Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Missile Defense Agency											Date: February 2016	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*							
COST ($ in Millions)	**Prior Years**	**FY 2015**	**FY 2016**	**FY 2017 Base**	**FY 2017 OCO**	**FY 2017 Total**	**FY 2018**	**FY 2019**	**FY 2020**	**FY 2021**	**Cost To Complete**	**Total Cost**
Total Program Element	1,517.287	863.965	1,269.913	862.080	-	862.080	701.311	585.079	600.710	535.614	Continuing	Continuing
MD08: *Ground Based Midcourse*	1,389.583	801.930	1,209.006	815.796	-	815.796	658.613	546.271	560.488	497.613	Continuing	Continuing
MC08: *Cyber Operations*	3.373	3.475	4.394	4.563	-	4.563	4.762	4.972	5.195	5.417	Continuing	Continuing
MD40: *Program-Wide Support*	124.331	58.560	56.513	41.721	-	41.721	37.936	33.836	35.027	32.584	Continuing	Continuing
Program MDAP/MAIS Code: 362												

Note

The FY 2017 budget request is lower than the FY 2016 budget due to the fact that the FY 2016 budget provided a significant increase to historical funding to improve the overall reliability and performance, and extend the service life of the GMD system.

A. Mission Description and Budget Item Justification

The Ground-based Midcourse Defense (GMD) element of the Ballistic Missile Defense System (BMDS) provides combatant commanders with a continuously available (24 hours a day, 7 days a week, 365 days a year) capability to defend the Homeland against limited Intercontinental Ballistic Missile (ICBM) attacks. The GMD capability consists of Ground Based Interceptors (GBI), GMD Fire Control system (GFC), GMD Communications Network (GCN), In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT) and all of the ground Launch Support Systems (LSS) (silos, silo interface vaults (SIVs), environmental control systems, command launch equipment (CLE), firing circuits and safety systems). By the end of 2017, the Missile Defense Agency (MDA) will have 44 operationally deployed GBIs located at Fort Greely, Alaska (40 GBIs) and Vandenberg Air Force Base, California (4 GBIs). FY 2017 funding is critical to the Department's commitment to deploy 44 GBIs. Each GBI delivers a single Exoatmospheric Kill Vehicle (EKV) to defeat threat warheads in space during the midcourse phase of the ballistic trajectory. The GFC consists of fire control nodes in Fort Greely, Alaska and Missile Defense Integration and Operations Center (MDIOC) Colorado Springs, Colorado. IDTs are currently located in Fort Greely, Alaska: Vandenberg Air Force Base, California; Eareckson Air Station, Alaska; and Fort Drum, New York. The GMD capability leverages integration of BMDS sensors in Alaska, California, United Kingdom, Japan, and Greenland. Development objectives for GMD include: improving homeland defensive capability against an evolving threat that is increasing both in number of missiles and complexity of threat payloads, testing and validating the performance of the Capability Enhancement I and II (CE-I and CE-II) GBIs, development and testing of capability upgrades, manufacturing additional GBIs in support of operational requirements, flight testing, upgrading fielded GBIs, and conducting comprehensive component ground testing that will improve GBI reliability and minimize the number of GBIs required to destroy each ICBM threat.

MD08 Ground Based Midcourse includes development, production, and deployment of additional GBIs, enhancements to Ground Systems hardware and software, Program Management, Systems Engineering and Integration, and improvements to Ground-based Midcourse models and simulations that improve the effectiveness, reliability and capacity of the Homeland missile defense system. This project also includes discrimination improvement efforts, which aim to develop and field an integrated set of Element capabilities to improve BMDS effectiveness and resilience against the evolving threat. The end result will be a BMDS architecture that is more capable of discriminating and destroying a re-entry vehicle with a high degree of confidence, improving Warfighter shot doctrine and preserving inventory. This effort encompasses Near-term, Mid-term, and Far-term discrimination improvements capability fielding. The discrimination improvements require a coordinated effort between

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Missile Defense Agency	Date: February 2016
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 0603882C *I Ballistic Missile Defense Midcourse Defense Segment*

Systems Engineering (PE 0603890C), Ground-based Midcourse Defense, BMD Sensors (PE 0603884C), C2BMC (PE 0603896C), Aegis BMD (PE 0603892C) and Advanced C4ISR (PE 0603179C).

MC08 Cyber Operations sustains the MDA DoD Information Assurance Certification and Accreditation Program (DIACAP) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of Plans of Action and Milestones (POA&Ms) for MDA Ground-based Midcourse Defense (GMD) mission systems.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to MDA functions and activities across the entire BMDS.

B. Program Change Summary ($ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	873.923	1,284.891	936.425	-	936.425
Current President's Budget	863.965	1,269.913	862.080	-	862.080
Total Adjustments	-9.958	-14.978	-74.345	-	-74.345
• Congressional General Reductions	0.000	-1.078			
• Congressional Directed Reductions	0.000	-13.900			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	4.480	0.000			
• SBIR/STTR Transfer	-14.438	0.000			
• Other Adjustment	0.000	0.000	-74.345	-	-74.345

Change Summary Explanation

The FY 2017 adjustment reflects a realignment of Department of Defense priorities.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency			Date: February 2016
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	Project (Number/Name) MD08 / *Ground Based Midcourse*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
MD08: *Ground Based Midcourse*	1,389.583	801.930	1,209.006	815.796	-	815.796	658.613	546.271	560.488	497.613	Continuing	Continuing
Quantity of RDT&E Articles	11	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

Ground-based Midcourse Defense (GMD) includes development, production, and deployment of additional Ground Based Interceptors (GBIs), enhancements to Ground Systems hardware and software, Program Management, Systems Engineering and Integration, and enhancements to GMD models and simulations that improve the effectiveness, reliability and capacity of the Homeland missile defense system.

The successful Controlled Test Vehicle-01 (CTV-01) flight test and the successful intercept of a threat representative target during Flight Test Ground-based Midcourse Defense-06b (FTG-06b) demonstrated the effectiveness of design changes that remedied failures experienced in three previous flight tests and test anomalies occurring since 2002. GMD incorporated these configuration changes in new FY 2015 Capability Enhancement (CE)-II interceptors and delivered them to the operational fleet. GMD is currently upgrading previously emplaced CE-II interceptors to the FTG-06b configuration and will deliver them back to the operational fleet in FY 2017. GMD will complete development of alternate thrusters for the Divert and Attitude Control System (DACS) that have undergone extensive ground tests and will flight test the improved DACS as part of the non-intercept CTV-02+ Flight Test in second quarter FY 2016. GMD will complete modifications to address near term obsolescence and improve avionics performance of the integrated boost vehicle. GMD will integrate these modifications into a CE-II Block 1 configuration. Following a successful (FTG-15) intercept test in first quarter FY 2017, GMD will deliver eight CE-II Block 1 interceptors to the operational fleet by the end of calendar year (CY) 2017, achieving a total of 44 operationally deployed GBIs.

GMD plans to confirm and improve the reliability of GBIs by instituting a Configuration 2 (C2) Booster Reliability Demonstration Testing Program, and expanding the Stockpile Reliability Program (SRP). GMD will conduct flight and ground tests, analyze performance trends, and identify reliability improvements for GBI component hardware. Testing of deployed GBIs will demonstrate current reliability while companion SRP efforts on assemblies and components will ensure that ongoing fleet upgrades are effective.

GMD will complete the refurbishment, upgrade, blast shielding, and High Altitude Electromagnetic Pulse (HEMP) hardening of Missile Field 1 at Fort Greeley, Alaska in FY 2016. GMD will continue improvements to the GMD Ground Systems hardware and software to improve system performance and reliability. GMD completed testing and fielding GMD Fire Control system (GFC) 6B2.2 in FY 2015. GMD will continue development of GFC 6B3, testing in FY 2015 /FY 2016 and fielding in FY 2017. GFC 6B3 will provide enhanced utilization of Ballistic Missile Defense System (BMDS) sensors and provide additional discrimination data to interceptors in flight. GMD also delivered an In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT) at Fort Drum, New York.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency		Date: February 2016
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GMD will perform systems engineering required for defining, developing, testing, and verifying capabilities to defeat the evolving threat. GMD will conduct Independent Verification and Validation (IV&V) of GMD Interceptor and Ground System software. GMD will update Modeling and Simulation capabilities with new system configurations and conduct Verification, Validation, and Accreditation (VV&A) of GMD models. GMD will continue the effort to develop and field improved stand-alone and integrated BMDS discrimination capabilities, both of which will improve the BMD System's ability to identify lethal and non-lethal objects for enhanced intercept performance.

GMD will complete design and development discrimination techniques, continue with EKV and GFC software upgrades and continue the development of the Redesigned Kill Vehicle (RKV).

For addressing the evolving threat and improving the reliability of Ground Based Interceptors, the Redesigned Kill Vehicle with emphasis on reliability, producibility, testability, and affordability will continue its development for increasing the homeland defensive capability of the GMD system.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017
Title: Ground Based Interceptor Development	89.156	109.521	53.130
Articles:	-	-	-
Description: The Ground Based Interceptor (GBI) Program will continue to develop improvements to enhance reliability, counter emerging threats, eliminate obsolescence and incorporate available technologies.			
FY 2015 Accomplishments: -Completed Exoatmospheric Kill Vehicle (EKV) Divert and Attitude Control System (DACS) Alternate Divert Thruster design qualification to increase GBI reliability -Developed and ground tested EKV software supporting near term discrimination (NTD) capability -Completed capability improvements for BMDS-level near-term discrimination improvements -Completed integration phase of near-term discrimination improvements ground testing via Ground Test Integrated-06 (GTI-06) -Incorporated Flight Test Ground-based Midcourse Defense-07 (FTG-07) flight test failure mitigations into the CE-II Block 1 design and into the fielded CE-I GBIs -Continued Controlled Test Vehicle (CTV-02) interceptor integration utilizing a Capability Enhancement II (CE-II) Exoatmospheric Kill Vehicle (EKV) with Divert and Attitude Control System (DACS) Alternate Divert Thrusters (ADT) -Continued flight test rotation program of fielded GBIs by upgrading kill vehicles and boosters and adding the necessary non-tactical equipment to support the Integrated Master Test Plan (IMTP) requirements -Continued development of Configuration 2 (C2) integrated boost vehicle with Consolidated Booster Avionics Upgrade (CBAU) and CE-II Block I Exoatmospheric Kill Vehicles (EKV) Ground Based Interceptors (GBIs 48-58) to support both operations and testing, including a flight test to demonstrate the capability of the CE-II Block 1 with C2 CBAU booster GBIs -Continued EKV software development in accordance with the Software Development Plan (SDP) to implement enhancements and defect corrections for multiple versions of EKV software for fielded and Flight Test Rotation interceptors			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017
-Continued acquisition of EKV, Booster Avionics Module (BAM), and Booster Stack limited life item replacement units, operational spares, repair parts and materials required for interceptor repair and Flight Test Rotation upgrade activities ***FY 2016 Plans:*** -Initiate development of an All Up Round (AUR) and an integrated boost vehicle (Configuration 3) that incorporates enhanced lightning protection, power transient protection, survivability enhancements, two-way communication enhancements, kill assessment enhancements, and selectable 2/3-stage mode capability for integration into operational fleet -Continue development of Configuration 2 (C2) integrated boost vehicle with Consolidated Booster Avionics Upgrade (CBAU) and CE-II Block I Exoatmospheric Kill Vehicles (EKV) Ground Based Interceptors (GBIs 48-58) to support both operations and testing, including a flight test to demonstrate the capability of the CE-II Block 1 with C2 CBAU booster GBIs -Continue flight test rotation program of fielded GBIs by upgrading kill vehicles and boosters and adding the necessary non-tactical equipment, equipment to support the Integrated Master Test Plan (IMTP) requirements -Conduct Controlled Test Vehicle (CTV-02) flight test utilizing a Capability Enhancement II (CE-II) Exoatmospheric Kill Vehicle (EKV) with Divert and Attitude Control System (DACS) Alternate Divert Thruster (ADT)) and new EKV discrimination algorithms -Continue acquisition of EKV, Booster Avionics Module (BAM), and Booster Stack limited life item replacement units, operational spares, repair parts and materials required for interceptor repair and Flight Test Rotation upgrade activities -Continue Exoatmospheric Kill Vehicle (EKV) Divert and Attitude Control System (DACS) Alternate Divert Thruster acquisition to increase GBI reliability and initiated production -Continue EKV software development in accordance with the Software Development Plan (SDP) to implement enhancements and defect corrections for multiple versions of EKV software for fielded and Flight Test Rotation interceptors ***FY 2017 Plans:*** -Decrease from FY 2016 to FY 2017 due to the realignment of the Configuration 3 Booster Development effort to PE 0604874C: Improved Homeland Defense (HLD) Interceptors and completion of the Consolidated Booster Avionics Upgrade (CBAU) and Alternate Propellant Tank development efforts. -Complete development of Configuration 2 (C2) integrated boost vehicle with Consolidated Booster Avionics Upgrade (CBAU) and CE-II Block I Exoatmospheric Kill Vehicles (EKV) Ground Based Interceptors (GBIs 48-58) to support both operations and testing, including a flight test to demonstrate the capability of the CE-II Block 1 with C2 CBAU booster GBIs -Continue flight test rotation program of fielded GBIs by upgrading kill vehicles and boosters, adding the necessary non-tactical equipment to support the Integrated Master Test Plan (IMTP) requirements -Complete delivery of EKV, Booster Avionics Module (BAM), and Booster Stack limited life item replacement units, operational spares, repair parts and materials required for interceptor repair and Flight Test Rotation upgrade activities -Continue EKV software development in accordance with the Software Development Plan (SDP) to implement enhancements and defect corrections for multiple versions of EKV software for fielded and Flight Test Rotation interceptors			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017
-Field Near-term discrimination improvements capability and test Mid-term capability -Complete delivery of the Divert Attitude Control System Alternate Propellant Tank to support fielding 44 GBIs by the end of CY 2017 and to provide improved reliability, manufacturability, and consistency in performance over the expected life span of a GBI			
Title: Ground Based Interceptor Manufacturing ***Articles:*** ***Description:*** The Ground Based Interceptor (GBI) Program will continue to manufacture GBIs to support the DoD mandate of 44 fielded GBIs by 2017. ***FY 2015 Accomplishments:*** -Continued acquisition of remaining CE-II (Legacy) Ground Based Interceptors (GBIs 34-44) -Continued acquisition of Configuration 2 (C2) integrated boost vehicle with Consolidated Booster Avionics Upgrade (CBAU) and CE-II Block I Exoatmospheric Kill Vehicles (EKV) Ground Based Interceptors (GBIs 48-58) to support both operations and testing, including a flight test to demonstrate the capability of the CE-II Block 1 with C2 CBAU booster GBIs ***FY 2016 Plans:*** -Complete integration and delivery of remaining CE-II (Legacy) Ground Based Interceptors (GBIs) (34-44) -Continue acquisition of CE-II Configuration 2 (C2) integrated boost vehicle with Consolidated Booster Avionics Upgrade (CBAU) and CE-II Block I Exoatmospheric Kill Vehicles (EKV) Ground Based Interceptors (GBIs 48-58) to support both operations and testing, including a flight test to demonstrate the capability of the CE-II Block 1 with C2 CBAU booster GBIs -Initiate acquisition of two additional boosters for Redesigned Kill Vehicle (RKV) testing ***FY 2017 Plans:*** -Decrease from FY 2016 to FY 2017 due to completion and delivery of Ground Based Interceptors (GBIs) 34-44 (CE-II) and associated requirements/costs on the Boeing GMD Prime Contract HQ0006-01-C-0001 and reduced funding required for the acquisition of CE-II Block I GBIs 48-58 and for the acquisition of the two Boosters required for Redesigned Kill Vehicle (RKV) flight testing. -Continue acquisition of Configuration 2 (C2) integrated boost vehicle with the Consolidated Booster Avionics Upgrade (CBAU) and CE-II Block I Exoatmospheric Kill Vehicles (EKV) Ground Based Interceptors (GBIs 48-58) to support both operations and testing, including a flight test (FTG-15) to demonstrate the capability of the CE-II Block 1 with C2 CBAU booster GBIs -Continue acquisition of two additional boosters for Redesigned Kill Vehicle (RKV) testing	358.065 -	391.797 -	241.637 -
Title: Ground Based Interceptor Reliability ***Articles:***	43.560 -	181.840 -	50.826 -

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017
Description: The Ground Based Interceptor (GBI) reliability program conducts the analysis and testing necessary to characterize the reliability and service life of the GBI Fleet. The data generated from the reliability program allows the Program Office to manage the GBI fleet, develop design improvements, develop fleet maintenance strategies, and extend interceptor service life. The data is also used by MDA engineering to develop battle simulations for the ground test program; and by the Warfighter in developing tactics, techniques, and procedures. ***FY 2015 Accomplishments:*** -Continued Ground Based Interceptor (GBI) Fleet Upgrade program to include upgrade of the fielded Capability Enhancement II (CE-II) GBIs to the proven Flight Test Ground-based Midcourse Defense-06b (FTG-06b) configuration -Continued development of the probabilistic risk assessment model to characterize the reliability of the GBI fleet -Developed a GBI system level Failure Modes, Effects and Criticality Analysis (FMECA) using the probabilistic risk assessment model -Conducted rocket motor static firings to gain performance data on aged motors -Performed a process failure modes and effects analysis on GBI production -Continued to conduct aging, surveillance, and reverse flow testing on the Stockpile Reliability Program (SRP) GBIs removed from the fleet -Evaluated Acceptance Test Procedure strategy and test levels for each GBI configuration -Continued to collect Reliability, Availability, Maintainability and Test (RAM-T) data and calculated and tracked performance metrics on the Operational System -Developed an All-Up Round (AUR) acquisition strategy that incorporated integrated boost vehicle improvements and the Redesigned Kill Vehicle (RKV) -Initiated Booster Avionics Module (BAM) level qualification testing and power on re-set trade study to address known flight test anomalies -Established GBI All-Up Round (AUR) system-level Failure Modes, Effects and Criticality Analysis -Initiated the evaluation of Acceptance Test Procedure strategy and test levels for each GBI AUR configuration -Continued Probabilistic Risk Assessment (reliability model) development to help prioritize future engineering efforts -Continued Ground Based Interceptor (GBI) Fleet Upgrade program ***FY 2016 Plans:*** -Continue Ground Based Interceptor (GBI) Fleet Upgrade program to include upgrade of the fielded Capability Enhancement II (CE-II) GBIs to the proven Flight Test Ground-based Midcourse Defense-06b (FTG-06b) configuration -Initiate the Probabilistic Risk Assessment for the Redesigned Kill Vehicle (RKV) -Continue to collect Reliability, Availability, Maintainability and Test (RAM-T) data and calculate and track performance metrics on the Operational System			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017
-Continue the Reliability and Systems Engineering (RSE) and the GBI Design and Reliability Characterization (D&RC) program that includes: --Design upgrades studies, Booster Avionics Module (BAM) level qualification testing and power on re-set trade study to address known flight test anomalies --Configuration 2 (C2) Booster Reliability Demonstration Testing, electromagnetic interference/compatibility testing to quantify system performance and capability --GBI All-Up Round (AUR) system-level Failure Modes, Effects and Criticality Analysis. Evaluate Acceptance Test Procedure strategy and test levels for each GBI AUR configuration. --Probabilistic Risk Assessment (reliability model) development to help prioritize future engineering efforts --Establish AUR physical design schematics & electrical grounding control plans. Conduct key engineering assessments including integrated sneak circuit analyses, Worst Case Circuit Analysis, and electrical/thermal derating analyses to document current performance/capability and identify potential risk areas -Initiate functional testing of naturally aged GBI subsystems and components removed during upgrade/modification to understand performance and aging characteristics in order to establish life limits -Initiate and maintain electronic As-Built/As-Fielded GBI configuration database for real-time access to GBI configuration data across the production and maintenance organization -Continue rocket motor static firings and initiate motor dissections -Conduct reliability demonstration testing and initiate highly accelerated life testing on a Stockpile Reliability Program (SRP) Exoatmospheric Kill Vehicles (EKV) removed from the fleet -Continue Ground Based Interceptor (GBI) Fleet Upgrade program			
FY 2017 Plans: -Decrease from FY 2016 to FY 2017 due to completion of upgrades to the currently fielded CE-II GBIs. -Complete upgrade and delivery of the fielded CE-II GBIs in the proven Flight Test Ground-based Midcourse Defense-06b (FTG-06b) configuration -Continue Ground Based Interceptor (GBI) Fleet Upgrade program -Continue to collect Reliability, Availability, Maintainability and Test (RAM-T) data and calculate and track performance metrics on the Operational System -Continue the Reliability and Systems Engineering (RSE) and the GBI Design and Reliability Characterization (D&RC) program that includes: --Configuration 2 (C2) Booster Reliability Demonstration Testing, to quantify system performance and capability --GBI All-Up Round (AUR) system-level Failure Modes, Effects and Criticality Analysis. Evaluate Acceptance Test Procedure strategy and test levels for each GBI AUR configuration.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017
--Probabilistic Risk Assessment (reliability model) development to help prioritize future engineering efforts --AUR physical design schematics & electrical grounding control plans. Conduct key engineering assessments including integrated sneak circuit analyses, Worst Case Circuit Analysis, and electrical/thermal derating analyses to document current performance/capability and identify potential risk areas -Continue functional testing of naturally aged GBI subsystems and components removed during upgrade/modification to understand performance and aging characteristics in order to establish life limits -Maintain electronic As-Built/As-Fielded GBI configuration database for real-time access to GBI configuration data across the production and maintenance organization -Continue rocket motor static firings and initiate motor dissections, which are both required to produce data that is needed to extend the service life of limited life items -Initiate design reliability analysis for the Redesigned Kill Vehicle (RKV) and the Configuration 3 (C3) boost vehicle to ensure that their design will meet its reliability requirements -Continue Probabilistic Risk Assessment for the RKV and initiate analysis for the C3 boost vehicle			
Title: Systems Engineering and Program Management	147.877	265.925	267.195
Articles:	-	-	-
Description: GMD Systems Engineering and Program Management provide essential services for the development and fielding of the GMD hardware and software and Industry Program Management operations. Included in this effort are concept definition, requirements and interfaces, system design, integration, test planning and verification efforts. Key products are development and maintenance of the technical baseline and critical engineering processes for implementation and delivery of an integrated GMD element capability. Program Management provides for prime contractor management of the GMD program. Included in this effort is program and business management, program administration, technical and testing oversight, verification of hardware and software development, quality/safety/mission assurance, integrated logistics support, and infrastructure to develop, test and sustain the GMD system and components. ***FY 2015 Accomplishments:*** -Continued requirements development, engineering analysis, capability integration, and performance verification for GMD development and BMDS integration -Continued effort to assess the current GMD capabilities against the evolving threat -Continued sustainment of core information technology data and unified communications services to accomplish research and development activities			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017
-Continued modeling and simulation development and integration to assess component and system performance in support of annual technical assessments -Continued the development of modeling and simulation wrapped tactical code to reduce the life cycle cost and increase the fidelity of the results, and begin integrating the code into a single BMDS framework to facilitate interoperability between BMDS elements -Continued modeling and simulation verification and validation to establish high confidence for Warfighter assessments -Supported Component Requirements Reviews and Preliminary Design Reviews (PDR) for the GMD contribution to the BMDS Enhanced Homeland Defense including the Ground System Fire Control and Communications software development and GBI hardware (e.g., CE-II Block 1) and software capabilities development to ensure delivery of a successful capability -Continued design, planning, and pre- and post-flight test analysis for current and future flight and ground tests to assess system performance and implement a rigorous test plan for verifying successful operation of capabilities delivered to the Warfighter -Utilized Exoatmospheric Kill Vehicle (EKV) HWIL 10-foot vacuum space chamber (10V Chamber) for operational analysis of emerging threats, assessment of performance improvements, and Pre-Mission Testing and Post Flight analysis and reconstruction in accordance with the Integrated Master Test Plan (IMTP) to reduce execution risks and gain confidence that capabilities performed as expected -Provided contractor program management, subcontract management, quality assurance, verification of hardware and software development, and technical and testing oversight to ensure the program meets all cost, schedule, and performance requirements -Continued development, testing and fielding of a near term discrimination (NTD) capability through GMD Fire Control system (GFC) and Exoatmospheric Kill Vehicle (EKV) software -Continued Near-Term discrimination improvement capability developments -Continued integration phase of Near-Term discrimination improvements ground testing via Ground Test Integrated-06 (GTI-06) -Conducted Mid-term discrimination planning, assessment, and specification work to keep pace with emerging threat -Developed preliminary BMDS functional and performance requirements for Mid-term discrimination improvements capability			
FY 2016 Plans: -Continue requirements development, engineering analysis, capability integration, and performance verification for GMD development and BMDS integration for the evolving threat -Continue sustainment of core information technology data and unified communications services to accomplish research and development activities. -Continue Technical Direction Agent activities to provide the technical expertise and program execution experience required to offer independent assessment/analysis, unbiased and objective defensive weapon system level-oriented advice on technical issues and product development, and recommendations on technical issues and product development challenges facing in the GMD Program			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017
-Continue modeling and simulation development and integration to assess component and system performance in support of annual technical assessments -Continue the development of modeling and simulation wrapped tactical code to reduce the life cycle cost and increase the fidelity of the results and integrate GMDSim into the new Objective Simulation Framework (OSF) -Continue modeling and simulation verification, validation, and accreditation (VV&A) to establish high confidence for Warfighter assessments -Continue design, planning, and pre- and post-flight test analysis for current and future flight and ground tests to assess system performance and implement a rigorous test plan for verifying successful operation of capabilities delivered to the Warfighter -Utilize Exoatmospheric Kill Vehicle (EKV) Hardware in the loop (HWIL) 10-foot vacuum space chamber (10V Chamber) for operational analysis of emerging threats, discrimination improvements performance and Pre-Mission Testing and Post Flight analysis and reconstruction in accordance with the Integrated Master Test Plan (IMTP) to reduce execution risks from additional data and gaining confidence that capabilities performed as expected -Provide contractor program management, subcontract management, quality assurance, verification of hardware and software development, and technical and testing oversight to ensure the program meets all cost, schedule, and performance requirements -Field Near-term discrimination improvements capability -Complete Near-term discrimination improvements ground testing via ground test distributed (GTD-06) -Initiate top-down and bottoms-up requirements audit to include: functional decomposition / traceability, bottoms-up verification sufficiency audit, and establish detailed performance requirement error budgets and allocations to ensure complete understanding of system capability and potential gaps -Initiate Cybersecurity Operations Upgrade Program consisting of efforts to enhance the cybersecurity posture of the GMD operational information systems and its supporting information systems and components -Initiate a rigorous independent verification and validation (IV&V) and system engineering analysis of GMD software to increase Warfighter confidence in the tactical system performance and reliability			
FY 2017 Plans: -Continue requirements development, engineering analysis, capability integration, and performance verification for GMD development and BMDS integration -Continue effort to assess the current GMD capabilities against the evolving threat -Continue sustainment of core information technology data and unified communications services to accomplish research and development activities. -Continue Technical Direction Agent activities to provide the technical expertise and program execution experience required to offer independent assessment/analysis, unbiased and objective defensive weapon system level-oriented advice on technical issues and product development, and providing recommendations on technical issues and product development challenges facing in the GMD Program			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency		Date: February 2016
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017
-Continue modeling and simulation development and integration to assess component and system performance in support of annual technical assessments -Continue the development of modeling and simulation wrapped tactical code to reduce the life cycle cost and increase the fidelity of the results and integrate GMDSim into the new Objective Simulation Framework (OSF) -Continue modeling and simulation verification, validation, and accreditation (VV&A) to establish high confidence in Warfighter assessments -Continue design, planning, and pre- and post-flight test analysis for current and future flight and ground tests to assess system performance and implement a rigorous test plan for verifying successful operation of capabilities delivered to the Warfighter -Utilize Exoatmospheric Kill Vehicle (EKV) Hardware in the loop (HWIL) 10-foot vacuum space chamber (10V Chamber) for operational analysis of emerging threats, discrimination improvements performance and pre-mission testing and post flight analysis and reconstruction in accordance with the Integrated Master Test Plan (IMTP) to reduce execution and gain confidence that capabilities performed as expected -Provide contractor program management, subcontract management, quality assurance, verification of hardware and software design, and technical and testing oversight to ensure the program meets all cost, schedule, and performance requirements -Continue top-down and bottoms-up requirements audit to include: functional decomposition / traceability, bottoms-up verification sufficiency audit, and establishment of detailed performance requirement error budgets and allocations to ensure complete understanding of system capability and potential gaps -Continue a rigorous independent verification and validation (IV&V) and system engineering analysis of GMD software to increase Warfighter confidence in the tactical system performance and reliability -Complete design and development of Mid-term discrimination improvements techniques -Continue test planning for discrimination improvements capabilities -Conduct Far-term discrimination and countermeasure mitigation capability development -Develop definition of fire control/weapon handover improvements and initiate preliminary design -Conduct analysis and reporting for Flight Test Ground-based Midcourse Defense-15 (FTG-15), a 3-stage Capability Enhancement II (CE-II) C2/CBAU intercept engagement using a GBI launched from Vandenberg Air Force Base, California against an Intercontinental Ballistic Missile (ICBM) target with associated objects, launched from Reagan Test Site (RTS) -Continue planning and readiness for Flight Test Ground-based Midcourse Defense-11 (FTG-11), a 3-stage CE-I and 3-stage CE-II Salvo intercept using GBIs launched from Vandenberg Air Force Base, California against a target with associated objects, launched from RTS -Initiate planning and readiness for Flight Test Ground-based Midcourse Defense-Controlled Test Vehicle-03 (GM CTV-03), a non-intercept mission with Redesigned Kill Vehicle (RKV) to collect RKV flight environment data using a GBI launched from Vandenberg Air Force Base, California -Continue Cybersecurity Operations Upgrade Program consisting of efforts to enhance the cybersecurity posture of the GMD operational information systems and its supporting information systems and components			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017
-Implement vulnerability mitigation activities for the Power Control and Monitoring System (PCMS) and Site Control and Monitoring System (SCMS) that are required to maintain their Authority to Operate (ATO) -Train and certify contractor Information Assurance Workforce personnel involved in developing GMD test, training, and mission support information systems			
Title: Program Operations	88.307	98.045	85.639
Articles:	-	-	-
Description: Program Operations provides for government management of the GMD program. Included in this effort is program and business management, program administration, technical and testing oversight, verification of hardware and software development, quality / safety / mission assurance, integrated logistics support, and government manpower and infrastructure to develop, test and sustain the GMD system and components.			
FY 2015 Accomplishments: -Conducted technical and business management support activities, financial management, cost and schedule performance analysis, cost estimation and analysis, configuration management and integration activities to ensure program met cost, schedule, and performance goals -Ensured GMD program compliance with internal and external direction, policies, and regulations to deliver critical capability within a consistent and disciplined process -Conducted internal Director's Program Review (DPR) to measure program progress against the six Missile Defense Agency (MDA) approved baselines -Continued a Mission Assurance and Manufacturing Engineering Program to include Quality, Configuration Management, Manufacturing, Engineering, and Safety in all phases of the system life cycle, throughout the supply chain, and at all levels of assembly emphasizing high yield rates which minimize test and rework costs -Provided Quality Safety and Mission Assurance (QSMA) operations to ensure compliance with Agency requirements for design, test, manufacturing, quality, safety, and reliability to ensure high quality products are delivered to the Warfighter -Continued sustainment of core information technology data and unified communications services to accomplish research and development activities			
FY 2016 Plans: -Provide technical and business management support activities, financial management, cost and schedule performance analysis, cost estimation and analysis, configuration management and integration activities to ensure program met cost, schedule, and performance goals -Ensure Ground-based Midcourse Defense (GMD) program compliance with internal and external direction, policies, and regulations to deliver critical capability within a consistent and disciplined process			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017
-Conduct internal Director's Program Review (DPR) to measure program progress against the six Missile Defense Agency (MDA) approved baselines -Continue a Mission Assurance and Manufacturing Engineering Program to include Quality, Configuration Management, Manufacturing, Engineering, and Safety in all phases of the system life cycle, throughout the supply chain and at all levels of assembly emphasizing high yield rates which minimize test and rework costs -Provide Quality Safety and Mission Assurance (QSMA) operations to ensure compliance with Agency requirements for design, test, manufacturing, quality, safety and reliability to ensure high quality products are delivered to the Warfighter -Continue sustainment of core information technology data and unified communications services to accomplish research and development activities. ***FY 2017 Plans:*** -Decrease from FY 2016 to FY 2017 due to all test personnel costs moving to PE 0604887C: Ballistic Missile Defense Midcourse Defense Segment Test in the Program Operations accomplishment. -Provide technical and business management support activities, financial management, cost and schedule performance analysis, cost estimation and analysis, configuration management and integration activities to ensure program met cost, schedule, and performance goals -Ensure GMD program compliance with internal and external direction, policies, and regulations to deliver critical capability within a consistent and disciplined process -Conduct internal Director's Program Review (DPR) to measure program progress against the six Missile Defense Agency (MDA) approved baselines -Continue a Mission Assurance and Manufacturing Engineering Program to include Quality, Configuration Management, Manufacturing, Engineering, and Safety in all phases of the system life cycle, throughout the supply chain, and at all levels of assembly emphasizing high yield rates which minimize test and rework costs -Provide Quality Safety and Mission Assurance (QSMA) operations to ensure compliance with Agency requirements for design, test, manufacturing, quality, safety, and reliability to ensure high quality products are delivered to the Warfighter -Continue sustainment of core information technology data and unified communications services to accomplish research and development activities			
Title: Ground Systems & Fire Control	74.965	161.878	117.369
Articles:	-	-	-
Description: The GMD Ground Systems enable control and operation of the GMD Element as part of the Ballistic Missile Defense System (BMDS). Ground Systems consists of the GMD Fire Control system, GMD Communications Network, In-Flight Interceptor			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017
Communications System (IFICS) Data Terminal (IDT), Launch Site Components (LSC) (silos, silo interface vaults [SIVs]), and the Launch Support Systems (LSS) (Command and Launch Equipment (CLE), which includes Launch Support Equipment (LSE). ***FY 2015 Accomplishments:*** -Completed Near-term BMDS discrimination improvements for Homeland Defense (DIHD) Near-Term capability developments -Initiated testing Ground Systems suite 6B3 software upgrade for Near-Term Discrimination (NTD) capability, and Near-term BMDS discrimination improvements capability, including limited Reliability/Obsolescence/Technology Refresh of the Ground System hardware -Completed integration phase of Near-Term discrimination improvements ground testing via Ground Test Integrated-06 (GTI-06) -Continued integration efforts for an In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT) at Fort Drum, NY that will increase system performance in specific engagement scenarios -Continued the Ground Systems Technology Refresh for limited IDT components and GFC Workstations which provides upgrades to the Ground Systems components by reducing life cycle costs and ensuring sustainability -Continued the refurbishment, upgrade, blast shielding, and hardening of Missile Field 1 at Fort Greely, Alaska -Continued design and development of Command Launch Equipment (CLE) software 6B3.1 and hardware to interface with the tactical 3 Stage Configuration 2 (C2) (CBAU) Ground-Based Interceptor (GBI) -Initiated requirements and preliminary design efforts for Ground Systems suite 7B -Continued the Command Launch Equipment (CLE)/GFC Re-architecture Phase 1 to mitigate obsolescence, and increase reliability, sustainability, and availability of the CLE with added failover capability ***FY 2016 Plans:*** -Initiate requirements and preliminary design efforts for IDT technology upgrades to support enhanced data rates and message sets required for the On-Demand Communications to the Redesigned Kill Vehicle -Test Ground Systems suite 6B3 in CTV-02+ flight test and ground tests, and initiate fielding of software upgrade for Near-Term Discrimination (NTD) capability, and Near-term BMDS discrimination improvements capability, including limited Reliability/ Obsolescence/Technology Refresh of the Ground System hardware to the Warfighter -Continue design and development for Ground Systems suite 7A to integrate limited IDT component upgrades, and CLE/GFC Re-architecture Phase I, and interface with C2BMC build 8.2 -Continue Ground Systems suite 7B upgrades for mid-term discrimination improvements to provide data aggregation, update salvo-logic, midterm threat set, 2-stage interceptor capability, on-demand communications supporting Redesigned Kill Vehicle capabilities (RKV), and integration of data from BMDS Overhead Persistent Infra-red (OPIR) Architecture (BOA) assets into the GMD configuration -Continue Technology Refresh to address obsolescence issues to support improved availability, reliability, sustainability, and Cybersecurity posture			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017
-Complete integration efforts for an In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT) at Fort Drum, NY to provide increased system performance in specific engagement scenarios -Complete the refurbishment, upgrade, blast shielding, and hardening of Missile Field 1 at Fort Greely, Alaska -Continue the Command Launch Equipment (CLE)/GFC Re-architecture Phase 1 to mitigate obsolescence, and increase reliability, sustainability, and availability of the CLE with added failover capability ***FY 2017 Plans:*** -Decrease from FY 2016 to FY 2017 due to completion of the Missile Field 1 repair and refurbishment and reduced funding required for Command Launch Equipment (CLE) Re-Architecture and Ground Systems Technology Refresh. -Continue the CLE/ GMD Fire Control system (GFC) Re-architecture Phase 1 to mitigate obsolescence, and increase reliability, sustainability, and availability of the CLE with added failover capability -Complete fielding of Ground Systems suite 6B3 software upgrade for Near-Term Discrimination (NTD) capability, and Near-term BMDS discrimination improvements capability, including limited Reliability/Obsolescence/Technology Refresh of the Ground System hardware to the Warfighter -Complete design and development for Ground Systems suite 6B3.2 to integrate limited In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT)component upgrades, and CLE/GFC Re-architecture Phase I, and interface with Command & Control, Battle Management, Communications (C2BMC) build 8.2 -Continue Ground Systems suite 7B upgrades for Mid-Term discrimination improvements capabilities in addition to the 2 stage options using Energy Maneuvers and Zero Pulse, and 2/3 stage Battle Management; upgrade interfaces to IDT to support On-Demand Communications and Warfighter Enhancements. The 7B suite will also include improved Nuclear Weapons Effects (NWE) planning, Missile Order of Battle (MOB) updates, Boost Phase Cueing from AN/TPY-2 radars, and Risk Management Framework (RMF) start up -Continue detailed design development of the IDT technology upgrades to support the On-Demand Communications capability for systems discrimination data, directed engagements and hit assessments -Continue GMD Communications Network (GCN) Modernization efforts to support GMD system expansion and emerging requirements, enhance/maintain Cyber Security posture, and mitigate hardware and software obsolescence			
Accomplishments/Planned Programs Subtotals	801.930	1,209.006	815.796

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• 0603294C: *Common Kill Vehicle Technology*	24.836	61.753	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• 0603884C: *Ballistic Missile Defense Sensors*	260.347	228.392	230.077	-	230.077	144.893	141.815	171.644	158.421	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	420.516	429.853	439.617	-	439.617	413.198	432.763	454.601	462.065	Continuing	Continuing
• 0603907C: *Sea Based X-Band Radar (SBX)*	64.610	71.266	68.787	-	68.787	73.329	70.423	85.881	74.189	Continuing	Continuing
• 0604873C: *Long Range Discrimination Radar (LRDR)*	49.606	137.564	162.012	-	162.012	310.347	76.843	98.874	102.320	Continuing	Continuing
• 0604874C: *Improved Homeland Defense (HLD) Interceptors*	97.739	278.944	274.148	-	274.148	321.441	479.049	508.198	580.239	Continuing	Continuing
• 0604887C: *Ballistic Missile Defense Midcourse Defense Segment Test*	78.463	64.618	56.481	-	56.481	86.709	76.205	74.776	87.415	Continuing	Continuing

Remarks

D. Acquisition Strategy

The GMD program will continue to follow testing, development, and evolutionary acquisition through incremental development. The Agency acquisition strategy ensures that the GMD components are upgraded to improve both All-Up System (AUS) performance and All-Up Round (AUR) performance in order to retain the proven GMD contribution to the Integrated Ballistic Missile Defense System (BMDS). This acquisition approach reduces obsolescence risk, provides opportunities for incremental capability improvements, and allows decision makers to make informed trades between cost, schedule, and performance while exploring improved operational and technological capabilities.

GMD awarded a competitive Development and Sustainment Contract (DSC) on December 30, 2011. This contract continues development, fielding, test, systems engineering, integration, and configuration management; equipment manufacturing and upgrade; training, operations and sustainment of the GMD system and associated support facilities. The DSC emphasizes the application of performance-based tenets to provide timely high quality support of the core GMD system while reducing life cycle and long-term ownership costs. GMD's acquisition strategy for transition of the legacy content into the DSC provides uninterrupted field operations; development of both Ground Systems and Interceptor (GBI) products, including manufacturing additional interceptors to support both operations and testing and the requirement to demonstrate war fighting capability through a rigorous ground and flight test program.

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E. Performance Metrics

N/A

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Based Interceptor Development - Configuration 2 CBAU Booster Development	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	11.906		3.928	Nov 2015	0.116	Nov 2016	-		0.116	Continuing	Continuing	Continuing
Ground Based Interceptor Development - Configuration 3 Booster Development	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	0.000		61.820	Nov 2015	0.000		-		0.000	0	61.820	0
Ground Based Interceptor Development - EKV New & Modified Component Development	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	0.363		16.126	Nov 2015	2.365	Nov 2016	-		2.365	Continuing	Continuing	Continuing
Ground Based Interceptor Development - FTG-07 Mitigations	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	35.541		0.000		0.000		-		0.000	0	35.541	0
Ground Based Interceptor Development - Flight Rotations for Ballistic Missile Defense System Level Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	13.441		11.550	Nov 2015	25.866	Nov 2016	-		25.866	Continuing	Continuing	Continuing
Ground Based Interceptor Development - Operational Spares	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	12.155		5.268	Nov 2015	13.751	Nov 2016	-		13.751	Continuing	Continuing	Continuing
Ground Based Interceptor Development - Software Maintenance & Updates	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	15.750		10.829	Nov 2015	11.032	Nov 2016	-		11.032	Continuing	Continuing	Continuing
Ground Based Interceptor Manufacturing - GBI Prime Product Support	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	66.987		78.879	Nov 2015	84.754	Nov 2016	-		84.754	Continuing	Continuing	Continuing
Ground Based Interceptor Manufacturing - Interceptor Manufacturing Support	MIPR	NASA MSFC& AMRDEC, HSV, AL : Draper Laboratory, MA; Vanguard, HSV, AL	0.000	5.917		8.094	Nov 2015	6.542	Nov 2016	-		6.542	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Based Interceptor Manufacturing - Prime Ground Based Interceptors 34-44 (CE-II)	C/CPAF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	99.644		50.368	Nov 2015	0.000		-		0.000	0	150.012	0
Ground Based Interceptor Manufacturing - Prime Ground Based Interceptors 48-58 (CE-II Block 1)	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	185.517		213.038	Nov 2015	135.470	Nov 2016	-		135.470	Continuing	Continuing	Continuing
Ground Based Interceptor Manufacturing - Two Additional Boosters for Flight Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	0.000		41.418	Nov 2015	14.871	Nov 2016	-		14.871	Continuing	Continuing	Continuing
Ground Based Interceptor Reliability - Government Reliability Program	MIPR	AMRDEC / Redstone Arsenal, AL : NSWC Crane, IN	0.000	6.470		8.738	Nov 2015	8.499	Nov 2016	-		8.499	Continuing	Continuing	Continuing
Ground Based Interceptor Reliability - Prime Currently Fielded CE-II Upgrades	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	12.497		117.880	Nov 2015	10.297	Nov 2016	-		10.297	Continuing	Continuing	Continuing
Ground Based Interceptor Reliability - Prime GBI Functional Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	1.175		20.039	Nov 2015	9.002	Nov 2016	-		9.002	Continuing	Continuing	Continuing
Ground Based Interceptor Reliability - Prime Reliability & Systems Engineering	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	5.318		6.556	Nov 2015	2.661	Nov 2016	-		2.661	Continuing	Continuing	Continuing
Ground Based Interceptor Reliability - Prime Reliability Program	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	18.100		28.627	Nov 2015	20.367	Nov 2016	-		20.367	Continuing	Continuing	Continuing
Ground Systems & Fire Control - Government Fort Drum IDT	MIPR	MDA/AL : /VA/NY	0.375	0.189		0.356	Nov 2015	0.420	Nov 2016	-		0.420	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Systems & Fire Control - Government Software Development	MIPR	AMRDEC : Redstone Arsenal, AL	0.000	0.000		2.346	Nov 2015	1.320	Nov 2016	-		1.320	Continuing	Continuing	Continuing
Ground Systems & Fire Control - Prime CLE Re-Architecture	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	3.177	7.124		22.092	Nov 2015	14.217	Nov 2016	-		14.217	Continuing	Continuing	Continuing
Ground Systems & Fire Control - Prime Communications Infrastructure	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	1.726	0.643		2.016	Nov 2015	3.191	Nov 2016	-		3.191	Continuing	Continuing	Continuing
Ground Systems & Fire Control - Prime Fort Drum IDT	C/CPIF	Boeing AL : CO/NY/ VA	6.330	2.754		0.959	Nov 2015	0.000		-		0.000	0	10.043	0
Ground Systems & Fire Control - Prime Ground Systems Software Development	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	197.231	36.196		64.550	Nov 2015	60.372	Nov 2016	-		60.372	Continuing	Continuing	Continuing
Ground Systems & Fire Control - Prime MF-1 Repair and Refurbishment	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	0.271	17.222		19.627	Nov 2015	0.000		-		0.000	0	37.120	0
Ground Systems & Fire Control - Prime On Demand Communications	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	0.000	0.000		16.563	Nov 2015	19.551	Nov 2016	-		19.551	Continuing	Continuing	Continuing
Ground Systems & Fire Control - Prime Technology Refresh	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	4.620	10.837		33.369	Nov 2015	18.298	Nov 2016	-		18.298	Continuing	Continuing	Continuing
		Subtotal	213.730	565.746		845.036		462.962		-		462.962	-	-	-

Remarks

N/A

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering and Program Management - Cyber Security	MIPR	MDA : AL/VA	0.000	0.000		8.975	Nov 2015	9.010	Nov 2016	-		9.010	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Discrimination Engineering & Analysis	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	0.000		3.000	Nov 2015	9.643	Nov 2016	-		9.643	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Government Discrimination Improvements	MIPR	FFRDC/UARC : AL	0.000	2.091		3.520	Nov 2015	6.000	Nov 2016	-		6.000	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Government EKV HWIL Tests in Space Chamber	MIPR	AEDC : Tullahoma, TN	9.463	4.989		6.942	Nov 2015	7.088	Nov 2016	-		7.088	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Government Modeling and Simulation	MIPR	SED and Morrow Labs : Redstone Arsenal/AL	29.294	14.799		27.398	Nov 2015	29.744	Nov 2016	-		29.744	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Government Systems Engineering & Integration	MIPR	AMRDEC : HSV/AL	0.000	4.501		18.184	Nov 2015	18.303	Nov 2016	-		18.303	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Information Management & Technology Ops	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	3.209		13.513	Nov 2015	9.269	Nov 2016	-		9.269	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Model & Simulations Support	Allot	MDA : AL/VA	11.603	9.875		10.237	Oct 2015	10.651	Oct 2016	-		10.651	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Prime Design, Readiness, Analysis and Reporting	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	0.000		0.000		14.729	Nov 2016	-		14.729	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Missile Defense Agency			Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering and Program Management - Prime Discrimination Improvements	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	6.575		27.706	Nov 2015	13.100	Nov 2016	-		13.100	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Prime EKV HWIL Tests in Space Chamber	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	63.572	1.729		1.614	Nov 2015	1.645	Nov 2016	-		1.645	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Prime Modeling and Simulation	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	135.187	16.163		17.161	Nov 2015	13.864	Nov 2016	-		13.864	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Prime Program Management	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	83.273	39.215		55.026	Nov 2015	51.722	Nov 2016	-		51.722	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Prime System Engineering and Integration	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	263.038	33.996		36.886	Nov 2015	43.579	Nov 2016	-		43.579	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Systems Engineering & Analysis	MIPR	Various : AL/VA	9.607	6.945		6.940	Nov 2015	3.299	Nov 2016	-		3.299	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Systems Engineering & Analysis - CSS Support	C/CPFF	CSC : AL	0.000	0.000		5.092	Nov 2015	2.945	Nov 2016	-		2.945	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Systems Engineering & Analysis – FFRDC / UARC	MIPR	Various : AL/VA	0.000	0.583		1.205	Nov 2015	1.019	Nov 2016	-		1.019	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Systems Engineering	C/CPAF	Boeing : AL	5.093	3.207		6.959	Nov 2015	5.876	Nov 2016	-		5.876	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Missile Defense Agency			Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
& Analysis – Industry Support															
Systems Engineering and Program Management - Technical Direction Agent	MIPR	AL/CA/GA/MA : MD/ NM/UT/VA	0.000	0.000		15.567	Oct 2015	15.709	Oct 2016	-		15.709	Continuing	Continuing	Continuing
Program Operations - Contract Support Services	C/CPFF	Various : AL/AK/CA/ CO/VA	319.745	43.569		44.664	Oct 2015	37.338	Oct 2016	-		37.338	Continuing	Continuing	Continuing
Program Operations - FFRDC Support	MIPR	MIT/LL : AL/VA/CO	36.419	5.546		8.531	Oct 2015	8.525	Oct 2016	-		8.525	Continuing	Continuing	Continuing
Program Operations - Government Civilian Salaries	MIPR	MDA : AL/VA	172.721	31.375		35.501	Oct 2015	30.263	Oct 2016	-		30.263	Continuing	Continuing	Continuing
Program Operations - Information Technology Services	MIPR	MDA : AL/CA/VA/ CO/AK	2.095	0.828		1.193	Nov 2015	1.227	Nov 2016	-		1.227	Continuing	Continuing	Continuing
Program Operations - Other Govt Agencies	MIPR	Various : AL/VA/FL/ CO	29.645	5.493		6.550	Oct 2015	6.654	Oct 2016	-		6.654	Continuing	Continuing	Continuing
Program Operations - Safety and Quality	MIPR	MDA : AL/AK/CA/VA	0.440	0.063		0.079	Nov 2015	0.081	Nov 2016	-		0.081	Continuing	Continuing	Continuing
Program Operations - Travel	MIPR	MDA : AL/VA	4.658	1.433		1.527	Oct 2015	1.551	Oct 2016	-		1.551	Continuing	Continuing	Continuing
		Subtotal	1,175.853	236.184		363.970		352.834		-		352.834	-	-	-

Remarks

N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Missile Defense Agency			Date: February 2016
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	Project (Number/Name) MD08 / *Ground Based Midcourse*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,389.583	801.930		1,209.006		815.796		-		815.796	-	-	-

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 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

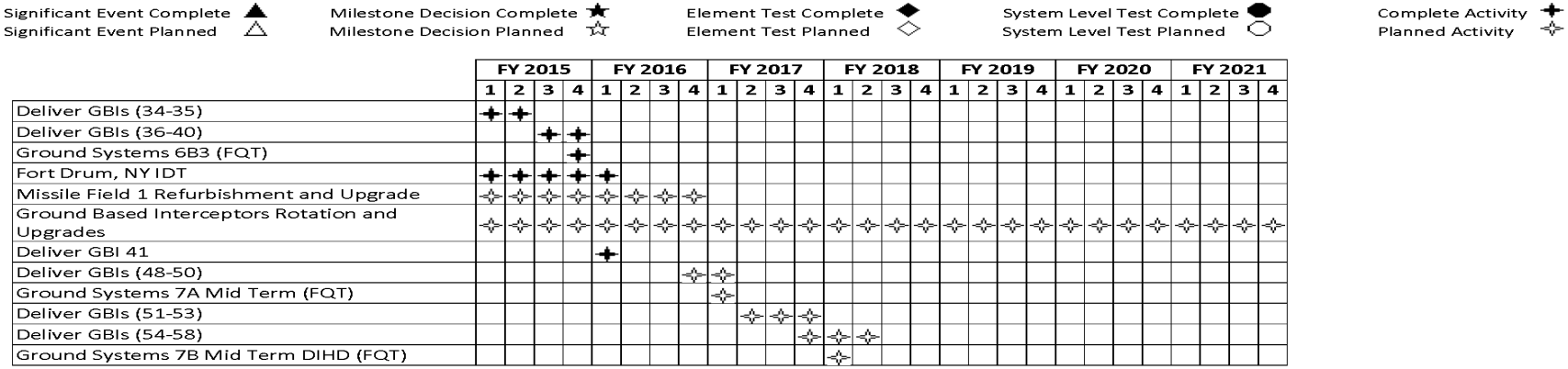

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Deliver GBIs (34-35)	1	2015	2	2015
Deliver GBIs (36-40)	3	2015	4	2015
Ground Systems 6B3 (FQT)	4	2015	4	2015
Fort Drum, NY IDT	1	2015	1	2016
Missile Field 1 Refurbishment and Upgrade	1	2015	4	2016
Ground Based Interceptors Rotation and Upgrades	1	2015	4	2021
Deliver GBI 41	1	2016	1	2016
Deliver GBIs (48-50)	4	2016	1	2017
Ground Systems 7A Mid Term (FQT)	1	2017	1	2017
Deliver GBIs (51-53)	2	2017	4	2017
Deliver GBIs (54-58)	4	2017	2	2018
Ground Systems 7B Mid Term DIHD (FQT)	1	2018	1	2018

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency			Date: February 2016
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	Project (Number/Name) MC08 / *Cyber Operations*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
MC08: *Cyber Operations*	3.373	3.475	4.394	4.563	-	4.563	4.762	4.972	5.195	5.417	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

The funding in this project sustains MDA DoD Information Assurance Certification and Accreditation Program (DIACAP) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Assurance Manager (PM/IAM) Plans of Action and Milestones (POA&Ms) for MDA GMD mission systems. It maintains the Certification and Accreditation (C&A) data repository, capturing the DIACAP documentation (artifacts, validation results, and Information Assurance Risk Assessment results, and Designated Approving Authority (DAA) accreditation decisions) and POA&Ms on all MDA information systems.

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

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017
Title: Network / System Certification and Accreditation (C&A)	3.475	4.394	4.563
Articles:	-	-	-
Description: The Network/Systems Certification and Accreditation project sustains the MDA DoD Information Assurance Certification and Accreditation Program (DIACAP) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Assurance Manager (PM/IAM) Plans of Action and Milestones (POA&Ms) for MDA Command and Control Battle Management and Communications (C2BMC) mission systems. It maintains the Certification and Accreditation (C&A) data repository, capturing the DIACAP documentation (artifacts, validation results, and Information Assurance Risk Assessment results, and Designated Approving Authority [DAA] accreditation decisions) and POA&M on all MDA information systems.			
FY 2015 Accomplishments: -Provided Ground-based Midcourse Defense (GMD) Information Assurance Manager (IAM) civilian salaries -Conducted cyber security / Information Assurance (IA) engineering and architecture planning for GMD information technology systems			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MC08 / *Cyber Operations*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017
-Planned and test the IA controls for Ballistic Missile Defense System (BMDS) GMD systems -Developed GMD DoD Information Assurance Certification and Accreditation Program (DIACAP) certification and accreditation packages -Conducted Controls Validation Testing (CVT) of GMD mission systems and provide Plan of Action and Milestones to mitigate IA deficiencies -Conducted annual information assurance reviews on the GMD enclaves to assess compliance in implementing and maintaining IA controls ***FY 2016 Plans:*** -Provide GMD Information Assurance Manager (IAM) civilian salaries -Conduct cyber security / Information Assurance (IA) engineering and architecture planning for GMD information technology systems -Plan and test the IA controls for BMDS GMD systems -Develop GMD DoD Information Assurance Certification and Accreditation Program (DIACAP) certification and accreditation packages -Conduct Controls Validation Testing (CVT) of GMD mission systems and provide Plan of Action and Milestones to mitigate IA deficiencies -Conduct annual information assurance reviews on the GMD enclaves to assess compliance in implementing and maintaining IA controls ***FY 2017 Plans:*** -Provide GMD Information Assurance Manager (IAM) civilian salaries -Conduct cyber security / Information Assurance (IA) engineering and architecture planning for GMD information technology systems -Plan and test the IA controls for BMDS GMD systems -Develop GMD DoD Information Assurance Certification and Accreditation Program (DIACAP) certification and accreditation packages -Conduct Controls Validation Testing (CVT) of GMD mission systems and provide Plan of Action and Milestones to mitigate IA deficiencies -Conduct annual information assurance reviews on the GMD enclaves to assess compliance in implementing and maintaining IA controls			
Accomplishments/Planned Programs Subtotals	3.475	4.394	4.563

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MC08 / *Cyber Operations*

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 2017 Missile Defense Agency			Date: February 2016
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	Project (Number/Name) MC08 / *Cyber Operations*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Network / System Certification and Accreditation (C&A) - Civilian Salaries	MIPR	MDA : AL/VA	0.737	0.800		0.815	Oct 2015	0.826	Oct 2016	-		0.826	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Contract Support Services	C/CPFF	Booz Allen Hamilton, Al : Torch Technologies, Al	2.636	2.675		3.579	Nov 2015	3.737	Nov 2016	-		3.737	Continuing	Continuing	Continuing
		Subtotal	3.373	3.475		4.394		4.563		-		4.563	-	-	-

Remarks

N/A

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	3.373	3.475		4.394		4.563		-		4.563	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MC08 / *Cyber Operations*

Significant Event Complete ▲ Significant Event Planned △ Milestone Decision Complete ★ Milestone Decision Planned ☆ Element Test Complete ◆ Element Test Planned ◇ System Level Test Complete ⬬ System Level Test Planned ⬭ Complete Activity ✦ Planned Activity ✧

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
GMD Cybersecurity Mitigation Monitoring and Tracking	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧
GMD Cybersecurity Program Policy / Risk Management	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧
GMD Information Assurance Certification and Accreditation (C&A) Package Preparation/Submission	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧
GMD Transition to Cybersecurity Risk Management Framework (CRMF)	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧
BMDS Cybersecurity Policy Development	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MC08 / *Cyber Operations*

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MC08 / *Cyber Operations*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
GMD Cybersecurity Mitigation Monitoring and Tracking	1	2015	4	2021
GMD Cybersecurity Program Policy / Risk Management	1	2015	4	2021
GMD Information Assurance Certification and Accreditation (C&A) Package Preparation/ Submission	1	2015	4	2021
GMD Transition to Cybersecurity Risk Management Framework (CRMF)	1	2015	4	2021
BMDS Cybersecurity Policy Development	1	2015	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency			Date: February 2016
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	Project (Number/Name) MD40 / *Program-Wide Support*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	124.331	58.560	56.513	41.721	-	41.721	37.936	33.836	35.027	32.584	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2016 and FY 2017, Program Wide Support reflects proportional changes as a result of decreases in Ballistic Missile Defense Midcourse Defense Segment. 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.

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 includes: 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 2015	FY 2016	FY 2017
Title: Program Wide Support	58.560	56.513	41.721
Articles:	-	-	-
Description: N/A			
FY 2015 Accomplishments: See paragraph A: Mission Description and Budget Item Justification			
FY 2016 Plans: See paragraph A: Mission Description and Budget Item Justification			
FY 2017 Plans: - See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	58.560	56.513	41.721

Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD40 / *Program-Wide Support*

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 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD40 / *Program-Wide Support*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2015 Cost	FY 2015 Award Date	FY 2016 Cost	FY 2016 Award Date	FY 2017 Base Cost	FY 2017 Base Award Date	FY 2017 OCO Cost	FY 2017 OCO Award Date	FY 2017 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Operations Management	C/CPAF	Various : Multi: AL, CA, CO, VA	11.458	1.227		0.010	Mar 2016	0.750	Jul 2017	-		0.750	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Civilian Salaries, Travel, Training	Allot	MDA : Multi: AK, AL, CA, CO, VA	95.406	37.437		42.928	Oct 2015	30.681	Oct 2016	-		30.681	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Other Agency Services (FFP)	C/FFP	PHACIL, INC : Multi: AK, AL, CA, CO, VA	0.420	12.010		1.568	Nov 2015	10.290	Jul 2017	-		10.290	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Other Agency Services (MIPR)	MIPR	Various : Multi: AK, AL, CO, CA, HI, VA	10.875	6.569		0.010	Apr 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AK, AL,CA, CO, HI, VA	1.912	0.345		11.997	Feb 2016	0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Sustainment Transportation	Reqn	Various : AK, AL, CA	0.000	0.000		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - FFRDC/UARC	C/CPFF	Utah St Univ; JHU/ APL LLC : Multi: MD, UT	1.260	0.112		0.000		0.000		-		0.000	3.500	4.872	0
Program Wide Support - Facilities and Maintenance	MIPR	Various : Multi: AK, AL, CA, VA	3.000	0.860		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
		Subtotal	124.331	58.560		56.513		41.721		-		41.721	-	-	-

Remarks

Support is allocated on a pro-rata basis and therefore, fluctuates by year based on the adjusted RDT&E profile

Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Missile Defense Agency			Date: February 2016
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	Project (Number/Name) MD40 / *Program-Wide Support*	

	Prior Years	FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	124.331	58.560		56.513		41.721		-		41.721	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD40 / *Program-Wide Support*

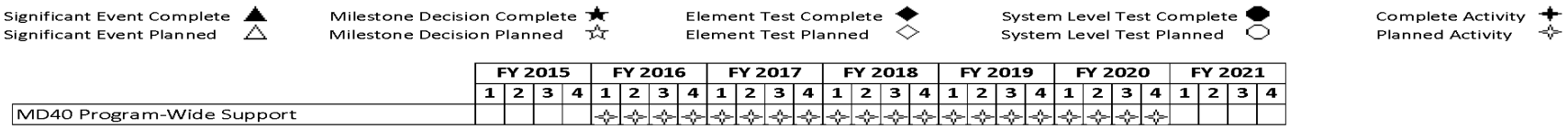

Exhibit R-4A, RDT&E Schedule Details: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD40 / *Program-Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2016	4	2020