Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency											Date: February 2015	
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 2014**	**FY 2015**	**FY 2016 Base**	**FY 2016 OCO**	**FY 2016 Total**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**	**Cost To Complete**	**Total Cost**
Total Program Element	2,798.514	1,064.445	873.923	1,284.891	-	1,284.891	936.425	803.392	903.539	912.890	Continuing	Continuing
MD08: *Ground Based Midcourse*	2,636.202	967.394	812.886	1,225.161	-	1,225.161	888.868	758.909	851.998	859.964	Continuing	Continuing
MC08: *Cyber Operations*	-	3.373	2.938	3.217	-	3.217	3.285	3.340	3.406	3.475	Continuing	Continuing
MT08: *Ground Based Midcourse Test*	69.419	59.372	-	-	-	-	-	-	-	-	Continuing	Continuing
MX08: *Ground Based Midcourse Development Support*	-	2.868	-	-	-	-	-	-	-	-	-	2.868
MD40: *Program-Wide Support*	92.893	31.438	58.099	56.513	-	56.513	44.272	41.143	48.135	49.451	Continuing	Continuing
Program MDAP/MAIS Code: 362												

Note

In FY 2015, Improved Homeland Defense Interceptors was transferred to new Program Element (PE) Improved Homeland Defense (HLD) Interceptors (0603874C) and Ground Based Midcourse Test was transferred to new PE Ballistic Missile Defense Midcourse Defense Segment Test (0604887C).

The Ground-based Midcourse Defense (GMD) system became operational to protect the homeland in 2004. Last year the Missile Defense Agency (MDA) commissioned a study to assess the GMD system health and status. As a result of the study and warfighter input, MDA is increasing the FY 2016 budget request. The additional funding will address study findings and improve the overall reliability, performance, producibility, testability, and extend the life and health of this system. Additional details are in the program change summary and R2/R3 sections.

A. Mission Description and Budget Item Justification

The Ground-based Midcourse Defense (GMD) program is the element of the Ballistic Missile Defense System (BMDS) that 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 Data Terminals (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 FY 2016, the Missile Defense Agency (MDA) will deploy an additional 6 GBIs, from 30 to 36 operationally deployed GBIs located at Fort Greely, Alaska (32 GBIs) and Vandenberg Air Force Base, California (4 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 GMD Fire Control system 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 the Missile Defense Agency (MDA) plans to deliver an additional IDT to Fort Drum, New York. The GMD capability leverages integration of Ballistic Missile Defense System sensors in Alaska, California, United Kingdom, Japan, and Greenland. Development objectives for GMD include: 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.

For FY 2016, this Program Element includes three budget projects: Ground Based Midcourse, Cyber Operations, and Program Wide Support.

In FY 2015, Improved Homeland Defense Interceptors was transferred to new PE 0604874C and Ground Based Midcourse Test moved to new PE 0604887C.

Ground Based Midcourse includes development, production, and deployment of additional Ground Based Interceptors, enhancements to ground systems hardware and software, Program Management, Systems Engineering and Integration, and improvements to Ground Base Midcourse models and simulations that improve the effectiveness, reliability and capacity of the Homeland missile defense system.

This Program Element also includes support for the Discrimination Improvements for Homeland Defense (DIHD) effort. The goal of this effort is to develop and field an integrated set of Element capabilities to improve BMDS reliability, lethality, and discrimination. The end result will be a deployed future BMDS architecture more capable of discriminating and destroying a reentry vehicle with a high degree of confidence that will improve Warfighter shot doctrine and preserve inventory. This effort will encompass a DIHD Near-Term capability fielding and a DIHD Mid-Term capability fielding.

Cyber Operations sustains the Missile Defense Agency (MDA) Department of Defense (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 the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

B. Program Change Summary ($ in Millions)	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total
Previous President's Budget	910.852	1,003.768	1,131.060	-	1,131.060
Current President's Budget	1,064.445	873.923	1,284.891	-	1,284.891
Total Adjustments	153.593	-129.845	153.831	-	153.831
• Congressional General Reductions	-	-0.468			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	50.000			
• Congressional Directed Transfers	-	-179.377			
• Reprogrammings	167.845	-			
• SBIR/STTR Transfer	-14.252	-			
• Other Adjustment	-	-	153.831	-	153.831

Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency	Date: February 2015
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*

Change Summary Explanation

FY 2014 - Increase due to reprogramming to support CE-II GBI Upgrades, Flight Test Ground-based Midcourse Defense-07 (FTG-07) failure mitigations, GBI Design and Reliability Characterization (D&RC), Stockpile Reliability Program (SRP), and Command Launch Equipment (CLE) Re-architecture Phase 1

FY 2015 - Changes reflect Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act. Decrease due to transfer of the Ground Based Midcourse Defense Test and Improved Homeland Defense Interceptor efforts to new Program Elements and a Congressional increase for CE-II GBI upgrades, Stockpile Reliability Program (SRP), and Command Launch Equipment (CLE) Re-architecture Phase 1

FY 2016 - MDA increased the funding request for the GMD program for the following content additions:
-After the FTG-07 flight test failure, the Missile Defense Agency commissioned an Independent Expert Panel (IEP) to assess the confidence in reliable Ground Based Interceptors (GBI) through a thorough investigation of the GBI fleet, the identification of any design, manufacturing, quality and acceptance test issues with the as-built GBI configurations with a focus on reliable GBI operation and any changes to the design or manufacturing processes that will provide the most improvements in reliability. The below recommendations are being implemented in the program:
--Implement GBI Design and Reliability Characterization (D&RC) to increase warfighter confidence in reliability of the current fleet, inform the 3-stage upgraded booster avionics production and influence future design of the integrated boost vehicle and Redesigned Kill Vehicle (RKV)
--Expand Stockpile Reliability Program (SRP) with focus on “energetics” and limited life components
--Upgrade fielded CE-II GBIs to the proven Flight Test Ground-based Midcourse Defense-06b (FTG-06b) configuration
--Incorporate new integrated boost vehicle development for integration into operational fleet
--Incorporate robust Ground Systems modernization and tech refresh efforts and on-demand communications
--Initiate acquisition of two additional GBI integrated boost vehicle for support of the Integrated Master Test Plan (IMTP)

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD08: *Ground Based Midcourse*	2,636.202	967.394	812.886	1,225.161	-	1,225.161	888.868	758.909	851.998	859.964	Continuing	Continuing
Quantity of RDT&E Articles	10	1	-	-	-	-	-	-	-	-		

Note

The Ground-based Midcourse Defense (GMD) GMD system became operational to protect the homeland in 2004. Last year the Missile Defense Agency (MDA) commissioned a study to assess the GMD system health and status. As a result of the study and warfighter input, MDA is increasing the FY 2016 budget request. The additional funding will address study findings and improve the overall reliability, performance, producibility, testability, and extend the life and health of this system.

A. Mission Description and Budget Item Justification

The Ground-based Midcourse Defense (GMD) program content is described as follows:

Ground-based Midcourse 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 improvements to Ground-based Midcourse models and simulations that improve the effectiveness, reliability and capacity of the Homeland missile defense system.

A successful controlled flight test during Control Test Vehicle-01 (CTV-01) and a 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. GMD will incorporate these configuration changes in new FY 2015 CE-II interceptors and deliver them to the operational fleet by end of FY 2016. GMD will complete development of alternate thrusters for the Divert and Attitude Control System (DACS) and will test the improved DACS as part of the non-intercept CTV-02+ Flight Test in first 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 intercept test in 4th quarter FY 2016, GMD will deliver nine 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 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. GMD will continue improvements to the GMD Ground System hardware and software to improve system performance and reliability. GMD will complete testing and field Ground Fire Control (GFC) 6B2.2 in FY 2015. GMD will continue development of GFC 6B3, testing in FY 2015 and fielding in FY 2016. GFC 6B3 will provide enhanced utilization of BMDS sensors and provide additional discrimination data to interceptors in flight. GMD will develop and deliver an equipment refresh and upgrades

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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to the Command and Launch Equipment that will improve system reliability and reduce operating costs. GMD will also deliver and integrate an In-Flight Interceptor Communications System (IFICS) at Fort Drum NY during FY 2016.

GMD will perform systems engineering and complete requirements verification for the delivered system. GMD will conduct Independent Verification and Validation (IV&V) of GMD Interceptor and Ground System software. GMD will update Modeling and Simulation Tools with new system configurations and conduct IV&V of GMD models.

The Discrimination Improvements for Homeland Defense (DIHD) effort will develop and field integrated Element capabilities to improve BMD System ability to identify lethal and non-lethal objects. Ground-based Midcourse Defense will improve the Exoatmospheric Kill Vehicle (EKV) usage of off-board sensor discrimination data, update the EKV onboard discrimination capability, improve GMD Fire Control system (GFC) salvo management, and conduct element and system level testing to support Near, Mid, and Far-term phases.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Ground Based Interceptor	646.190	-	-
Articles:	1	-	-

Description: Ground-based Midcourse Defense (GMD) will complete the delivery of Capability Enhancement II (CE-II) Ground Based Interceptors (GBIs) (34-44) and the delivery of eight CE-II GBIs upgraded with Flight Test Ground-based Midcourse Defense-06a (FTG-06a) fixes successfully tested during Flight Test Ground-based Midcourse Defense-06b (FTG-06b). GMD will continue the manufacture of CE-II Block 1 GBIs (48-58) and deliver the Flight Test Interceptor required to support their fielding. The CE-II Block 1 GBIs will include the new Configuration 2 Integrated Boost Vehicle. Additionally, the CE-II block 1 kill vehicle will have the FTG-06a kill vehicle fixes plus Alternate Divert Thrusters and electrical improvements. The GBI program supports defense of the Homeland by manufacturing both flight test and operational interceptors to demonstrate performance. To aid in the accomplishment of this mission, the GBI program provides developmental assets through conversion of older fielded GBIs to Flight Test configuration to support the Integrated Master Test Plan (IMTP). Available GBI components are being used in the collection of reliability and aging data as part of the Stockpile Reliability Program (SRP).

FY 2014 Accomplishments:
-Completed CE-II intercept flight test (FTG-06b) successfully which resulted in the restart of manufacturing for the remaining Capability Enhancement II (CE-II) Ground Based Interceptors (GBI) (GBIs 34-44)
-Continued acquisition of remaining CE-II (Legacy) Ground Based Interceptors (GBIs 34-44)
-Continued GBI Fleet Upgrade program to include upgrade of fielded CE-II GBIs to the proven FTG-06b configuration
-Continued 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)) GBIs 48-58 to support both operations and testing, including a flight test to demonstrate the capability of the CE-II Block 1 EKV with C2 CBAU booster GBIs
-Continued GBI Software Builds and Sustainment to support operational and flight test objectives

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Continued development and testing of EKV design modifications to mitigate the FTG-07 flight test failure -Completed EKV Divert and Attitude Control System (DACS) Alternate Thruster design to increase GBI reliability -Initiated kill vehicle concepts and requirements development in association with the Redesigned Kill Vehicle (RKV) -Continued flight test rotation program of fielded GBIs to support the Integrated Master Test Plan (IMTP) requirements and the Component Reliability Program -Continued Upgrades and Limited Life Item Hardware purchases that will be used to upgrade the fielded GBIs -Developed the probabilistic risk assessment model to characterize the reliability of the GBI fleet -Conducted aging and surveillance testing on a GBI removed from the fleet -Continued to collect Reliability, Availability, Maintainability and Test (RAM-T) data and calculate and track performance metrics on the Operational System -Continued Exoatmospheric Kill Vehicle (EKV) Divert and Attitude Control System (DACS) Alternate Divert Thruster Design Verification Testing (DVT) and Qualification testing -Continued development of the capability for the EKV to utilize sensor inputs in support of near and mid-term Discrimination Improvements for Homeland Defense (DIHD) -Completed development of ground test campaign requirements for DIHD Near-term improvements ***FY 2015 Plans:*** -This accomplishment is broken into 3 new accomplishments starting in FY 2015: Ground Based Interceptor Development, Ground Based Interceptor Manufacturing, and Ground Based Interceptor Reliability ***FY 2016 Plans:*** -This accomplishment is broken into 3 new accomplishments starting in FY 2015: Ground Based Interceptor Development, Ground Based Interceptor Manufacturing, and Ground Based Interceptor Reliability			
Title: Ground Based Interceptor Development	-	112.493	104.364
Articles:	-	-	-
Description: The Ground Based Interceptor (GBI) Program will continue to develop improvements to ensure that GBIs improve reliability, counter emerging threats, eliminate obsolescence and incorporate available technologies. ***FY 2014 Accomplishments:*** -Located in Ground Based Interceptor accomplishment ***FY 2015 Plans:*** -Continue flight test rotation program of fielded GBIs to support the Integrated Master Test Plan (IMTP) requirements			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Initiate development of new integrated boost vehicle configuration that incorporates enhanced lightning protection, power transient protection, survivability enhancements, two-way communication enhancements, kill assessment enhancements, and 2-stage mode capability for integration into operational fleet -Develop, test and field a near term discrimination (NTD) capability Exoatmospheric Kill Vehicle (EKV) software -Complete Discrimination Improvements for Homeland Defense (DIHD) Near-term capability developments -Complete integration phase of DIHD Near-term ground testing via Ground Test Integrated-06 (GTI-06) -Complete Exoatmospheric Kill Vehicle (EKV) Divert and Attitude Control System (DACS) Alternate Divert Thruster design qualification to increase GBI reliability and initiate production -Incorporate 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 ***FY 2016 Plans:*** -Decrease from FY 2015 to FY 2016 due to completion of FTG-07 mitigations and Divert and Attitude Control System (DACS) Alternate Divert Thruster design. -Conduct flight test utilizing Exoatmospheric Kill Vehicle (EKV) Divert and Attitude Control System (DACS) Alternate Divert Thruster -Conduct flight test utilizing CE-II Block 1 EKV with Configuration 2 (C2) integrated boost vehicle. -Continue flight test rotation program of fielded GBIs to support the Integrated Master Test Plan (IMTP) requirements -Continue development of new integrated boost vehicle configuration that incorporates enhanced lightning protection, power transient protection, survivability enhancements, two-way communication enhancements, kill assessment enhancements, and 2-stage mode capability for integration into operational fleet -Field Discrimination Improvements for Homeland Defense (DIHD) Near-term capability			
Title: Ground Based Interceptor Manufacturing	-	286.216	362.216
Articles:	-	-	-
Description: The Ground Based Interceptor (GBI) Program will continue to manufacture GBIs to support the SECDEF mandate of 44 fielded GBIs by 2017. ***FY 2014 Accomplishments:*** -Located in Ground Based Interceptor accomplishment ***FY 2015 Plans:*** -Continue acquisition of remaining CE-II (Legacy) Ground Based Interceptors (GBIs 34-44)			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-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 ***FY 2016 Plans:*** -Increase from FY 2015 to FY 2016 due to acquisition of two additional boosters for flight testing and additional GBI manufacturing costs. -Complete integration and delivery of remaining CE-II (Legacy) Ground Based Interceptors (GBIs) (34-44) -Initiate acquisition of two additional boosters for support of the Integrated Master Test Plan (IMTP) -Continue manufacturing 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			
Title: Ground Based Interceptor Reliability	-	41.594	239.669
Articles:	-	-	-
Description: The GBI reliability program is the analysis and testing necessary to characterize the reliability and service life of the GBI Fleet. The data generated from the reliability program is used by the Program Office to manage the GBI fleet, develop design improvements, develop fleet maintenance strategies, and to extend service life. The data is also used by MDA engineering in developing battle simulations for the ground test program; and by the Warfighter in developing tactics, techniques, and procedures. ***FY 2014 Accomplishments:*** -Located in Ground Based Interceptor accomplishment ***FY 2015 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 -Continue development of the probabilistic risk assessment model to characterize the reliability of the GBI fleet -Develop a GBI system level Failure Modes, Effects and Criticality Analysis (FMECA) using the probabilistic risk assessment model -Conduct rocket motor static firings to gain performance data on aged motors -Perform a process failure modes and effects analysis on GBI production -Continue to conduct aging, surveillance, and reverse flow testing on the Stockpile Reliability Program (SRP) GBIs removed from the fleet			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Evaluate Acceptance Test Procedure strategy and test levels for each GBI configuration -Continue to collect Reliability, Availability, Maintainability and Test (RAM-T) data and calculate and track performance metrics on the Operational System -Develop an All-Up Round (AUR) acquisition strategy that incorporates integrated boost vehicle improvements and the Redesigned Kill Vehicle (RKV)			
FY 2016 Plans: Increase from FY 2015 to FY 2016 due to: Upgrades to fielded CE-II GBIs to the proven Flight Test Ground-based Midcourse Defense-06b (FTG-06b) configuration, Enhanced Stockpile Reliability Program (SRP); Interceptor Rotations for BMDS Testing; Implementation of Independent Expert Panel recommendation for a rigorous GBI Design and Reliability Characterization (D&RC) program; GBI All-Up Round (AUR) system design, engineering, and component testing. -Complete upgrade and delivery of the fielded CE-II GBIs -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: --Design upgrades studies, Booster Avionics Module (BAM) level qualification testing and power on re-set trade study to address known flight test anomalies --Continue Configuration 2 (C2) Booster Reliability Demonstration Testing, electromagnetic interference/compatibility testing to quantify system performance and capability --Establish 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. Continue 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			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Conduct reliability demonstration testing and initiate highly accelerated life testing on a Stockpile Reliability Program (SRP) GBI removed from the fleet			
Title: Systems Engineering and Program Management	152.027	148.892	216.219
Articles:	-	-	-
Description: Ground-based Midcourse Defense (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 2014 Accomplishments: -Redefined GMD threat space from single threat system to multiple threat system and performed systems engineering activities to increase performance -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 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 initiated the code integration into a single BMDS framework to facilitate the interoperability between BMDS elements -Continued modeling and simulation verification and validation to establish high confidence in 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, pre- and post-flight test analysis for current and future flight and ground tests to assess system performance and implemented a rigorous test plan for verifying successful operation of capabilities delivered to the Warfighter			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Utilized Exoatmospheric Kill Vehicle (EKV) HWIL 10-foot vacuum space chamber (10V Chamber) for operational analysis of emerging threats 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 -Provided contractor program management, subcontract management, quality assurance, verification of hardware and software development, and technical and testing oversight to ensure program meets all cost, schedule, and performance requirements -Initiated development, testing and fielding a near term discrimination (NTD) capability through GMD Fire Control system (GFC)and Exoatmospheric Kill Vehicle (EKV) software -Developed the capability for GFC and EKV to utilize sensor inputs in support of Discrimination Improvements for Homeland Defense (DIHD) Near-Term capability -Completed development of ground test campaign requirements for DIHD Near-Term improvements -Conducted data collection and analysis for final assessment of discrimination technology candidates planned for DIHD Mid-term improvements -Initiated the purchase and installation of the additional hardware to represent current and future capabilities at existing GMD Models & Simulations venues (Integrated System Test Capability lab, Boeing GMD Simulation Lab, and AMRDEC Labs) in testing and performance assessments			
FY 2015 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 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 initiate the code integration into a single BMDS framework to facilitate the interoperability between BMDS elements -Continue modeling and simulation verification and validation to establish high confidence in Warfighter assessments -Support 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 -Continue design, planning, 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) HWIL 10-foot vacuum space chamber (10V Chamber) for operational analysis of emerging threats 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			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Provide contractor program management, subcontract management, quality assurance, verification of hardware and software development, and technical and testing oversight to ensure program meets all cost, schedule, and performance requirements -Continue development, testing and fielding a near term discrimination (NTD) capability through GMD Fire Control system (GFC) and Exoatmospheric Kill Vehicle (EKV) software -Continue Discrimination Improvements for Homeland Defense (DIHD) Near-Term capability developments -Continue integration phase of DIHD Near-Term ground testing via Ground Test Integrated-06 (GTI-06)			
FY 2016 Plans: -Increase from FY 2015 to FY 2016 due to: Acquisition of spare parts to minimize testing downtime in EKV Hardware-In-The-Loop (HWIL) Space Chamber; Enhanced Modeling and Simulation (M&S) capabilities with integration of the new wrapped tactical code; Upgrade and integrate GMD-level digital simulation (GMDSim)into Objective Simulation Framework (OSF); Initiate 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; Incorporate Independent Expert Panel recommendations to improve Systems Engineering processes that will increase system reliability and decrease late failure discovery/redesign. -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 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 GMD-level digital simulation (GMDSim) into the new Object Simulation Framework (OSF) -Continue modeling and simulation verification, validation, and accreditation (VV&A) to establish high confidence in Warfighter assessments -Continue design, planning, 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 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 program meets all cost, schedule, and performance requirements -Field Discrimination Improvements for Homeland Defense (DIHD) Near-term capability -Complete DIHD Near-term ground testing via ground test distributed (GTD-06)			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-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 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			
Title: Program Operations	93.281	109.655	136.641
Articles:	-	-	-
Description: Program Operations provides for government management of the Ground-based Midcourse Defense (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 2014 Accomplishments: -Provided technical and business management support activities, financial management, cost and schedule performance analysis, cost estimation and analysis, configuration management and integration activities, to the Program Director with critical program status and decision quality data -Ensured 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 -Conducted internal Baseline Execution Reviews (BER) 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			
FY 2015 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 the Program Director with critical program status and decision quality data -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 -Conduct internal Baseline Execution Reviews (BER) to measure program progress against the six Missile Defense Agency (MDA) approved baselines			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-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 -Establish Technical Direction Agent activities to provide the technical expertise and program execution experience required to offer the GMD Program Director 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 the GMD Program			
FY 2016 Plans: -Increase from FY 2015 to FY2016 due to: Incorporation of Independent Expert Panel recommendation for a Technical Direction Agent to provide independent analysis/assessments of GMD system; Core information technology and communications services; and MDA is budgeting for the Congressionally mandated Small Business Innovation Research / Small Business Technology Transfer (SBIR/STTR). -Provide technical and business management support activities, financial management, cost and schedule performance analysis, cost estimation and analysis, configuration management and integration activities, to the Program Director with critical program status and decision quality data -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 -Conduct internal Baseline Execution Reviews (BER) 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. -Continue Technical Direction Agent activities to provide the technical expertise and program execution experience required to offer the GMD Program Director independent assessment/analysis, unbiased and objective defensive weapon system level-			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
oriented advice on technical issues and product development, and providing recommendations on technical issues and product development challenges facing in the GMD Program			
Title: Ground Systems	75.896	114.036	166.052
Articles:	-	-	-
Description: The Ground-based Midcourse Defense (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 Communications System (IFICS) Data Terminal (IDT), Launch Site Components (LSC) (silos, silo interface vaults [SIVs]), and Launch Support Systems (LSS) (Command and Launch Equipment (CLE), which includes Launch Support Equipment (LSE). ***FY 2014 Accomplishments:*** -Delivered Ground Systems suite 6B2 to integrate the Clear, AK and Cape Cod, MA UEWR and Ft. Drum, NY IDT assets, support Space-Based Infrared System (SBIRS) interface changes, incorporate evolving threats, Warfighter requirements, and BMDS element interoperability associated changes -Continued Ground Systems suite 6B3 software development to include Near-Term Discrimination (NTD) capability, and design and develop Discrimination Improvements for Homeland Defense (DIHD) near term discrimination capability, including limited Reliability/Obsolescence/Technology Refresh of the Ground System hardware -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 -Initiated 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 -Initiated the Command Launch Equipment (CLE) Re-architecture Phase 1 to mitigate obsolescence, and increase reliability, sustainability, and availability of the CLE with added failover capability -Initiated the refurbishment, upgrade, blast shielding, and High Altitude Electromagnetic Pulse (HEMP) hardening of Missile Field 1 at Fort Greely, Alaska -Continue development of Command Launch Equipment (CLE) software and hardware to interface with the new tactical 3 Stage Configuration 2 (C2) (CBAU) Ground-Based Interceptor (GBI) -Continued upgrade of Telemetry and other Non-Tactical Equipment (NTE) at the Vandenberg AFB Launch Control Center (LCC) -Initiated the CONUS Interceptor Site (CIS) environmental impact statements ***FY 2015 Plans:*** -Complete Discrimination Improvements for Homeland Defense (DIHD) Near-Term capability developments -Initiate testing Ground Systems suite 6B3 software upgrade for Near-Term Discrimination (NTD) capability, and DIHD near term discrimination capability, including limited Reliability/Obsolescence/Technology Refresh of the Ground System hardware			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Complete integration phase of DIHD Near-Term ground testing via Ground Test Integrated-06 (GTI-06) -Continue 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 -Continue 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 -Continue the refurbishment, upgrade, blast shielding, and High Altitude Electromagnetic Pulse (HEMP) hardening of Missile Field 1 at Fort Greely, Alaska -Continue design and development of Command Launch Equipment (CLE) software 6B3.1 and hardware to interface with the new tactical 3 Stage Configuration 2 (C2) (CBAU) Ground-Based Interceptor (GBI) -Initiate 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. -Initiate design and development efforts for Ground Systems suite 7B upgrade for DIHD Mid-Term discrimination capability -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 2016 Plans: -Increase from FY 2015 to FY 2016 due to: Initiation of On-Demand Communications capability for improved Redesigned Kill Vehicle (RKV) systems discrimination data, directed engagements and hit assessments and Continuation of Command Launch Equipment (CLE) Re-architecture Phase 1 to mitigate obsolescence and increase reliability, sustainability, and failover capability. -Field Ground Systems suite 6B3 software upgrade for Near-Term Discrimination (NTD) capability, and DIHD near-term discrimination 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 DIHD 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 BMDS Overhead Persistent Infra-red (OPIR) architecture sensor assets into the GMD configuration - Continue Technology Refresh to address obsolescence issues to support improved availability, reliability, sustainability, and Cybersecurity posture -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 High Altitude Electromagnetic Pulse (HEMP) hardening of Missile Field 1 at Fort Greely, Alaska			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-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			
Accomplishments/Planned Programs Subtotals	967.394	812.886	1,225.161

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603294C: *Common Kill Vehicle Technology*	67.796	25.639	46.753	-	46.753	75.262	71.476	86.814	99.701	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	340.391	270.901	233.588	-	233.588	228.437	142.363	140.740	141.733	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	390.207	428.277	450.085	-	450.085	461.759	423.843	442.926	460.112	Continuing	Continuing
• 0603907C: *Sea Based X-Band Radar (SBX)*	70.336	64.409	72.866	-	72.866	71.267	75.760	72.319	87.058	Continuing	Continuing
• 0604873C: *Long Range Discrimination Radar (LRDR)*	-	50.500	137.564	-	137.564	154.327	147.562	132.905	77.679	Continuing	Continuing
• 0604874C: *Improved Homeland Defense (HLD) Interceptors*	-	99.500	278.944	-	278.944	279.565	71.663	14.004	14.251	Continuing	Continuing
• 0604887C: *Ballistic Missile Defense Midcourse Defense Segment Test*	-	79.877	64.618	-	64.618	73.485	81.385	73.848	94.954	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Ground-based Midcourse Defense (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.

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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.

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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Based Interceptor - Component Lab Testing	MIPR	NASA : WSTF/NM	0.000	0.906		-		-		-		-	-	0.906	-
Ground Based Interceptor - Currently Fielded CE-II Upgrades	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	78.170		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - FTG-07 Mitigations	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	70.985		-		-		-		-	-	70.985	-
Ground Based Interceptor - GBI Prime Product Support	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	1.072	42.335		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - Interceptor Manufacturing Support	MIPR	NASA MSFC& AMRDEC, HSV, AL : Draper Laboratory, MA; Vanguard, HSV, AL	1.008	0.060		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - Kill Vehicle Concepts & Requirements Development	C/CPFF	Boeing, AL/ Raytheon : AL/ Lockheed Martin, AL	0.000	8.595		-		-		-		-	-	8.595	-
Ground Based Interceptor - Prime Alternate Thruster Program	SS/CPAF	Boeing AL/AK/AZ : CA/CO/TX/VA	67.977	31.524		-		-		-		-	-	99.501	-
Ground Based Interceptor - Prime Component Lab Testing	C/CPIF	Boeing AL/AK/AZ/ CA : CO/TX/VA	59.379	0.669		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - Prime Ground Based Interceptors 34-44	SS/CPAF	Boeing AL/AK/AZ : CA/CO/TX/VA	748.680	166.379		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - Prime Ground Based Interceptors 48-58	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	88.003	124.627		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - Prime New Interceptor Development (CBAU)	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	138.807	29.244		-		-		-		-	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Based Interceptor - Prime Reliability Program	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	40.906	25.176		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - Prime Software Maintenance & Updates	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	21.884	19.049		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - Prime Upgrades & Operational Spares	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	138.758	19.845		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - Reliability Program	MIPR	AMRDEC / Redstone Arsenal, AL : NSWC Crane, Indiana	1.088	4.048		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - Rotations for Ballistic Missile Defense System Level Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	245.810	20.825		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - Upgrades for BMDS Level Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	1.124	3.753		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor Development - Prime Alternate Thruster Program	SS/CPAF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		38.746		24.798		-		24.798	Continuing	Continuing	Continuing
Ground Based Interceptor Development - Component Lab Testing	MIPR	NASA : WSTF/NM	0.000	-		1.359		-		-		-	-	1.359	-
Ground Based Interceptor Development - FTG-07 Mitigations	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		10.685		-		-		-	-	10.685	-
Ground Based Interceptor Development - GBI Functional Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		-		6.732		-		6.732	Continuing	Continuing	Continuing
Ground Based Interceptor Development - Prime	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		27.900		51.200		-		51.200	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
2 Stage Mode Booster Development															
Ground Based Interceptor Development - Prime Component Lab Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		1.136		2.177		-		2.177	Continuing	Continuing	Continuing
Ground Based Interceptor Development - Prime New Interceptor Development (CBAU)	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		10.613		1.819		-		1.819	-	12.432	-
Ground Based Interceptor Development - Prime Software Maintenance & Updates	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		10.013		9.127		-		9.127	Continuing	Continuing	Continuing
Ground Based Interceptor Development - Rotations for Ballistic Missile Defense System Level Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		11.784		8.421		-		8.421	Continuing	Continuing	Continuing
Ground Based Interceptor Development - Upgrades for BMDS Level Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		0.257		0.090		-		0.090	Continuing	Continuing	Continuing
Ground Based Interceptor Manufacturing - 2 Additional Boosters for Flight Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		-		41.400		-		41.400	Continuing	Continuing	Continuing
Ground Based Interceptor Manufacturing - GBI Prime Product Support	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		46.028		48.464		-		48.464	Continuing	Continuing	Continuing
Ground Based Interceptor Manufacturing - Interceptor Manufacturing Support	MIPR	NASA MSFC& AMRDEC, HSV, AL : Draper Laboratory, MA; Vanguard, HSV, AL	0.000	-		3.260		3.595		-		3.595	Continuing	Continuing	Continuing
Ground Based Interceptor Manufacturing - Prime	C/CPAF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		74.500		86.407		-		86.407	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Based Interceptors 34-44															
Ground Based Interceptor Manufacturing - Prime Ground Based Interceptors 48-58	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		156.928		171.225		-		171.225	Continuing	Continuing	Continuing
Ground Based Interceptor Manufacturing - Prime Reliability & Systems Engineering Program	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		5.500		11.125		-		11.125	Continuing	Continuing	Continuing
Ground Based Interceptor Reliability - CBAU 2/3 Stage Design Robustness	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		-		21.866		-		21.866	Continuing	Continuing	Continuing
Ground Based Interceptor Reliability - CBAU 2/3 Stage Reliability Demonstration Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		-		37.480		-		37.480	Continuing	Continuing	Continuing
Ground Based Interceptor Reliability - Configuration Database	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		-		3.493		-		3.493	Continuing	Continuing	Continuing
Ground Based Interceptor Reliability - Currently Fielded CE-II Upgrades	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		14.070		128.535		-		128.535	Continuing	Continuing	Continuing
Ground Based Interceptor Reliability - Prime Reliability Program	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		18.470		33.983		-		33.983	Continuing	Continuing	Continuing
Ground Based Interceptor Reliability - Prime Upgrades & Operational Spares	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		2.000		6.814		-		6.814	Continuing	Continuing	Continuing
Ground Based Interceptor Reliability - Reliability Program	MIPR	AMRDEC / Redstone Arsenal, AL : NSWC Crane, IN	0.000	-		7.054		7.498		-		7.498	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Systems - CLE Re-Architecture	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	0.000	3.177		9.032		24.100		-		24.100	Continuing	Continuing	Continuing
Ground Systems - CONUS Interceptor Site Environmental Impact Statements	MIPR	Various : AL/VA	3.327	10.000		-		-		-		-	-	13.327	-
Ground Systems - Communications Infrastructure	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	0.000	1.726		0.643		2.211		-		2.211	Continuing	Continuing	Continuing
Ground Systems - Fort Drum IDT	MIPR	MDA/AL : /VA/NY	0.093	0.282		0.496		0.496		-		0.496	Continuing	Continuing	Continuing
Ground Systems - HW/SW Updates for 2/3 Stage GBI	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	0.000	-		-		10.700		-		10.700	Continuing	Continuing	Continuing
Ground Systems - On Demand Communications	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	0.000	-		-		34.850		-		34.850	Continuing	Continuing	Continuing
Ground Systems - Prime Fort Drum IDT	C/CPIF	Boeing AL : CO/NY/ VA	5.365	0.965		3.813		-		-		-	-	10.143	-
Ground Systems - Prime Ground Systems Software Development	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	140.932	52.076		59.670		56.916		-		56.916	Continuing	Continuing	Continuing
Ground Systems - Prime MF-1 Repair and Refurbishment	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	0.000	0.271		28.417		22.011		-		22.011	Continuing	Continuing	Continuing
Ground Systems - Technology Refresh	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	0.000	4.620		11.965		9.943		-		9.943	Continuing	Continuing	Continuing
Ground Systems - Upgrades for BMDS Level Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	1.444	2.779		-		4.825		-		4.825	Continuing	Continuing	Continuing
		Subtotal	1,705.657	722.086		554.339		872.301		-		872.301	-	-	-

Remarks

Ground Based Interceptor accomplishment is broken into 3 new accomplishments starting in FY 2015: Ground Based Interceptor Development, Ground Based Interceptor Manufacturing, and Ground Based Interceptor Reliability

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering and Program Management - EKV HWIL Tests in Space Chamber	MIPR	AEDC : Tullahoma, TN	4.475	4.988		5.000		11.204		-		11.204	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Model & Simulations Support	MIPR	Various : AL/VA	0.000	11.603		9.875		10.237		-		10.237	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Modeling and Simulation	MIPR	SED and Morrow Labs : Redstone Arsenal/AL	16.113	13.181		14.625		36.900		-		36.900	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	61.223	2.349		2.376		2.220		-		2.220	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Prime Modeling and Simulation	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	119.939	15.248		19.578		20.769		-		20.769	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Prime Requirements Assessments Verification	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	-		0.618		24.418		-		24.418	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Prime System Engineering and Integration	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	230.006	33.032		33.996		36.320		-		36.320	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Prime-Program Management	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	26.347	56.926		52.089		53.955		-		53.955	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Systems Engineering & Analysis	MIPR	Various : AL/VA	0.000	9.607		6.945		6.940		-		6.940	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering and Program Management - Systems Engineering & Analysis - CSS Support	C/CPFF	CSC : AL	0.000	-		-		5.092		-		5.092	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Systems Engineering & Analysis – FFRDC / UARC	MIPR	Various : AL/VA	0.000	-		0.583		1.205		-		1.205	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Systems Engineering & Analysis – Industry Support	C/CPAF	Boeing : AL	0.000	5.093		3.207		6.959		-		6.959	Continuing	Continuing	Continuing
Program Operations - Contract Support Services	C/CPFF	Various : AL/AK/CA/CO/VA	272.501	47.244		45.440		43.611		-		43.611	Continuing	Continuing	Continuing
Program Operations - FFRDC Support	MIPR	MIT/LL : AL/VA/CO	27.743	8.676		10.436		8.630		-		8.630	Continuing	Continuing	Continuing
Program Operations - Government Civilian Salaries	MIPR	MDA : AL/VA	142.450	30.271		31.144		31.918		-		31.918	Continuing	Continuing	Continuing
Program Operations - Government Furnished Equipment	MIPR	MDA : AL/AK/CA/VA	0.000	-		2.645		5.382		-		5.382	Continuing	Continuing	Continuing
Program Operations - ICT	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	-		-		13.513		-		13.513	Continuing	Continuing	Continuing
Program Operations - Misc Software/BB/PCS	MIPR	MDA : AL/CA/VA/CO/AK	1.312	0.783		0.394		0.335		-		0.335	Continuing	Continuing	Continuing
Program Operations - Other Govt Agencies	MIPR	Various : AL/VA/FL/CO	24.783	4.862		4.864		4.973		-		4.973	Continuing	Continuing	Continuing
Program Operations - Safety and Quality	MIPR	MDA : AL/AK/CA/VA	0.390	0.050		0.073		0.048		-		0.048	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Operations - Small Business Innovation Research (SBIR)	MIPR	MDA : AL/VA	0.000	-		0.313		11.813		-		11.813	Continuing	Continuing	Continuing
Program Operations - Technical Direction Agent	MIPR	Various : Various	0.000	-		13.000		15.300		-		15.300	Continuing	Continuing	Continuing
Program Operations - Travel	MIPR	MDA : AL/VA	3.263	1.395		1.346		1.118		-		1.118	Continuing	Continuing	Continuing
		Subtotal	930.545	245.308		258.547		352.860		-		352.860	-	-	-

Remarks

N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
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*	

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2,636.202	967.394		812.886		1,225.161		-		1,225.161	-	-	-

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 2016 Missile Defense Agency		Date: February 2015
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*

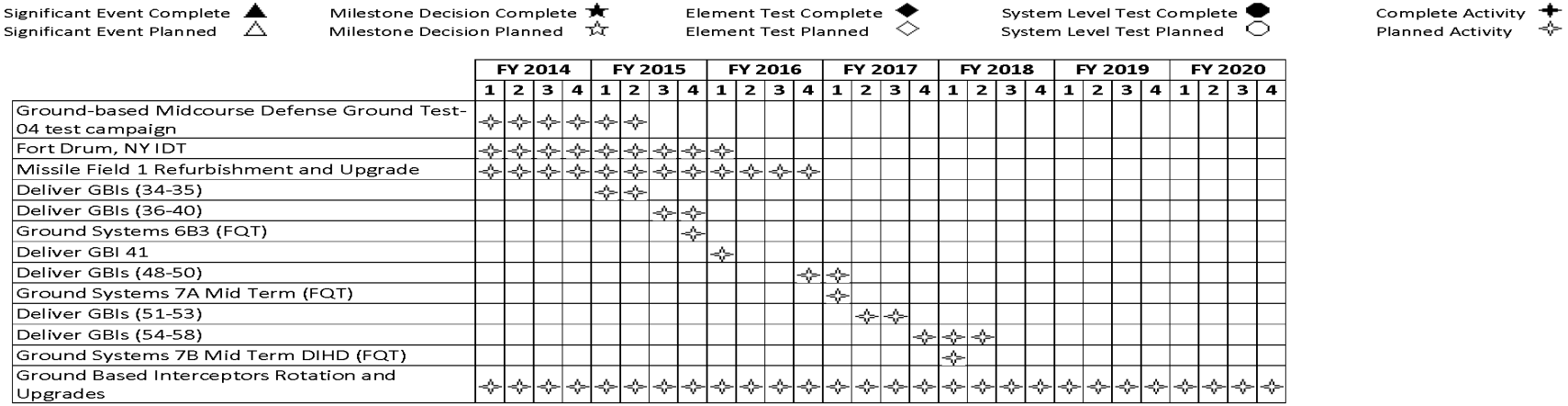

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Ground-based Midcourse Defense Ground Test-04 test campaign	1	2014	2	2015
Fort Drum, NY IDT	1	2014	1	2016
Missile Field 1 Refurbishment and Upgrade	1	2014	4	2016
Deliver GBIs (34-35)	1	2015	2	2015
Deliver GBIs (36-40)	3	2015	4	2015
Ground Systems 6B3 (FQT)	4	2015	4	2015
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	3	2017
Deliver GBIs (54-58)	4	2017	2	2018
Ground Systems 7B Mid Term DIHD (FQT)	1	2018	1	2018
Ground Based Interceptors Rotation and Upgrades	1	2014	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MC08: *Cyber Operations*	-	3.373	2.938	3.217	-	3.217	3.285	3.340	3.406	3.475	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

The funding in this project sustains Missile Defense Agency (MDA) Department of Defense (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 Ground-based Midcourse Defense (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 2014	FY 2015	FY 2016
Title: Network / System Certification and Accreditation (C&A)	3.373	2.938	3.217
Articles:	-	-	-
Description: The Network/Systems Certification and Accreditation project sustains the Missile Defense Agency (MDA) Department of Defense (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 2014 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 2016 Missile Defense Agency		Date: February 2015
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 2014	FY 2015	FY 2016
-Planned and tested 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 2015 Plans:*** -Provide Ground-based Midcourse Defense (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 Ballistic Missile Defense System (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 2016 Plans:*** -Provide Ground-based Midcourse Defense (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 Ballistic Missile Defense System (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	3.373	2.938	3.217

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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 2016 Missile Defense Agency		Date: February 2015
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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Network / System Certification and Accreditation (C&A) - BMDS CND/IA Advisory and Assistance Services	C/CPFF	Booz Allen Hamilton : MDA AL	0.000	0.725		0.773		0.723		-		0.723	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - CND/IA Advisory and Assistance Services	C/CPFF	Torch Technologies : MDA AL	0.000	1.911		1.425		1.747		-		1.747	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Civilian Salaries	MIPR	MDA : AL/VA	0.000	0.737		0.740		0.747		-		0.747	Continuing	Continuing	Continuing
		Subtotal	0.000	3.373		2.938		3.217		-		3.217	-	-	-

Remarks

N/A

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	3.373		2.938		3.217		-		3.217	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
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 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020			
	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-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
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	2014	4	2020
GMD Cybersecurity Program Policy / Risk Management	1	2014	4	2020
GMD Information Assurance Certification and Accreditation (C&A) Package Preparation/ Submission	1	2014	4	2020
GMD Transition to Cybersecurity Risk Management Framework (CRMF)	1	2014	4	2020
BMDS Cybersecurity Policy Development	1	2014	4	2020

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	Project (Number/Name) MT08 / *Ground Based Midcourse Test*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MT08: *Ground Based Midcourse Test*	69.419	59.372	-	-	-	-	-	-	-	-	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2015, the MT08 Ground Based Midcourse Test project was transferred to PE 0604887C: Ballistic Missile Defense Midcourse Segment Test in accordance with Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act.

A. Mission Description and Budget Item Justification

Ground-based Midcourse Test consists of three accomplishment areas; Resources, Flight Test Execution, and Ground Test Execution. Resources consist of the support and framework required to successfully conduct both flight and ground testing. Flight Test Execution and Ground Test Execution accomplishments consist of the execution of the individual tests.

Ground-based Midcourse Defense (GMD) executes an enhanced test program that includes expanding our flight and ground test programs to demonstrate our Initial Homeland Defense and Enhanced Homeland Defense capabilities against long-range threats. The GMD elements of the BMDS Integrated Master Test Plan (IMTP) are intended to demonstrate the integrated missile defense capabilities under development and ensure the capabilities delivered to the Warfighter are operationally effective, suitable, and survivable.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Resources	19.780	-	-
Articles:	-	-	-
Description: Provides support associated with day-to-day operations of the flight and ground test programs to include engineering support for ground test planning, execution, and post-event reconstruction.			
FY 2014 Accomplishments: -Provided test infrastructure and coordination of flight test range support from Vandenberg Air Force Base, California for all range activities, engineering, operators and GBI transportation, including preparation for the first GBI salvo flight test -Provided Ballistic Missile Defense System (BMDS) flight and ground test execution situational awareness through the use of the Missile Defense Agency Integration and Operations Center (MDIOC) housing flight, ground and operational controlled assets of the GMD system from Colorado Springs, CO -Supported pre- and post-flight test mission communications to include fulfillment of requirements and data analysis -Provided System Test Lab support to the engineering, accreditation, operations and maintenance of Flight and Ground Test Programs			

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MT08 / *Ground Based Midcourse Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
-Supported risk reduction testing through the use of the Prime Consolidated Integration Lab designed for engineering and integration activities leading up to scheduled flight tests and supported by appropriate analysts, environments and equipment ***FY 2015 Plans:*** -Located in PE 0604887C: Ballistic Missile Defense Midcourse Segment Test in MT08 ***FY 2016 Plans:*** -Located in PE 0604887C: Ballistic Missile Defense Midcourse Segment Test in MT08			
Title: Flight Test Execution	34.327	-	-
Articles:	-	-	-
Description: Flight tests demonstrate the capabilities and/or phenomenology that cannot be adequately tested or obtained during ground testing. Flight tests also provide opportunities to test actual hardware and to demonstrate Ballistic Missile Defense System (BMDS) Element interoperability under operationally realistic conditions. ***FY 2014 Accomplishments:*** -Conducted Flight Test Ground-based Midcourse Defense-06b (FTG-06b), a 3-stage Capability Enhancement II (CE-II) intercept engagement with associated objects, using a GBI launched from Vandenberg Air Force Base, California against a target launched from Reagan Test Site (RTS) -Initiated planning for Ground-based Midcourse Defense Control Test Vehicle-02+ (CTV-02+), a 3-stage Capability Enhancement II (CE-II) non intercept engagement using a GBI launched from Vandenberg Air Force Base, California against an intermediate-range ballistic missile (IRBM)air-launched target with associated object, utilizing resources previously planned for Flight Test Ground-based Midcourse Defense-09 (FTG-09) per revised MDA Integrated Master Test Plan -Re-phased Flight Test Ground-based Midcourse Defense-11 (FTG-11), a salvo intercept test of two GBIs against one Intercontinental Ballistic Missile (ICBM) target using GBIs launched from Vandenberg Air Force Base, California from 3QFY 2020 to 4QFY 2017 and continuing range infrastructure upgrade studies in preparation for planning for the Flight Test Ground-based Midcourse Defense-11 (FTG-11) -Collected Critical Engagement Conditions (CEC) / Empirical Measurement Events (EME) data that validates Models and Simulations (M&S) ***FY 2015 Plans:*** -Located in PE 0604887C: Ballistic Missile Defense Midcourse Segment Test in MT08 ***FY 2016 Plans:*** -Located in PE 0604887C: Ballistic Missile Defense Midcourse Segment Test in MT08			
Title: Ground Test Execution	5.265	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MT08 / *Ground Based Midcourse Test*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Articles:	-	-	-
Description: Ground tests demonstrate and validate Warfighter tactics, techniques, and procedures. Ground tests are executed both in the Hardware-in-the-loop (HWIL) lab and in the field. HWIL lab tests integrate and assess Ballistic Missile Defense System (BMDS) system- level performance based on new element capabilities. Ground tests in the field use existing fielded element assets and tactical communication networks, to integrate, assess and demonstrate the new element capabilities. ***FY 2014 Accomplishments:*** -Continued to support execution of BMDS Ground Test-04 test campaign to assess BMDS capabilities with integration of additional BMDS sensors -Completed Ground Test Integrated-04e (GTI-04e) Part 2 execution of BMDS Ground Test-04 campaign -Supported planning of BMDS Ground Test-06 test campaign to assess BMDS capabilities with integration of additional BMDS assets (Ft. Drum, NY In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT), Clear and Cape Cod Upgraded Early Warning Radar (UEWR) Integration, and the Space-Based Infrared System (SBIRS) Increment 2 Change) ***FY 2015 Plans:*** -Located in PE 0604887C: Ballistic Missile Defense Midcourse Segment Test in MT08 ***FY 2016 Plans:*** -Located in PE 0604887C: Ballistic Missile Defense Midcourse Segment Test in MT08			
Accomplishments/Planned Programs Subtotals	59.372	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
• 0603914C: *Ballistic Missile Defense Test*	342.695	366.302	274.323	-	274.323	298.390	345.333	330.404	350.747	Continuing	Continuing
• 0603915C: *Ballistic Missile Defense Targets*	501.170	455.068	513.256	-	513.256	585.727	484.242	442.202	460.945	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Ground-based Midcourse Defense (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 system performance and interceptor reliability in order to retain the proven GMD contribution to the Integrated Ballistic Missile Defense System (BMDS). This acquisition approach minimizes the risk of parts availability, provides opportunities

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MT08 / *Ground Based Midcourse Test*

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.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MT08 / *Ground Based Midcourse Test*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Resources - Ballistic Missile Defense System Hardware-In-The-Loop	C/CPIF	Boeing AL/AK/AZ/ CA : CO/TX/VA	7.754	9.083		-		-		-		-	-	16.837	-
		Subtotal	7.754	9.083		-		-		-		-	-	16.837	-

Remarks

N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Resources - Government Infrastructure Support, Labs, and Communications	MIPR	VAFB/AL : CO	5.052	4.815		-		-		-		-	-	9.867	-
Resources - Prime Infrastructure Support, Labs, and Communications	C/CPAF	Boeing AL/AK/AZ/ CA : CO/TX/VA	5.305	5.882		-		-		-		-	-	11.187	-
Flight Test Execution - Planning and Silo Refurbishment	C/CPAF	Boeing AL/AK/AZ/ CA : CO/OR/TX/VA	30.112	18.669		-		-		-		-	-	48.781	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MT08 / *Ground Based Midcourse Test*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Flight Test Execution - Range, Resources, and Engineering	MIPR	VAFB/CO : PMRF	17.521	15.658		-		-		-		-	-	33.179	-
Ground Test Execution - Ground Test-04 Campaign	C/CPAF	Boeing AL/AK/AZ/ CA : CO/TX/VA	3.675	5.065		-		-		-		-	-	8.740	-
Ground Test Execution - Ground Test-06 Campaign	C/CPAF	Boeing AL/AK/AZ/ CA : CO/TX/VA	0.000	0.200		-		-		-		-	-	0.200	-
		Subtotal	61.665	50.289		-		-		-		-	-	111.954	-

Remarks

N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	69.419	59.372		-		-		-		-	-	128.791	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MT08 / *Ground Based Midcourse Test*

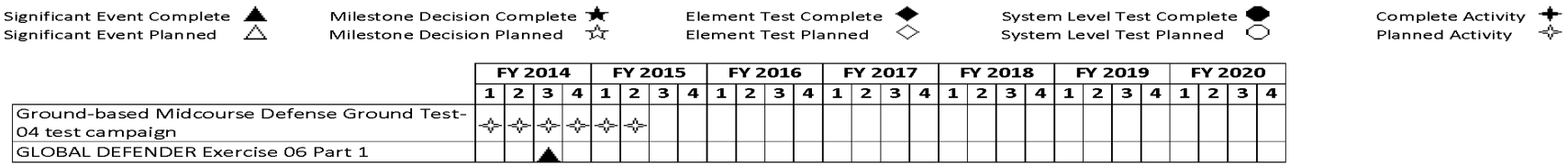

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MT08 / *Ground Based Midcourse Test*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Ground-based Midcourse Defense Ground Test-04 test campaign	1	2014	2	2015
GLOBAL DEFENDER Exercise 06 Part 1	3	2014	3	2014

Note

Notes: CTV - Controlled Test Vehicle; GTI - Ground Test Integrated; GTD - Ground Test Distributed; GTX - Ground Test Exercise; GDEx - Global Defender Exercise; FTG - Flight Test Ground-Based Interceptor; FTO - Flight Test Operational; FTX - Flight Test Exercise

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	Project (Number/Name) MX08 / *Ground Based Midcourse Development Support*	

COST ($ in Millions)	Prior Years	FY 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MX08: *Ground Based Midcourse Development Support*	-	2.868	-	-	-	-	-	-	-	-	-	2.868
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Moved to Operations and Maintenance, Defense-Wide appropriation

A. Mission Description and Budget Item Justification

Missile Defense Agency (MDA) will continue to provide for the operations, training, and sustainment of Ground-based Midcourse Defense (GMD) fielded capability at Fort Greeley, Alaska; Eareckson Air Station, Alaska; Vandenberg Air Force Base, California; the Missile Defense Integration Operations Center (MDIOC), Colorado and across the nation-wide GMD Communications Network.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Sustainment	2.868	-	-
Articles:	-	-	-
Description: The Operations and Sustainment (O&S) mission provides for the operations, maintenance, repair, training, and sustaining engineering of the Ground-based Midcourse Defense (GMD) System. In addition to the above, O&S provides base operations support for GMD facilities in Colorado Springs, Colorado; Vandenberg Air Force Base, California; Fort Greely, Alaska and Eareckson Air Station, Alaska.			
FY 2014 Accomplishments: -Transported Missile Defense Agency (MDA), Ground-based Midcourse Defense (GMD) hardware from Continental United States (CONUS) locations to/from Alaska sites -Prepared Fort Drum Interceptor Data Terminal Complex for cabling and fiber optic connections and installation -Provided funding for Exoatmospheric Kill Vehicle chamber calibration and support			
FY 2015 Plans: N/A			
FY 2016 Plans: N/A			
Accomplishments/Planned Programs Subtotals	2.868	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MX08 / *Ground Based Midcourse Development Support*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The Ground-based Midcourse Defense (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 system performance and interceptor reliability in order to retain the proven GMD contribution to the Integrated Ballistic Missile Defense System (BMDS). This acquisition approach minimizes the risk of parts availability, 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. GMDs DSC 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.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency			Date: February 2015
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	Project (Number/Name) MX08 / *Ground Based Midcourse Development Support*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Sustainment - EKV Chamber Calibration and Support	MIPR	Air Force Metrology and Calibration / OH : ARRDEC / AL	0.000	1.462		-		-		-		-	-	1.462	-
Sustainment - Ft Drum IDT	MIPR	MDA : AL/VA	0.000	0.355		-		-		-		-	-	0.355	-
Sustainment - GM Site Sustainment Operations	MIPR	FGA BOS : JRDC / CS	0.000	0.051		-		-		-		-	-	0.051	-
Sustainment - Interceptor Transportation	Various	US TRANSCOM : Scott AFB/ IL	0.000	1.000		-		-		-		-	-	1.000	-
		Subtotal	0.000	2.868		-		-		-		-	-	2.868	-

Remarks

N/A

	Prior Years	FY 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	2.868		-		-		-		-	-	2.868	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MX08 / *Ground Based Midcourse Development Support*

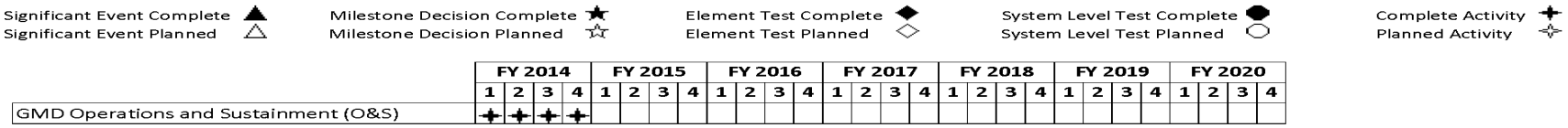

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MX08 / *Ground Based Midcourse Development Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
GMD Operations and Sustainment (O&S)	1	2014	4	2014

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency			Date: February 2015
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 2014	FY 2015	FY 2016 Base	FY 2016 OCO	FY 2016 Total	FY 2017	FY 2018	FY 2019	FY 2020	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	92.893	31.438	58.099	56.513	-	56.513	44.272	41.143	48.135	49.451	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

In FY 2015 and FY 2016, Program Wide Support reflects a proportional change as a result of increases 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

Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. 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 and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support 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 Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2014	FY 2015	FY 2016
Title: Program Wide Support	31.438	58.099	56.513
Articles:	-	-	-
Description: N/A			
FY 2014 Accomplishments: See paragraph A: Mission Description and Budget Item Justification			
FY 2015 Plans: See paragraph A: Mission Description and Budget Item Justification			
FY 2016 Plans: See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	31.438	58.099	56.513

Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency		Date: February 2015
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 2016 Missile Defense Agency		Date: February 2015
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 2014 Cost	FY 2014 Award Date	FY 2015 Cost	FY 2015 Award Date	FY 2016 Base Cost	FY 2016 Base Award Date	FY 2016 OCO Cost	FY 2016 OCO Award Date	FY 2016 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	10.558	0.900		1.916	Mar 2015	0.010	Mar 2016	-		0.010	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Civilian Salaries, Travel, Training	Allot	MDA : Multi: AK, AL, CA, CO, VA	66.780	28.626		38.133	Nov 2014	42.928	Oct 2015	-		42.928	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	-		12.032	Nov 2014	1.568	Nov 2015	-		1.568	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	-		-		0.010	Apr 2016	-		0.010	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AK, AL,CA, CO, HI, VA	0.000	1.912		0.321	Feb 2015	11.997	Feb 2016	-		11.997	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Sustainment Transportation	Reqn	Various : AK, AL, CA	0.000	-		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - FFRDC/UARC	C/CPFF	Utah St Univ; JHU/ APL LLC : Multi: MD, UT	1.260	-		-		-		-		-	3.500	4.760	-
Program Wide Support - Facilities and Maintenance	MIPR	Various : Multi: AK, AL, CA, VA	3.000	-		5.697	Mar 2015	-		-		-	Continuing	Continuing	Continuing
		Subtotal	92.893	31.438		58.099		56.513		-		56.513	-	-	-

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 2016 Missile Defense Agency			Date: February 2015
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 2014		FY 2015		FY 2016 Base		FY 2016 OCO		FY 2016 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	92.893	31.438		58.099		56.513		-		56.513	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency		Date: February 2015
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*

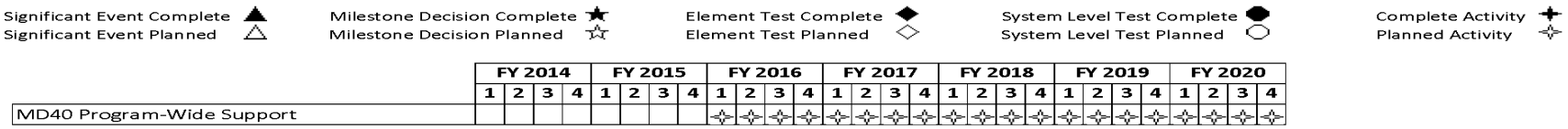

Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency		Date: February 2015
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD40 / *Program-Wide Support*

Schedule Details

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