29.813	30.516	29.319	-	29.319	31.135	30.766	31.398	32.286	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
 N/A

A. Mission Description and Budget Item Justification

Quality, Safety, and Mission Assurance verifies that all systems are functioning and tracking against actual verified targets and that all associated processes and procedures are strictly followed.

Quality: Provides on-site Quality Assurance (QA) inspection for all ground and flight tests to ensure that all processes and procedures are adhered to and no short cuts or deviations occur. Quality management system audits are performed on the sub tier supply chain to determine adequacy of contractor requirement flow down and sub tier supplier compliance to industry standards. Quality Subject Matter Experts (SMEs) attend BMDS configuration control boards to ensure quality is implemented across all Programs. Provides quality on-site formal inspection and resolution when troubled suppliers are identified and also initiates and leads on-site Joint Government and Industry Team field support and expertise to assist when critical sole source suppliers are failing. Conducts initiatives to revamp sole source suppliers by assisting them to get healthy and perform at world class levels, establishes consistent acquisition and award fee contractual requirements to ensure that a strategic approach is applied to all mission critical systems and maintains MDA Assurance Provisions for the Agency.

Safety: Responsible for system safety of the BMDS and for the Safety and Occupational Health of personnel located in the National Capital Region (NCR); Huntsville, Alabama; Fort Greely, Alaska; Vandenberg Air Force Base (VAFB), California; and, Dahlgren, VA. Additionally responsible for ensuring the overall safety of the civilian, contractor and military workforce. BMDS Safety Officers (BSOs) provide on-site support 24 hours a day, 365 days a year to ensure operational safety of systems.

Mission Assurance: Provides in-plant MDA Assurance Representatives (MARs) for the MDA at government and contractor facilities. MARs are Government Mission Assurance and Quality experts who provide quality and technical oversight of contractor manufacturing. Mission Assurance Audits are conducted which focus on design margin, the effectiveness of acceptance testing and the sufficiency of manufacturing processes. Audits are performed for contractual requirements, internal requirements, and industry best practices. These audits are one of MDA's most effective methods of enabling change among the MDA contractors and suppliers. Quality, Safety, and Assurance provides Subject Matter Experts (SMEs) who attend all technical reviews (i.e. Design, Test, Mission Readiness Reviews, and Failure Review Boards) to ensure mission assurance principles are consistently implemented across the Ballistic Missile Defense System (BMDS). Quality, Safety, and Mission Assurance develops overarching design and quality standards such as the MDA Assurance Provisions (MAP) for MDA which enhances BMDS reliability. Hardware acceptance reviews and pedigree documentation reviews are performed to ensure all manufacturing rework and repair is performed within approved processes.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD32 / *Quality, Safety, and Mission Assurance*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
Title: Quality, Safety & Mission Assurance	29.813	30.516	29.319
Articles:	-	-	-
Description: Quality, Safety, and Mission Assurance verifies that all systems are functioning and tracking against actual verified targets and that all associated processes and procedures are strictly followed. Specific and/or unique accomplishments to each FY are as follows: *FY 2018 Plans:* - SEE ABOVE. *FY 2019 Plans:* - SEE ABOVE. *FY 2018 to FY 2019 Increase/Decrease Statement:* N/A			
Accomplishments/Planned Programs Subtotals	29.813	30.516	29.319

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Quality, Safety and Mission Assurance program is a collaboration between subject matter expertise in the Government, Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC), Contract Support Services (CSS), and Industry.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency		Date: February 2018

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD32 / Quality, Safety, and Mission Assurance

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-		-	-	-	N/A

Remarks
 N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Quality, Safety & Mission Assurance - Agency Safety & Occupational Health	C/CPFF	Various Multi : AL, CO, AK, DC	2.327	0.227	Dec 2016	0.260	Dec 2017	0.273	Nov 2018	-		0.273	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Audits & Quality On-site Support	MIPR	NSWC Corona : AL, CA	19.839	2.417	Dec 2016	3.316	Dec 2017	3.305	Nov 2018	-		3.305	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - BMDS Mission Assurance Agency Operations	C/CPFF	AI Solutions : AL	7.745	1.009	Dec 2016	1.100	Dec 2017	0.714	Nov 2018	-		0.714	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - BMDS Quality Support	C/CPFF	AI Solutions : AL	7.897	1.710	Dec 2016	1.500	Dec 2017	0.762	Nov 2018	-		0.762	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - BMDS Safety	C/CPFF	APT, INC : AL	9.628	1.208	Dec 2016	1.200	Dec 2017	1.191	Nov 2018	-		1.191	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - BMDS Safety Officers	MIPR	AMRDEC : AL	4.016	0.281	Dec 2016	0.300	Dec 2017	0.101	Nov 2018	-		0.101	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - HQ & Core Management	MIPR	AMRDEC : AL	2.450	0.300	Dec 2016	0.275	Dec 2017	0.221	Nov 2018	-		0.221	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - In-Plant Quality Support (MARS)	C/CPFF	Various Multi : AL, AK, AZ, CA, CO, FL,	11.426	1.413	Dec 2016	1.415	Dec 2017	1.417	Nov 2018	-		1.417	Continuing	Continuing	Continuing

Exhibit R-3, **RDT&E Project Cost Analysis:** PB 2019 Missile Defense Agency												**Date:** February 2018	

Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs*	**Project (Number/Name)** MD32 / *Quality, Safety, and Mission Assurance*

Support ($ in Millions)				**FY 2017**		**FY 2018**		**FY 2019 Base**		**FY 2019 OCO**		**FY 2019 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**
		HI, NJ, MA, MO, MD, UT													
Quality, Safety & Mission Assurance - Independent Readiness Review Team	C/CPFF	AI Solutions : AL	4.809	0.550	Dec 2016	0.540	Dec 2017	0.191	Nov 2018	-		0.191	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Mission Assurance Subject Matter Experts	C/CPFF	APT, INC. : AL	7.112	0.531	Dec 2016	0.520	Dec 2017	0.476	Nov 2018	-		0.476	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Operations Support	MIPR	Various Multi : AL, CA	4.809	0.200	Dec 2016	0.200	Dec 2017	0.200	Nov 2018	-		0.200	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Parts, Materials and Processes (PMP) Program	MIPR	Various Multi : AL, CA, IN	12.020	2.015	Dec 2016	1.961	Dec 2017	2.727	Nov 2018	-		2.727	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Parts, Materials and Processes - PMP - Program	C/CPFF	APT, INC : AL	4.086	0.600	Dec 2016	0.600	Dec 2017	0.700	Nov 2018	-		0.700	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Pedigree & Design Certification - FFRDC	MIPR	Aerospace : AL, CA	21.067	2.902	Dec 2016	3.000	Dec 2017	2.752	Nov 2018	-		2.752	Continuing	Continuing	Continuing
		Subtotal	119.231	15.363		16.187		15.030		-		15.030	Continuing	Continuing	N/A

Remarks
 N/A

Test and Evaluation ($ in Millions)				**FY 2017**		**FY 2018**		**FY 2019 Base**		**FY 2019 OCO**		**FY 2019 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**
		Subtotal	-	-		-		-		-		-	-	-	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency				**Date:** February 2018

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs	Project (Number/Name) MD32 / Quality, Safety, and Mission Assurance

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			

Remarks
  N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
				Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Quality, Safety & Mission Assurance - Quality, Safety & Mission Assurance HQ & Core Management (MDA CIV)	Allot	MDA QS : AL, VA, MD, CA, AZ, HI, AK, MA, NJ, FL, AR, UT	63.866	11.813	Oct 2016	11.794	Oct 2017	11.822	Oct 2018	-		11.822	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Quality, Safety & Mission Assurance Operations Support	C/CPFF	MDA QS : AL, DC, VA	8.533	1.527	Nov 2016	1.345	Nov 2017	1.467	Nov 2018	-		1.467	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance - Quality, Safety & Mission Assurance Operations Support (Travel/PCS)	Allot	MDA QS : AL, CO, AK, DC, VA	14.616	1.110	Nov 2016	1.190	Nov 2017	1.000	Nov 2018	-		1.000	Continuing	Continuing	Continuing
Subtotal			87.015	14.450		14.329		14.289		-		14.289	Continuing	Continuing	N/A

Remarks
  N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	206.246	29.813		30.516		29.319		-	29.319	Continuing	Continuing	N/A

PE 0603890C: *BMD Enabling Programs*
Missile Defense Agency

Exhibit R-3, **RDT&E Project Cost Analysis:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD32 *I Quality, Safety, and Mission Assurance*

	Prior Years	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**

Remarks

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

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / BMD Enabling Programs	**Project (Number/Name)** MD32 / Quality, Safety, and Mission Assurance

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 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
MD32 Quality, Safety, and Mission Assurance	◇ ◇ ◇ ◇	◇ ◇ ◇ ◇	◇ ◇ ◇ ◇	◇ ◇ ◇ ◇	◇ ◇ ◇ ◇	◇ ◇ ◇ ◇	

Exhibit R-4A, **RDT&E Schedule Details:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD32 *I Quality, Safety, and Mission Assurance*

Schedule Details

Events	Start		End	
	Quarter	**Year**	**Quarter**	**Year**
MD32 Quality, Safety, and Mission Assurance	1	2017	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency										Date: February 2018	

Appropriation/Budget Activity 0400 / 4				R-1 Program Element (Number/Name) PE 0603890C / BMD Enabling Programs				Project (Number/Name) MD40 / Program-Wide Support			

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	124.578	15.006	21.474	20.550	-	20.550	23.237	27.493	22.427	22.585	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Program Wide Support (PWS) reflects proportional changes as a result of budget changes in BMD Enabling Program element. Funding in the All Prior Years column represents a summary of Prior Years Total Costs for active contracts, Military Interdepartmental Purchase Requests on the R-3.

A. Mission Description and Budget Item Justification

PWS contains non-headquarters management costs in support of MDA functions and activities across the entire BMDS. It Includes Government Civilians and Contract Support Services. This provides integrity and oversight of the BMDS as well as supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes Global Deployment personnel and support performing deployment site preparation and activation, and provides facility capabilities for MDA Executing Agent locations. 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; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. PWS is allocated on a pro-rata basis and therefore, fluctuates by year based on the adjusted RDT&E profile (which excludes: 0305103C Cyber Security Initiative, 0603274C Special Programs, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
Title: Program Wide Support	15.006	21.474	20.550
Articles:	-	-	-
Description: N/A			
FY 2018 Plans: N/A			
FY 2019 Plans: N/A			
FY 2018 to FY 2019 Increase/Decrease Statement: N/A			
Accomplishments/Planned Programs Subtotals	15.006	21.474	20.550

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, **RDT&E Project Justification:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD40 *I Program-Wide Support*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

 N/A

E. Performance Metrics

 N/A

| **Exhibit R-3**, **RDT&E Project Cost Analysis:** PB 2019 Missile Defense Agency | | | **Date:** February 2018 |

| **Appropriation/Budget Activity** 0400 / 4 | **R-1 Program Element (Number/Name)** PE 0603890C / *BMD Enabling Programs* | **Project (Number/Name)** MD40 / *Program-Wide Support* |

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Facilities and Maintenance (MIPR)	MIPR	Various Multi: : AL, CO, CA, VA etc.	14.604	5.293	Jan 2017	4.299	Jan 2018	3.635	Mar 2019	-		3.635	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations Management	Allot	Various : Multi: AL, CA, CO, VA	5.416	0.000		0.429	Jul 2018	0.311	Jul 2019	-		0.311	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations User Services	C/CPAF	Various : Multi: AL, CO, NM, VA, various	5.602	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Civilian Salaries, Travel, Training	Allot	MDA : AK, AL, CA, CO, VA	32.108	0.000		0.000		0.000		-		0.000	32.378	64.486	0.000
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, CO, CA, VA	66.043	9.713	Nov 2016	16.746	Nov 2017	16.604	Apr 2019	-		16.604	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services (Reqn)	Reqn	Various : Multi: AK, AL, CA, CO, VA	0.805	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services MIPRs	MIPR	Various : Multi: AK, AL, CO, CA, HI, MD, VA, NJ, NY, OCONUS	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - FFRDC	C/CPFF	JHU : CA	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Facilities and Maintenance SRM	MIPR	Various : Multi: AL, CA, AL, AK	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Subtotal			124.578	15.006		21.474		20.550		-		20.550	Continuing	Continuing	N/A

Remarks
N/A

Exhibit R-3, **RDT&E Project Cost Analysis:** PB 2019 Missile Defense Agency						**Date:** February 2018			

Appropriation/Budget Activity 0400 *I* 4		**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*		**Project (Number/Name)** MD40 *I Program-Wide Support*	

	Prior Years	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**Cost To Complete**	**Total Cost**	**Target Value of Contract**
Project Cost Totals	124.578	15.006	21.474	20.550	-	20.550	Continuing	Continuing	N/A

Remarks
 N/A

UNCLASSIFIED

Exhibit R-4, **RDT&E Schedule Profile:** PB 2019 Missile Defense Agency | **Date:** February 2018

Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603890C / BMD Enabling Programs	**Project (Number/Name)** MD40 / Program-Wide Support

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 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
MD40 Program-Wide Support	◇◇◇◇	◇◇◇◇	◇◇◇◇	◇◇◇◇	◇◇◇◇	◇◇◇◇	◇◇◇

UNCLASSIFIED

Exhibit R-4A, **RDT&E Schedule Details:** PB 2019 Missile Defense Agency		**Date:** February 2018
Appropriation/Budget Activity 0400 *I* 4	**R-1 Program Element (Number/Name)** PE 0603890C *I BMD Enabling Programs*	**Project (Number/Name)** MD40 *I Program-Wide Support*

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Schedule Details

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Events	**Start**		**End**	
	Quarter	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2017	4	2023