Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Missile Defense Agency											Date: March 2014	
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 2013**	**FY 2014**	**FY 2015 Base**	**FY 2015 OCO #**	**FY 2015 Total**	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**Cost To Complete**	**Total Cost**
Total Program Element	2,270.548	923.506	910.852	1,003.768	-	1,003.768	1,131.060	937.998	690.524	628.342	Continuing	Continuing
MD08: *Ground Based Midcourse*	2,222.990	679.108	759.249	763.354	-	763.354	746.987	551.889	491.651	505.671	Continuing	Continuing
MD97: *Improved Homeland Defense (HLD) Interceptors*	-	-	-	99.500	-	99.500	264.000	261.500	67.000	13.000	Continuing	Continuing
MC08: *Cyber Operations*	-	-	2.124	2.938	-	2.938	2.957	2.997	3.028	3.105	Continuing	Continuing
MT08: *Ground Based Midcourse Test*	-	69.419	98.873	79.877	-	79.877	50.667	62.668	82.191	61.695	Continuing	Continuing
MX08: *Ground Based Midcourse Development Support*	-	129.644	-	-	-	-	-	-	-	-	-	129.644
MD40: *Program-Wide Support*	47.558	45.335	50.606	58.099	-	58.099	66.449	58.944	46.654	44.871	Continuing	Continuing
MDAP/MAIS Code: 362												

The FY 2015 OCO Request will be submitted at a later date.

Note

N/A

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). The 30 operationally deployed GBIs located at Fort Greely, Alaska (26 GBIs) and Vandenberg Air Force Base, California (4 GBIs) each deliver 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 Japan, Alaska, California, United Kingdom, 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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Missile Defense Agency	Date: March 2014
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*

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

The ICBM threat that endangers the United States is projected to make significant progress over the next decade in quantity of threats, in rapid launch timeline with no warning, and in complexity with the use of countermeasures. To counter this evolving threat, MDA intends to upgrade several key components of the BMDS and GMD (i.e., Long Range Discriminating Radar (LRDR) and Discrimination Improvements for Homeland Defense (DIHD)). Additionally, MDA is developing a GMD redesigned Exoatmospheric Kill Vehicle (EKV) that will address the following three areas: design to the evolving threat for increased performance; improve reliability, availability, maintainability, testability, and producibility; and increase in-flight communications to improve usage of off-board sensors information and situational awareness to combatant commanders for enabling new tactics such as shoot-assess-shoot.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management costs in support of the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS).

B. Program Change Summary ($ in Millions)	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total
Previous President's Budget	903.172	1,033.903	1,045.500	-	1,045.500
Current President's Budget	923.506	910.852	1,003.768	-	1,003.768
Total Adjustments	20.334	-123.051	-41.732	-	-41.732
• Congressional General Reductions	-1.291	-0.195			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	75.000	20.000			
• Congressional Directed Transfers	-	-142.856			
• Reprogrammings	36.572	-			
• SBIR/STTR Transfer	-11.392	-			
• Other Adjustment	-78.555	-	-41.732	-	-41.732

Change Summary Explanation

FY 2014 Congressional add of $20.000 million for CONUS Interceptor Site and Congressional transfer of $142.856 million from RDT&E to O&M, Defense-Wide.

Exhibit R-2, RDT&E Budget Item Justification: PB 2015 Missile Defense Agency	Date: March 2014
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*

FY 2015 realignment of $146.218 million to O&M Defense Wide for MDA Ground-based Midcourse Defense (GMD) sustainment operations. Realignment of $57.414 million for Department of Defense priorities. There were also increases of $62.400 million for Discrimination Improvement Homeland Defense and $99.500 million for Improvement of Homeland Defense Interceptors.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency			Date: March 2014
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 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
MD08: *Ground Based Midcourse*	2,222.990	679.108	759.249	763.354	-	763.354	746.987	551.889	491.651	505.671	Continuing	Continuing
Quantity of RDT&E Articles	5.000	5.000	1.000	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

Note

N/A

A. Mission Description and Budget Item Justification

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

The focus of the GMD program is to enhance the reliability of Ground Based Interceptors (GBIs) to support the maximum probability of successful intercepts against limited Intercontinental Ballistic Missiles (ICBMs) - greatest protection at lowest cost.

GMD plans to confirm and improve the reliability of GBIs by instituting the GBI Reliability Growth Testing Program and the Component Reliability Program by conducting flight and ground tests, analyzing performance trends, and identifying reliability improvements for GBI component hardware. Testing of deployed GBIs will demonstrate current reliability while companion efforts on assemblies and components ensure that ongoing fleet upgrades to eliminate known risks are effective.

In FY 2011, a Failure Review Board (FRB) determined the cause of unsuccessful intercept of Flight Test Ground-based Midcourse Defense-06a (FTG-06a). GMD is incorporating the Agency's direction to reduce concurrency risk in the Return to Intercept (RTI) Systems Engineering and Test activities and establish a spiral manufacturing approach to deliver the remaining CE-II GBIs. GMD is executing a RTI program that addresses the root cause; develops modified designs; confirms a solution to the issue through intensive ground testing; conducts non-intercept flight tests, Controlled Test Vehicle (CTV-01); and an intercept test mission, Flight Test Ground-based Midcourse Defense-06b (FTG-06b).

In FY 2013, as a result of an unsuccessful Flight Test Ground-Based Midcourse Defense-07 (FTG-07), MDA established a Failure Review Board (FRB) to identify root cause of the Exoatmospheric Kill Vehicle (EKV) separation failure. The most likely root cause has been determined. Design and testing to determine the best mitigation approach is ongoing.

GMD has built sub-assemblies not affected by FTG-06a and FTG-07 root cause failure for the Interceptors (GBIs 34-44) in preparation for Exoatmospheric Kill Vehicle (EKV) final assembly. Once the corrective action is verified through ground and flight testing, EKV final assemblies will be completed followed by operational interceptor deliveries. . GMD will continue development and manufacturing for GBIs 48-58 incorporating Failure Review Board (FRB) resolutions in support of operational requirements, flight testing, and the Reliability Growth Program.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency		Date: March 2014
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*

GMD continues building upon the Initial Homeland Defense that provides the fundamental capability against intermediate and long-range Ballistic Missiles threats. Work scope includes: 1) Fielding of 30 interceptors to defend the United States; 2) EKV improvements to increase probability of intercept; 3) Developed and delivered multiple fire control and EKV software versions; 4) Increased integration with Space Based Infrared Systems (SBIRS) increment 2; 5) Improved usage of off-board sensor data for EKV end-game target selection; 6) Completed 4 flight tests (FTG-06, FTG-06a, CTV-01, and FTG-07) with two additional flight tests planned (FTG-06b, FTG-09); 7) Completed 1 ground test campaign (GT-03) and another ground test campaign is ongoing (GT-04); and 8) Increased interoperability with Sea Based X-Band Radar (SBX) for improving sensor to interceptor performance.

Ground-based Midcourse Defense (GMD) also continues to develop an Enhanced Homeland Defense capability against intermediate and long-range Ballistic Missiles threats. Work scope includes: 1) Fielding 44 interceptors to defend the United States (SECDEF Direction); 2) Increasing design complexity of threat space from single threat to multiple threats; 3) Delivering 11 additional interceptors (GBIs 48-58); 4) Increasing interceptor reliability; 5) Improving Fire Control and Exoatmospheric Kill Vehicle (EKV) discrimination capabilities; 6) Planned 2 flight tests (FTG-13 and FTG-15); 7) Planned 2 ground test campaigns (GT-06 and GT-07); and 8) Develop and deliver multiple fire control and EKV software versions.

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 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.

In FY 2013, the Secretary of Defense directed the Agency to increase the fielded fleet from 30 to 44 GBIs in FY 2017 to bolster the defense of the Homeland and to address a growing North Korean threat. Initial fielding can be achieved by reallocating GBIs from the program's spares, test and reliability program and emplacing them to achieve the initial 44 GBI capability in FY2017. GMD will acquire an additional 14 GBIs to maintain a fleet of 44 past FY 2017. The MDA is committed to a “Fly-before-you-Buy” approach with the additional 14 GBIs, this approach ensures that designs are qualified and tested before being deployed for operational use. The schedule for these additional GBIs will be predicated on the design and testing of the GMD redesigned EKV, upcoming non-intercept and intercept flight tests, and the GMD Interceptor and Component Reliability Program.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Ground Based Interceptor	414.167	431.029	427.414
Articles:	5.000	1.000	-
Description: Ground-based Midcourse Defense (GMD) delayed delivery of Capability Enhancement II (CE-II) Ground Based Interceptors (GBIs 34-44) due to the Flight Test Ground-based Midcourse Defense-06a (FTG-06a) test failure. However, GMD continued to build sub-assemblies that are not affected by FTG-06a root cause failure for the Ground Based Interceptors (GBIs 34-44), and deliver the Flight Test Interceptors required to support the Return to Intercept (RTI) program. The GBI program supports defense of the Homeland by manufacturing both flight test and operational interceptors (GBIs 34-44) to demonstrate interceptor performance as part of the Return to Intercept (RTI) program. 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			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Integrated Master Test Plan (IMTP). Available GBI components are being used in the collection of reliability and aging data as part of the Component Reliability Program. With the award of the Deployment and Sustainment Contract (DSC) in December 2011, acquisition of five Ground Based Interceptors 48-52 were initiated in FY 2012. A DSC option was exercised in FY 2013 for the acquisition of six additional Ground Based Interceptors (GBIs 53-58) to support operational and testing requirements. ***FY 2013 Accomplishments:*** -Successfully conducted Control Test Vehicle (CTV)-01 flight test using Capability Enhancement (CE)-II Exoatmospheric Kill Vehicle (EKV) utilizing a cradled Inertial Measurement Unit (IMU) with V0 firmware -Conducted FTG-07 flight test using Capability Enhancement (CE)-I Exoatmospheric Kill Vehicle (EKV) resulting in a failure to intercept. MDA established a Failure Review Board (FRB) to identify root cause of the EKV separation failure. Design and testing to determine the best mitigation approach is ongoing -Continued acquisition of Interceptors (GBIs 34-44) (subject to FTG-06a Failure Review Board (FRB) findings and resolution) to support both operations and testing -Continued the repurposing of two operational Ground Based Interceptors (GBIs) to support GMD Return-to-Intercept (RTI) program -Continued flight test rotation program of fielded GBIs to support the IMTP requirements and the Component Reliability Program -Continued RTI component lab testing (failure resolution testing and risk reduction testing): continued Test E (Chamber Hot Fire) test series -Continued RTI Exoatmospheric Kill Vehicle (EKV) software mitigation / redesign efforts and Inertial Measurement Unit (IMU) firmware resolution / validation -Continued the repurposing of one operational GBI to support Ground-based Midcourse Defense (GMD) Return to Intercept (RTI) series: FTG-06b Backup -Continued incorporation of RTI resolution findings into GBI fleet -Continued GBI Software Builds and Sustainment to support operational and flight test objectives -Continued GBI Stockpile Reliability Program (SRP) which includes testing of available GBI components to collect reliability and aging data and assessment of operational fleet upgrade requirements -Continued acquisition of five Interceptors (GBIs 48-52) that are supported by the completion of the booster and EKV component purchases -Continued EKV Divert and Attitude Control System (DACS) Alternate Thruster design -Initiated acquisition of six additional Interceptors (GBIs 53-58) to support enhanced GMD testing -Continued Exoatmospheric Kill Vehicle (EKV) Divert and Attitude Control System (DACS) Alternate Divert Thruster design and completed proof of concept with Alternate Divert Thruster using work-horse configuration ***FY 2014 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
-Continue Ground Based Interceptors (GBI) Fleet Upgrade program to include fielded Capability Enhancement II (CE-II) GBIs -Continue acquisition of remaining CE-II (Legacy) Ground Based Interceptors (GBIs 34-44) and proceed to the CE-II intercept flight test (FTG-06b) in 3rd quarter FY 2014, after the successful intercept test, the remaining CE-II GBIs will begin delivering for operational emplacements -Continue acquisition of CE-II (Configuration 2 (C2) boosters 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 -Continue GBI Software Builds and Sustainment to support operational and flight test objectives -Complete development and testing of EKV design modifications to mitigate FTG-07 flight test failure -Complete the Exoatmospheric Kill Vehicle (EKV) Divert and Attitude Control System (DACS) Alternate Thruster design qualification to increase GBI reliability -Continue flight test rotation program of fielded GBIs to support the Integrated Master Test Plan (IMTP) requirements and the Component Reliability Program -Continue Upgrades and Limited Life Item Hardware purchases that will be used to upgrade the fielded GBIs -Continue the GBI Reliability Growth Testing Program and the Component Reliability Programs to eliminate known risks and identify reliability improvements for GBI component hardware -Continue to collect Reliability, Availability, Maintainability and Test (RAM-T) data and calculate and track performance metrics on the Operational System -Continue Exoatmospheric Kill Vehicle (EKV) Divert and Attitude Control System (DACS) and complete Alternate Divert Thruster Design Verification Testing (DVT) and Qualification testing -Develop the capability for the EKV to utilize sensor inputs in support of Discrimination Improvements for Homeland Defense (DIHD) Near-term capability -Complete development of ground test campaign requirements for DIHD Near-term improvements			
FY 2015 Plans: -Continue Ground Based Interceptor (GBI) Fleet Upgrade program to include fielded Capability Enhancement II (CE-II) GBIs -Complete acquisition of remaining CE-II (Legacy) Ground Based Interceptors (GBIs 34-44) -Continue acquisition of CE-II (Configuration 2 (C2) boosters with Consolidated Booster Avionics Upgrade (CBAU) and CE-II Block I Exoatmospheric Kill Vehicles (EKV) Ground Based Interceptors (GBIs 48-58) to support both operations and testing, including a flight test to demonstrate the capability of the CE-II Block 1 with C2 CBAU booster GBIs -Continue flight test rotation program of fielded GBIs to support the Integrated Master Test Plan (IMTP) requirements and the Component Reliability Program -Continue Upgrades and Limited Life Item Hardware purchases that will be used to upgrade the fielded GBIs			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
-Continue the GBI Reliability Growth Testing Program and the Component Reliability Programs to eliminate known risks and identify reliability improvements for GBI component hardware -Continue to collect Reliability, Availability, Maintainability and Test (RAM-T) data and calculate and track performance metrics on the Operational System -Incorporate FTG-07 flight test failure mitigation redesign into the planned GBI deliveries -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 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 and retrofit of Interceptors with new Alternate Divert Thruster			
Title: Systems Engineering and Program Management	100.826	128.970	132.895
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 2013 Accomplishments:*** -Continued requirements development, engineering analysis, capability integration, and performance verification for GMD development and BMDS integration, including GMD compliance with the BMDS Specification, BMDS Description Document, and Master Integration Plan (MIP) -Continued Technical Performance Measurement (TPM) program to assess the current Ground-based Midcourse Defense (GMD) capabilities against the evolving BMDS threat -Continued modeling and simulation development and integration to assess component and system performance in support of annual Technical Assessments -Continued modeling and simulation verification and validation to establish high confidence in Warfighter assessments			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
-Supported Component Requirements Reviews and Preliminary Design Reviews (PDR) for the GMD contribution to the Ballistic Missile Defense System (BMDS) Enhanced Homeland Defense including the Ground System Fire Control and Communications software development and Ground Based Interceptor (GBI) hardware (e.g., Fleet Avionics Upgrade / Obsolescence Program) 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 implement a rigorous test plan for verifying successful operation of capabilities delivered to the Warfighter -Utilized Exoatmospheric Kill Vehicle (EKV) Hardware-In-The-Loop (HWIL) 10-foot vacuum space chamber (10V Chamber) Operational analysis against emerging threats (KN-08),for 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			
FY 2014 Plans: -Redefine GMD threat space from single threat system to multiple threat system and perform systems engineering activities to increase performance -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 2015 Missile Defense Agency		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
-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 -Develop, Test and Field a near term discrimination (NTD) capability through GMD Fire Control system (GFC)and Exoatmospheric Kill Vehicle (EKV) software -Develop the capability for GFC and EKV to utilize sensor inputs in support of Discrimination Improvements for Homeland Defense (DIHD) Near-Term capability -Complete development of ground test campaign requirements for DIHD Near-Term improvements -Conduct data collection and analysis for final assessment of discrimination technology candidates planned for DIHD Mid-term improvements -Initiate 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 -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			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
-Develop, Test and Field a near term discrimination (NTD) capability through GMD Fire Control system (GFC) and 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 GTI-06			
Title: Program Operations	93.907	91.706	81.050
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 2013 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 -Provided contractor program management, subcontract management, quality assurance, verification of hardware and software development, and test oversight to identify variances and initiate corrective actions to mitigate cost, schedule, or performance impacts -Ensured GMD program compliance with internal and external direction, policies, and regulations to deliver capability critical within a consistent and disciplined process -Conducted internal Baseline Execution Reviews (BER) to measure program progress against the six 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 2014 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			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
-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 ***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 -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			
Title: Ground Systems	70.208	107.544	121.995
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, External Systems Interface (ESI), 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 2013 Accomplishments:*** -Continued Ground Systems suite 6B3 development to utilize Near-Term Discrimination (NTD) data, integrate the Clear, AK UEWR and Ft. Drum, NY IDT assets, support Space-Based Infrared System interface changes, incorporate evolving threats, Warfighter requirements, and BMDS element interoperability associated changes			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
-Completed the preliminary design and initiate construction efforts for an In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT) at Fort Drum that will increase system performance in specific engagement scenarios -Initiated refurbishment efforts for the Fort Greely, AK Missile Field-1 (MF-1)			
FY 2014 Plans: -Deliver Ground Systems suite 6B3 to utilize Near-Term Discrimination (NTD) data, integrate the Clear, AK and Cape Cod, MA UEWR and Ft. Drum, NY IDT assets, support SBIRS interface changes, incorporate evolving threats, Warfighter requirements, and BMDS element interoperability associated changes -Continue Ground Systems suite 6B3 software upgrade to develop Near-Term Discrimination (NTD) capability, and design and develop Discrimination Improvements for Homeland Defense (DIHD) near term discrimination capability. Continue limited Reliability/Obsolescence/Technology Refresh of the Ground System hardware -Continue development and 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 -Initiate the Ground Systems Technology Refresh effort which provides upgrades to the Ground Systems components by reducing life cycle costs and ensuring sustainability. -Initiate the refurbishment, upgrade, blast shielding, and High Altitude Electromagnetic Pulse (HEMP) hardening of Missile Field 1 at Fort Greely, Alaska -Upgrade Command Launch Equipment (CLE) software and hardware to interface with the new tactical 3 Stage C2 (CBAU) Ground-Based Interceptor (GBI) -Upgrade of Telemetry and other Non-Tactical Equipment (NTE) at the Vandenberg AFB Launch Control Center (LCC) -Initiate the CONUS Interceptor Site (CIS) environmental impact statements -Develop the capability for GMD Fire Control system (GFC) to utilize sensor inputs in support of Discrimination Improvements for Homeland Defense (DIHD) Near-Term capability -Complete development of ground test campaign requirements for DIHD Near-Term improvements			
FY 2015 Plans: -Complete DIHD Near-Term capability developments -Test 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 -Complete integration phase of DIHD Near-Term ground testing via GTI-06 -Continue development and 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 effort which provides upgrades to the Ground Systems components by reducing life cycle costs and ensuring sustainability			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
-Continue the refurbishment, upgrade, blast shielding, and High Altitude Electromagnetic Pulse (HEMP) hardening of Missile Field 1 at Fort Greely, Alaska -Initiate design and development of Ground Systems suite 6B3 upgrade for DIHD Mid-Term discrimination capability Increase due to the addition of Discrimination Improvements for Homeland Defense (DIHD)			
Accomplishments/Planned Programs Subtotals	679.108	759.249	763.354

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• 0603294C: *Common Kill Vehicle Technology*	-	70.000	25.639	-	25.639	33.171	37.348	38.454	54.256	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	306.896	366.590	392.893	-	392.893	462.030	448.763	403.272	368.125	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	344.431	405.319	443.484	-	443.484	456.182	462.525	452.937	465.638	Continuing	Continuing
• 0603907C: *Sea Based X-Band Radar (SBX)*	23.703	44.478	64.409	-	64.409	57.081	58.975	64.759	63.016	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 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

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency		Date: March 2014
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*

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 2015 Missile Defense Agency			Date: March 2014
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*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Based Interceptor - Alternate Thruster Program	MIPR	NASA White Sands Test Facility (WSTF) : NM	0.000	5.799		3.594		-		-		-	-	9.393	-
Ground Based Interceptor - GBI Component Lab Testing	MIPR	NASA WSTF, NM : AMRDEC, Huntsville, AL	0.000	4.771		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - GBI Prime Product Support	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	1.072		42.335		51.561		-		51.561	Continuing	Continuing	Continuing
Ground Based Interceptor - Ground Based Interceptors 34-44	MIPR	NSWC Crane, IN; AMCOM Safety Office, Huntsville, AL : Corvid, HSV, AL; Interstate Electronics Corp, CA	0.000	0.134		-		-		-		-	Continuing	Continuing	Continuing
Ground Based Interceptor - Ground Based Interceptors 48-58	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	30.494	57.509		117.680		113.445		-		113.445	Continuing	Continuing	Continuing
Ground Based Interceptor - Prime Alternate Thruster Program	SS/CPAF	Boeing AL/AK/AZ : CA/CO/TX/VA	27.400	40.577		37.885		12.900		-		12.900	Continuing	Continuing	Continuing
Ground Based Interceptor - Prime GBI Component Lab Testing	C/CPIF	Boeing AL/AK/AZ/ CA : CO/TX/VA	47.756	11.623		0.021		2.709		-		2.709	Continuing	Continuing	Continuing
Ground Based Interceptor - Prime Ground Based Interceptors 34-44	SS/CPAF	Boeing AL/AK/AZ : CA/CO/TX/VA	621.812	126.868		49.455		121.255		-		121.255	Continuing	Continuing	Continuing
Ground Based Interceptor - Prime New Interceptor Development	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	97.309	41.498		32.230		29.707		-		29.707	Continuing	Continuing	Continuing
Ground Based Interceptor - Prime Reliability Program	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	24.532	16.374		26.768		26.495		-		26.495	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Missile Defense Agency			Date: March 2014
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*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Based Interceptor - Prime Return to Intercept Program	SS/CPAF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	91.944		47.381		20.500		-		20.500	-	159.825	-
Ground Based Interceptor - Prime Software Maintenance & Updates	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	16.107	5.777		6.371		16.989		-		16.989	Continuing	Continuing	Continuing
Ground Based Interceptor - Prime Upgrades & Operational Spares	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	138.758	-		29.243		17.434		-		17.434	Continuing	Continuing	Continuing
Ground Based Interceptor - Reliability Program	MIPR	AMRDEC / Redstone Arsenal, AL : NSWC Crane, Indiana	0.000	1.088		6.507		7.796		-		7.796	Continuing	Continuing	Continuing
Ground Based Interceptor - Return to Intercept Program	MIPR	NASA MSFC, Huntsville, AL; AMRDEC, Huntsville, AL : Draper Laboratory, MA; Vanguard, Huntsville, AL	0.000	1.008		2.161		2.193		-		2.193	Continuing	Continuing	Continuing
Ground Based Interceptor - Rotations for Ballistic Missile Defense System Level Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	239.006	6.804		26.514		4.110		-		4.110	Continuing	Continuing	Continuing
Ground Based Interceptor - Upgrades and Operational Spares	MIPR	NSWC / Crane, Indiana : AMCOM Safety Office / Huntsville, AL	0.000	0.197		-		-		-		-	-	0.197	-
Ground Based Interceptor - Upgrades for BMDS Level Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	1.124		2.884		0.320		-		0.320	Continuing	Continuing	Continuing
Ground Systems - BCN Global Net	MIPR	Various : AL/VA	0.000	1.298		-		-		-		-	Continuing	Continuing	Continuing
Ground Systems - CONUS Interceptor Site Studies	MIPR	Various : AL/VA	0.000	3.327		10.000		-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Missile Defense Agency			Date: March 2014
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*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Systems - Communications Infrastructure	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	0.000	-		7.943		0.810		-		0.810	Continuing	Continuing	Continuing
Ground Systems - FGA Future Power Plant Integration	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	0.000	4.510		-		-		-		-	-	4.510	-
Ground Systems - FGA Improvements	MIPR	Various : AL/AK/VA	0.000	3.804		-		-		-		-	Continuing	Continuing	Continuing
Ground Systems - Fort Drum IDT	MIPR	MDA/AL : /VA/NY	0.000	0.093		1.803		0.525		-		0.525	Continuing	Continuing	Continuing
Ground Systems - Ft Drum IESS	MIPR	Various : AL/NY/VA	0.000	0.531		-		-		-		-	Continuing	Continuing	Continuing
Ground Systems - Ground Systems Software Development	MIPR	Various : AL/AK/AZ/ CA/CO/VA	0.000	-		0.615		0.025		-		0.025	Continuing	Continuing	Continuing
Ground Systems - MF-1 Repair and Refurbishment	MIPR	Various : AL/AK/VA	0.000	3.770		15.968		17.120		-		17.120	Continuing	Continuing	Continuing
Ground Systems - Prime Fort Drum IDT	C/CPIF	Boeing AL : CO/NY/ VA	4.653	0.712		1.434		4.350		-		4.350	Continuing	Continuing	Continuing
Ground Systems - Prime Ground Systems Software Development	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	90.154	50.778		47.654		72.526		-		72.526	Continuing	Continuing	Continuing
Ground Systems - Prime MF-1 Repair and Refurbishment	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	0.000	-		7.944		17.221		-		17.221	Continuing	Continuing	Continuing
Ground Systems - Storage State MF-1	C/CPIF	Boeing AL/AK/AZ : CA/CO	0.000	0.500		-		-		-		-	-	0.500	-
Ground Systems - Technology Refresh	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	0.000	-		10.480		9.380		-		9.380	Continuing	Continuing	Continuing
Ground Systems - Upgrades for BMDS Level Testing	C/CPIF	Boeing AL/AK/AZ : CA/CO/VA	0.559	0.885		3.703		0.038		-		0.038	Continuing	Continuing	Continuing
		Subtotal	1,338.540	484.375		538.573		549.409		-		549.409	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Missile Defense Agency			Date: March 2014
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*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering and Program Management - Ballistic Missile Defense System Hardware-In-The-Loop	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	118.223	29.063		-		-		-		-	Continuing	Continuing	Continuing
Systems Engineering and Program Management - EKV HWIL Tests in Space Chamber	MIPR	AEDC : Tullahoma, TN	0.000	4.475		5.000		5.043		-		5.043	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Model & Simulations Support	MIPR	Various : AL/VA	0.000	-		11.603		9.875		-		9.875	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Modeling and Simulation	MIPR	SED and McMorrow Labs : Redstone Arsenal/AL	0.000	16.113		11.700		5.879		-		5.879	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	58.809	2.414		2.349		2.084		-		2.084	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Prime Modeling and Simulation	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	110.518	9.421		18.752		21.318		-		21.318	Continuing	Continuing	Continuing
Systems Engineering and Program Management -	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	218.365	11.641		20.145		26.609		-		26.609	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Missile Defense Agency			Date: March 2014
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 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Prime System Engineering and Integration															
Systems Engineering and Program Management - Prime-Program Management	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	26.347		43.752		50.364		-		50.364	Continuing	Continuing	Continuing
Systems Engineering and Program Management - System Engineering and Integration	MIPR	MDA ARC / Colsa : Huntsville, AL	0.000	1.352		0.969		0.988		-		0.988	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Systems Engineering & Analysis	MIPR	Various : AL/VA	0.000	-		9.607		7.528		-		7.528	Continuing	Continuing	Continuing
Systems Engineering and Program Management - Systems Engineering & Analysis – Industry Support	C/CPAF	Boeing : AL	0.000	-		5.093		3.207		-		3.207	Continuing	Continuing	Continuing
Program Operations - Contract Support Services	C/CPFF	Various : AL/AK/CA/ CO/VA	228.492	44.009		35.077		36.355		-		36.355	Continuing	Continuing	Continuing
Program Operations - FFRDC Support	MIPR	MIT/LL : AL/VA/CO	21.984	5.759		1.682		1.175		-		1.175	Continuing	Continuing	Continuing
Program Operations - Government Furnished Equipment	MIPR	MDA : AL/AK/CA/VA	0.000	-		2.976		4.667		-		4.667	Continuing	Continuing	Continuing
Program Operations - Govt Civilian Salaries	MIPR	MDA : AL/VA	105.312	37.138		31.421		32.018		-		32.018	Continuing	Continuing	Continuing
Program Operations - Misc Software/BB/PCS	MIPR	MDA : AL/CA/VA/ CO/AK	0.137	1.175		0.633		0.395		-		0.395	Continuing	Continuing	Continuing
Program Operations - Other Govt Agencies	MIPR	Various : AL/VA/FL/ CO	20.275	4.508		4.609		4.697		-		4.697	Continuing	Continuing	Continuing
Program Operations - Safety and Quality	MIPR	MDA : AL/AK/CA/VA	0.335	0.055		0.025		0.074		-		0.074	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Missile Defense Agency			Date: March 2014
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 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Operations - Small Business Innovation Research (SBIR)	MIPR	MDA : AL/VA	0.000	-		13.926		0.313		-		0.313	Continuing	Continuing	Continuing
Program Operations - Travel	MIPR	MDA : AL/VA	2.000	1.263		1.357		1.356		-		1.356	Continuing	Continuing	Continuing
		Subtotal	884.450	194.733		220.676		213.945		-		213.945	-	-	-

Remarks

N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 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 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2,222.990	679.108		759.249		763.354		-		763.354	-	-	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Missile Defense Agency			Date: March 2014
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 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

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

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Missile Defense Agency		Date: March 2014
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*

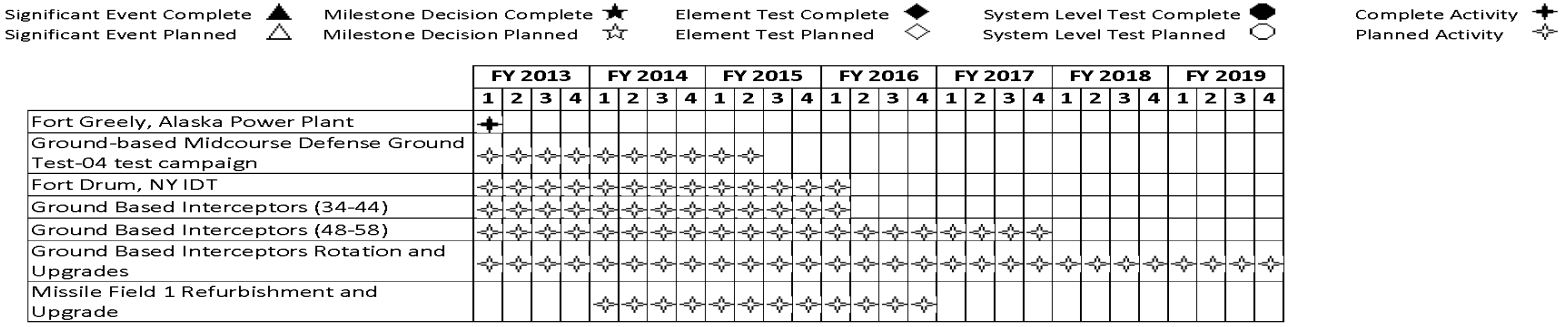


Exhibit R-4A, RDT&E Schedule Details: PB 2015 Missile Defense Agency		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD08 / *Ground Based Midcourse*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Fort Greely, Alaska Power Plant	1	2013	1	2013
Ground-based Midcourse Defense Ground Test-04 test campaign	1	2013	2	2015
Fort Drum, NY IDT	1	2013	1	2016
Ground Based Interceptors (34-44)	1	2013	1	2016
Ground Based Interceptors (48-58)	1	2013	4	2017
Ground Based Interceptors Rotation and Upgrades	1	2013	4	2019
Ground Systems 6B3 near term discrimination (NTD) and DIHD Near Term (FQT)	1	2014	1	2015
Missile Field 1 Refurbishment and Upgrade	1	2014	4	2016
Ground Systems 6B3.2 DIHD Mid Term (FQT)	1	2016	3	2016

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency			Date: March 2014
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	Project (Number/Name) MD97 / *Improved Homeland Defense (HLD) Interceptors*	

COST ($ in Millions)	Prior Years	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
MD97: *Improved Homeland Defense (HLD) Interceptors*	-	-	-	99.500	-	99.500	264.000	261.500	67.000	13.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

Note

N/A

A. Mission Description and Budget Item Justification

The ICBM threat that endangers the United States is projected to make significant progress over the next decade in quantity of threats, in rapid launch timeline with no warning, and in complexity with the use of countermeasures. To counter this evolving threat, MDA intends to upgrade several key components of the BMDS (i.e., Long Range Discriminating Radar (LRDR) and Discrimination Improvements for Homeland Defense (DIHD)) and for the GMD program this includes a new Ground-Based Midcourse Defense (GMD) redesigned Exoatmospheric Kill Vehicle (EKV). The redesigned GMD EKV will address the following three areas: design to the evolving threat for increased performance; improve reliability, availability, maintainability, testability, and producibility; and increase in-flight communications to improve usage of off-board sensors information and situational awareness to combatant commanders for enabling new tactics such as shoot-assess-shoot.

The program may leverage technologies that influence manufacturing and design from 0603294C: Common Kill Vehicle Technology program.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Improved Homeland Defense (HLD) Interceptors	-	-	99.500
Articles:	-	-	-
Description: Improved Homeland Defense Interceptor provides for capability improvements to the Ground-based Midcourse Defense (GMD) component of the Ballistic Missile Defense System (BMDS). Improvements will include design work for reliability and performance updates common to the current Exoatmospheric Kill Vehicle (EKV) and GMD redesigned (EKV) (leveraging Common Kill Vehicle Technology) built with a modular, open architecture and designed to common interfaces and standards, making upgrades easier and broadening the vendor and supplier base. Additionally, the GMD redesigned EKV will address the following three areas: design to the evolving threat for increased performance; improve reliability, availability, performance and producibility; and increase in-flight communications to improve usage of off-board sensors information and situational awareness to combatant commanders for enabling new tactics such as shoot-assess-shoot. To fully comprehend the planned GMD redesigned EKV improvements, GMD will develop and deploy improvements to the Ground Systems architecture for increased in-flight communications and both GMD redesigned EKV and fire control software to improve the effectiveness of on-board and off-board discrimination.			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD97 / *Improved Homeland Defense (HLD) Interceptors*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
FY 2013 Accomplishments: N/A ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** -Continue EKV design work for reliability and performance updates including hardware and software common to current EKV and GMD redesigned EKV -Initiate development efforts to Improve Homeland Defense for a GMD redesigned Exoatmospheric Kill Vehicle (EKV) and Ground Systems upgrades -Initiate long-lead material acquisitions to support qualification testing and flight test interceptors -Continue the Ground Based Interceptor (GBI) Reliability Program and the Component Reliability Programs to support and eliminate known risks and identify reliability improvements for the EKV GBI component hardware -Initiate development efforts to Improve Homeland Defense for a GMD redesigned Exoatmospheric Kill Vehicle (EKV) and Ground Systems upgrades -Conduct trade studies for various technologies to include in the GMD redesigned EKV -Initiate and complete System Requirements Review for GMD redesigned EKV -Initiate activities to support an FY 2016 Preliminary Design Review and Critical Design Review -Continue EKV design work for reliability and performance updates including hardware and software common to current EKV and GMD redesigned EKV -Initiate long-lead material acquisitions to support qualification testing and flight test interceptors -Continue the Ground Based Interceptor (GBI) Reliability Program and the Component Reliability Programs to support and eliminate known risks and identify reliability improvements for the GMD redesigned EKV GBI component hardware			
Accomplishments/Planned Programs Subtotals	-	-	99.500

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• 0603294C: *Common Kill Vehicle Technology*	-	70.000	25.639	-	25.639	33.171	37.348	38.454	54.256	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD97 / *Improved Homeland Defense (HLD) Interceptors*

D. Acquisition Strategy

The Missile Defense Agency (MDA) Ground-based Midcourse Defense (GMD) Joint Program Office is conducting market research to determine industry interest, risk, and capability to provide GMD's redesigned Exoatmospheric Kill Vehicle (EKV). Included in the market research for the redesigned EKV is industry's ability to successfully design, qualify, integrate and test a redesigned EKV that is more reliable, available, maintainable, testable, producible, and cost effective. The MDA also seeks to understand industry capabilities to support flight testing of GMD's redesigned EKV as early as fiscal year 2018 and industry's assessment of potential concurrency risks between development and manufacturing of both test and tactical hardware. Additionally, this research will also help determine industry capability in not only delivering a redesigned GMD EKV test articles, but also manufacturing, delivering of fully integrated GBIs with the designed EKV. Once the market research is completed, the MDA will determine the Acquisition Strategy for acquiring the design, development, qualification and testing of the redesigned EKV. The MDA intends to award a contract for the redesigned EKV by FY 2015.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Missile Defense Agency			Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MD97 / *Improved Homeland Defense (HLD) Interceptors*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Improved Homeland Defense (HLD) Interceptors - EKV Development	C/TBD	TBD : TBD	0.000	-		-		79.500		-		79.500	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		79.500		-		79.500	-	-	-

Remarks

N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Improved Homeland Defense (HLD) Interceptors - EKV System and Component Engineering	C/TBD	TBD : TBD	0.000	-		-		20.000		-		20.000	Continuing	Continuing	Continuing
		Subtotal	0.000	-		-		20.000		-		20.000	-	-	-

Remarks

N/A

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		-		99.500		-		99.500	-	-	-

Remarks

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency			Date: March 2014
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 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
MC08: *Cyber Operations*	-	-	2.124	2.938	-	2.938	2.957	2.997	3.028	3.105	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

Note

N/A

A. Mission Description and Budget Item Justification

The funding in this project sustains Missile Defense Agency (MDA) DoD Information Assurance Certification and Accreditation Program (DIACAP) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Assurance Manager (PM/IAM) Plans of Action and Milestones (POA&Ms) for MDA 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&M 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 2013	FY 2014	FY 2015
Title: Network / System Certification and Accreditation (C&A)	-	2.124	2.938
Articles:	-	-	-
Description: The Network/Systems Certification and Accreditation project sustains the Missile Defense Agency (MDA) DoD Information Assurance Certification and Accreditation Program (DIACAP) and Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information Assurance Manager (PM/IAM) Plans of Action and Milestones (POA&Ms) for MDA Command and Control Battle Management and Communications (C2BMC) mission systems. It maintains the Certification and Accreditation (C&A) data repository, capturing the DIACAP documentation (artifacts, validation results, and Information Assurance Risk Assessment results, and Designated Approving Authority (DAA) accreditation decisions) and POA&M on all MDA information systems.			
FY 2013 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency		Date: March 2014
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 2013	FY 2014	FY 2015
A new Cyber Operations budget project (MC08) was created for FY 2014 - previous efforts funded from budget project MD08 ***FY 2014 Plans:*** -Fund 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 2015 Plans:*** -Fund 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	-	2.124	2.938

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency		Date: March 2014
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*

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Missile Defense Agency			Date: March 2014
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 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 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	-		0.540	Jul 2014	0.541		-		0.541	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - CND/IA Advisory and Assistance Services	C/CPFF	Torch Technologies : MDA AL	0.000	-		1.425	Jul 2014	1.425		-		1.425	Continuing	Continuing	Continuing
Network / System Certification and Accreditation (C&A) - Civilian Salaries	MIPR	MDA : AL/VA	0.000	-		0.159	Oct 2013	0.972		-		0.972	Continuing	Continuing	Continuing
		Subtotal	0.000	-		2.124		2.938		-		2.938	-	-	-

Remarks

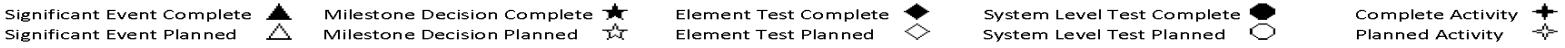
N/A

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	-		2.124		2.938		-		2.938	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Missile Defense Agency		Date: March 2014
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*



	FY 2013				FY 2014				FY 2015				FY 2016				FY 2017				FY 2018				FY 2019			
	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 2015 Missile Defense Agency		Date: March 2014
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	2019
GMD Cybersecurity Program Policy / Risk Management	1	2014	4	2019
GMD Information Assurance Certification and Accreditation (C&A) Package Preparation/ Submission	1	2014	4	2019
GMD Transition to Cybersecurity Risk Management Framework (CRMF)	1	2014	4	2019
BMDS Cybersecurity Policy Development	1	2014	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency			Date: March 2014
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 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
MT08: *Ground Based Midcourse Test*	-	69.419	98.873	79.877	-	79.877	50.667	62.668	82.191	61.695	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

Note

N/A

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 2013	FY 2014	FY 2015
Title: Resources	18.111	22.475	18.474
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 2013 Accomplishments: -Provided test infrastructure and coordination of flight test range support from Vandenberg Air Force Base, California for all range activities, engineering, operators and Ground Based Interceptor (GBI) transportation -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 Ground-based Midcourse Defense (GMD) system from Colorado Springs, CO -Supported pre- and post-flight test mission communications to include fulfillment of Government Furnished Equipment (GFE) / Government Furnished Services (GFS) requirements and data analysis			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency		Date: March 2014
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 2013	FY 2014	FY 2015
-Provided System Test Lab support to the engineering, accreditation, operations and maintenance of Flight and Ground Test Programs -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 2014 Plans:*** -Provide 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 -Provide 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 -Support pre- and post-flight test mission communications to include fulfillment of GFE /GFS requirements and data analysis -Provide System Test Lab support to the engineering, accreditation, operations and maintenance of Flight and Ground Test Programs -Support 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:*** -Provide 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 -Provide 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 -Support pre- and post-flight test mission communications to include fulfillment of GFE /GFS requirements and data analysis -Provide System Test Lab support to the engineering, accreditation, operations and maintenance of Flight and Ground Test Programs -Support 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 -Provide engineering support for planning and execution of the test events, including test architecture, objectives and assessment criteria, target requirements, M&S for pre-test assessment and post-test review, and develop and establish hardware-in-the-loop (HWIL) M&S integration test cases. Decrease due to HWIL support moving to MD08 Systems Engineering & Program Management			
Title: Flight Test Execution	47.633	71.076	57.047

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency		Date: March 2014
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 2013	FY 2014	FY 2015
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 2013 Accomplishments:

-Completed successful non-intercept test, Controlled Test Vehicle (CTV-01), to verify FTG-06a corrective actions. The test was a 3-stage Capability Enhancement II (CE-II) non-intercept test of the Exoatmospheric Kill Vehicle (EKV), using a GBI launched from Vandenberg Air Force Base, California. There was no target for this test

-Initiated and completed planning and execution for Flight Test Ground-based Midcourse Defense-07 (FTG-07), a 3-stage Capability Enhancement I (CE-I) intercept engagement without associated objects, using a GBI launch from Vandenberg Air Force Base, California against a target launched from Reagan Test Site (RTS). However, due to a test failure, post-test analysis was not completed. A Failure Review Board was established and is ongoing to determine root cause

-Continued planning for 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 launch from Vandenberg Air Force Base, California against a target launched from Reagan Test Site (RTS)

-Initiated planning for the Flight Test Ground-based Midcourse Defense-08 (FTG-08), intercept engagement with associated objects, using a Ground Based Interceptor (GBI) launch from Vandenberg Air Force Base, California against an Air-launched Intermediate Range Ballistic Missile (IRBM) target

-Initiated salvo range infrastructure upgrade studies in preparation for planning for the Flight Test Ground-based Midcourse Defense-11 (FTG-11), a salvo intercept test against one Intercontinental Ballistic Missile (ICBM) target with associated objects, using GBIs launched from Vandenberg Air Force Base, California

FY 2014 Plans:

-Conduct 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)

-Initiate planning for Flight Test Ground-based Midcourse Defense-09 (FTG-09), a 3-stage Capability Enhancement II (CE-II) intercept engagement with associated object, using a GBI launched from Vandenberg Air Force Base, California against an IRBM target utilizing resources previously planned for FTG-08 per revised MDA Integrated Master Test Plan

-Re-phased FTG-11, a salvo intercept test against one Intercontinental Ballistic Missile (ICBM) target with associated objects, using GBIs launched from Vandenberg Air Force Base, California from 4Q FY 2015 to 4Q FY2018 and continuing range infrastructure upgrade studies in preparation for planning for the Flight Test Ground-based Midcourse Defense-11 (FTG-11)

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency		Date: March 2014
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 2013	FY 2014	FY 2015
-Collect Critical Engagement Conditions (CEC) / Empirical Measurement Events (EME) data that validates Models and Simulations (M&S) ***FY 2015 Plans:*** -Conduct Flight Test Ground-based Midcourse Defense-09 (FTG-09), a 3-stage Capability Enhancement II (CE-II) intercept engagement with associated object, using a GBI launched from Vandenberg Air Force Base, California against an IRBM target -Collect Critical Engagement Conditions (CEC) / Empirical Measurement Events (EME) data that validates Models and Simulations (M&S) -Initiate planning for Flight Test Ground-based Midcourse Defense-15 (FTG-15), a 3-stage C2/CBAU intercept with associated objects, using a GBI launched from Vandenberg Air Force Base, California against a target launched from Reagan Test Site (RTS)) Decrease due to alignment of MDA test priorities to latest Integrated Master Test Plan			
Title: Ground Test Execution	3.675	5.322	4.356
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 2013 Accomplishments:*** -Continued support and execution of BMDS Ground Test-04 test campaign to assess BMDS capabilities with integration of additional BMDS sensors ***FY 2014 Plans:*** -Continue to support execution of BMDS Ground Test-04 test campaign to assess BMDS capabilities with integration of additional BMDS sensors -Support 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:*** -Continue to support planning and support execution 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),			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency		Date: March 2014
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 2013	FY 2014	FY 2015
and the Space-Based Infrared System (SBIRS) Increment 2 Change), and demonstrate GMD Fire Control (GFC) 6B3 capabilities using a lab based Hardware-in-the-Loop (HWIL) Configuration during Ground Test Integrated -06 (GTI-06) -Support execution planning of BMDS Ground Test Distributed-06 (GTD-06) test campaign to assess BMDS capabilities and the mission functionality of the Ground-based Midcourse Defense (GMD) Fire Control (GFC) version 6B3 BMDS capabilities using fielded assets and long haul communications networks Decrease due to alignment of MDA test priorities to latest Integrated Master Test Plan.			
Accomplishments/Planned Programs Subtotals	69.419	98.873	79.877

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2013	FY 2014	FY 2015 Base	FY 2015 OCO	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
• 0603914C: *Ballistic Missile Defense Test*	438.114	337.993	386.482	-	386.482	340.811	369.920	417.712	413.194	Continuing	Continuing
• 0603915C: *Ballistic Missile Defense Targets*	438.523	491.170	485.294	-	485.294	419.537	512.098	426.085	429.822	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 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.

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency		Date: March 2014
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*

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Missile Defense Agency			Date: March 2014
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 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 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 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 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	0.000	7.754		9.083		-		-		-	-	16.837	-
		Subtotal	0.000	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 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Resources - Engineering & Analysis – Industry Support	C/CPAF	Boeing : AL	0.000	-		-		2.423		-		2.423	Continuing	Continuing	Continuing
Resources - Engineering & Analysis – OGA Support	MIPR	AMRDEC : AL	0.000	-		-		2.389		-		2.389	Continuing	Continuing	Continuing
Resources - Government Infrastructure Support, Labs, and Communications	MIPR	VAFB/AL : CO	0.000	5.052		7.510		6.383		-		6.383	Continuing	Continuing	Continuing
Resources - Prime Infrastructure	C/CPAF	Boeing AL/AK/AZ/ CA : CO/TX/VA	0.000	5.305		5.882		7.279		-		7.279	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Missile Defense Agency			Date: March 2014
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 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Support, Labs, and Communications															
Flight Test Execution - Planning and Silo Refurbishment	C/CPAF	Boeing AL/AK/AZ/ CA : CO/OR/TX/VA	0.000	30.112		32.120		28.350		-		28.350	Continuing	Continuing	Continuing
Flight Test Execution - Range, Resources, and Engineering	MIPR	VAFB/CO : PMRF	0.000	17.521		38.956		28.697		-		28.697	Continuing	Continuing	Continuing
Ground Test Execution - Ground Test-04 Campaign	C/CPAF	Boeing AL/AK/AZ/ CA : CO/TX/VA	0.000	3.675		5.065		0.167		-		0.167	Continuing	Continuing	Continuing
Ground Test Execution - Ground Test-06 Campaign	C/CPAF	Boeing AL/AK/AZ/ CA : CO/TX/VA	0.000	-		0.257		4.189		-		4.189	Continuing	Continuing	Continuing
		Subtotal	0.000	61.665		89.790		79.877		-		79.877	-	-	-

Remarks

N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	69.419		98.873		79.877		-		79.877	-	-	-

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2015 Missile Defense Agency		Date: March 2014
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*

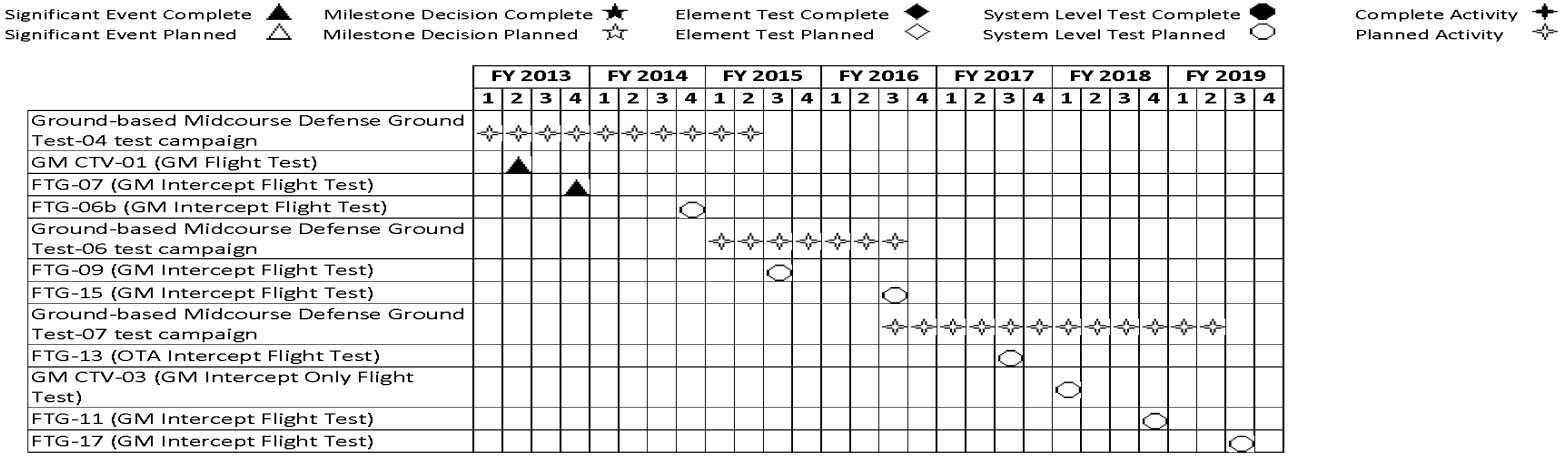


Exhibit R-4A, RDT&E Schedule Details: PB 2015 Missile Defense Agency		Date: March 2014
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0603882C / *Ballistic Missile Defense Midcourse Defense Segment*	**Project (Number/Name)** MT08 / *Ground Based Midcourse Test*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Ground-based Midcourse Defense Ground Test-04 test campaign	1	2013	2	2015
GM CTV-01 (GM Flight Test)	2	2013	2	2013
Fast Aim (BMDS Ground Test)	4	2013	4	2013
FTG-07 (GM Intercept Flight Test)	4	2013	4	2013
Warfighter TP 04e (BMDS Ground Test)	1	2014	1	2014
Fast Phoenix (BMDS Ground Test)	1	2014	1	2014
GTD-04e Part 2 (BMDS Ground Test)	1	2014	2	2015
FTG-06b (GM Intercept Flight Test)	4	2014	4	2014
GTI-04e (Part 2 (BMDS Ground Test)	2	2014	3	2014
GDEx 06 Part 1 (BMDS Ground Test)	3	2014	3	2014
Ground-based Midcourse Defense Ground Test-06 test campaign	1	2015	3	2016
GDEx 06 Part 2 (BMDS Ground Test)	3	2015	3	2015
FTG-09 (GM Intercept Flight Test)	3	2015	3	2015
GTI-06 Part 2 (BMDS Ground Test)	4	2015	4	2015
Warfighter TP 06 (BMDS Ground Test)	1	2016	1	2016
GTD-06 Part 3 (BMDS Ground Test)	1	2016	1	2016
GTD-06 Part 2 (BMDS Ground Test)	2	2016	3	2016
FTG-15 (GM Intercept Flight Test)	3	2016	3	2016
Ground-based Midcourse Defense Ground Test-07 test campaign	3	2016	2	2019
GTX-07a (BMDS Ground Test)	4	2016	4	2016
GDEx 07a (BMDS Ground Test)	4	2016	4	2016
GTI-07a (BMDS Ground Test)	1	2017	1	2017

Exhibit R-4A, RDT&E Schedule Details: PB 2015 Missile Defense Agency		Date: March 2014
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*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Warfighter TP 07a (BMDS Ground Test)	3	2017	3	2017
GDEx 07b Part 1 (BMDS Ground Test)	3	2017	3	2017
FTG-13 (OTA Intercept Flight Test)	3	2017	3	2017
GTD-07a Part 1 (BMDS Ground Test)	3	2017	3	2017
GM CTV-03 (GM Intercept Only Flight Test)	1	2018	1	2018
GTX-07b (BMDS Ground Test)	1	2018	1	2018
PA-07b (BMDS Ground Test)	3	2018	4	2018
GDEx 07b Part 2 (BMDS Ground Test)	3	2018	3	2018
GTI-07b (BMDS Ground Test)	3	2018	4	2018
FTG-11 (GM Intercept Flight Test)	4	2018	4	2018
GTD-07b Part 1 (BMDS Ground Test)	1	2019	2	2019
Warfighter TP 07b (BMDS Ground Test)	1	2019	2	2019
FTG-17 (GM Intercept Flight Test)	3	2019	3	2019
GDEx 08 Part 1 (BMDS Ground Test)	3	2019	3	2019
GTX-08 Part 2 (BMDS Ground Test)	4	2019	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency			Date: March 2014
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 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
MX08: *Ground Based Midcourse Development Support*	-	129.644	-	-	-	-	-	-	-	-	-	129.644
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

Note

Starting in FY 2014 all funding moved from RDT&E to Operations and Maintenance (O&M) in accordance with the FY 2014 National Defense Appropriation Act (NDAA).

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 Greely, 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 2013	FY 2014	FY 2015
Title: Sustainment	129.644	-	-
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 2013 Accomplishments: -Continued to provide GMD element operations and sustainment for Primary Mission Equipment (PME), support equipment, and operational facilities at all GMD sites -Continued to support Base Operations at all GMD sites in accordance with host installation support agreements -Continued utilizing logistics repair analysis to optimize spares replenishment, and performance metrics to improve maintenance processes and procedures to improve weapon system reliability -Continued on-site sustaining engineering, for real time trouble shooting and ensuring logistics analysis is incorporated in technical data products -Continued to collect Reliability, Availability, Maintainability and Test (RAM-T) data and calculate and track performance metrics on the Operational System -Continued to perform failure analysis and resolve systemic issues to reduce sustainment costs			

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency		Date: March 2014
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*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
-Continued to identify and prioritize obsolescence issues for resolution to support Ground Systems Obsolescence Upgrade Program -Continued to provide training to qualify the Warfighter to operate the GMD Weapon System, as well as educating other staff members on the system -Continued to develop and field technical manuals to maintain crew proficiency and support architecture baseline changes ***FY 2014 Plans:*** N/A ***FY 2015 Plans:*** N/A			
Accomplishments/Planned Programs Subtotals	129.644	-	-

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 2015 Missile Defense Agency			Date: March 2014
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*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 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 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Sustainment - Colorado Springs Operations	MIPR	Air Force COS : CO	0.000	3.442		-		-		-		-	-	3.442	-
Sustainment - Fort Greely, Alaska Operations	MIPR	Army Ft. Greely : AK	0.000	18.952		-		-		-		-	-	18.952	-
Sustainment - Government Furnished Property & Services	MIPR	Military Traffic Management Command : Various AL/AK/AZ/CA/CO/ TX/VA	0.000	2.573		-		-		-		-	-	2.573	-
Sustainment - Maintenance of Primary System	SS/CPIF	Boeing AL/AK/AZ : CA/VA	0.000	93.932		-		-		-		-	-	93.932	-
Sustainment - Vandenberg Air Force Base Operations	MIPR	Air Force Vandenberg : CA	0.000	4.084		-		-		-		-	-	4.084	-
Sustainment - Warfighter Training, Exercises, and Wargames	MIPR	MDA : AL/CO	0.000	6.661		-		-		-		-	-	6.661	-
		Subtotal	0.000	129.644		-		-		-		-	-	129.644	-

Remarks

Starting in FY 2014 all funding moved from RDT&E to Operations and Maintenance (O&M) in accordance with the FY 2014 National Defense Appropriation Act (NDAA).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Missile Defense Agency			Date: March 2014
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*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 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 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-		-	-	-	-

Remarks

N/A

	Prior Years	FY 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	129.644		-		-		-		-	-	129.644	-

Remarks

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency			Date: March 2014
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 2013	FY 2014	FY 2015 Base	FY 2015 OCO #	FY 2015 Total	FY 2016	FY 2017	FY 2018	FY 2019	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	47.558	45.335	50.606	58.099	-	58.099	66.449	58.944	46.654	44.871	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

The FY 2015 OCO Request will be submitted at a later date.

Note

N/A

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 Service, and Federally Funded Research and Development Center (FFRDC) providing integrity and oversight of the BMDS as well as, supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. In addition, it includes Global Deployment personnel and support performing deployment site preparation and activation. Other costs included provide facility capabilities for MDA Executing Agent locations, such as physical and technical security, legal services, 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. Also includes legal settlements. In keeping with congressional intent, Program Wide Support is allocated on a pro-rata basis and therefore, fluctuates by year based on the total MDA budget.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2013	FY 2014	FY 2015
Title: Program Wide Support	45.335	50.606	58.099
Articles:	-	-	-
Description: N/A			
FY 2013 Accomplishments: See paragraph A: Mission Description and Budget Item Justification			
FY 2014 Plans: See paragraph A: Mission Description and Budget Item Justification			
FY 2015 Plans: See paragraph A: Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	45.335	50.606	58.099

Exhibit R-2A, RDT&E Project Justification: PB 2015 Missile Defense Agency		Date: March 2014
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 2015 Missile Defense Agency			Date: March 2014
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 2013 Cost	FY 2013 Award Date	FY 2014 Cost	FY 2014 Award Date	FY 2015 Base Cost	FY 2015 Base Award Date	FY 2015 OCO Cost	FY 2015 OCO Award Date	FY 2015 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	-		1.509	Mar 2014	0.437	Mar 2015	-		0.437	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Civilian Salaries, Travel, Training	Allot	MDA : Multi: AK, AL, CA, CO, VA	34.000	32.780		47.182	Oct 2013	57.662	Nov 2014	-		57.662	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Other Agency Services (FFP)	C/FFP	PHACIL, INC : Multi: AK, AL, CA, CO, VA	0.000	0.420		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Other Agency Services (MIPR)	MIPR	Various : Multi: AK, AL, CO, CA, HI, VA	0.000	10.875		-		-		-		-	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	American Institute of Aeronautics & AS : VA	0.000	-		1.915	Feb 2014	-		-		-	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	0.000	1.260		-		-		-		-	3.500	4.760	-
Program Wide Support - Facilities and Maintenance	MIPR	Various : Multi: AK, AL, CA, VA	3.000	-		-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	47.558	45.335		50.606		58.099		-		58.099	-	-	-

Remarks

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2015 Missile Defense Agency			Date: March 2014
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 2013		FY 2014		FY 2015 Base		FY 2015 OCO		FY 2015 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	47.558	45.335		50.606		58.099		-		58.099	-	-	-

Remarks

N/A