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Missile Defense Agency (MDA) Exhibit R-2 RDT&E Budget Item Justification					Date February 2008		
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment			
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COST (\$ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Total PE Cost	2,985,140	2,243,213	2,076,662	1,748,068	1,385,258	946,437	1,103,532
0808 Ground-Based Midcourse Defense (GMD) Block 2004/2006 Development	2,526,819	0	0	0	0	0	0
0908 Ground-Based Midcourse Defense (GMD) Block 2008 Development	316,479	0	0	0	0	0	0
0008 Ground-Based Midcourse Defense (GMD) Block 2010	61,399	0	0	0	0	0	0
AX08 Ground Based Midcourse Defense (GMD) Block 1.0	0	1,387,288	25,178	0	0	0	0
CX08 Ground Based Midcourse Defense (GMD) Block 3.0	0	453,423	1,393,087	1,114,073	21,400	10,531	10,134
DX08 Ground Based Midcourse Defense (GMD) Block 4.0	0	77,133	328,110	360,950	1,089,961	604,144	688,920
XX08 Ground Based Midcourse Defense (GMD) Sustainment	0	279,173	266,605	202,956	230,372	303,105	374,319
0602 Program-Wide Support	80,443	0	0	0	0	0	0
ZX40 Program-Wide Support	0	46,196	63,682	70,089	43,525	28,657	30,159
Amount Included in PE 0904903D				-760,126	-743,527	-450,471	-488,028
Total PE Cost	2,985,140	2,243,213	2,076,662	987,942	641,731	495,966	615,504

Note: For PB09, MDA has implemented a new block structure. With the exception of operations and sustainment activities, content previously planned in Project 0808 for FY08 and beyond is now captured in Project AX08. Project 0908 content is explained in Project CX08. Project 0008 is continued in Project DX08. All operations and sustainment activities for FY08 and out are captured in Project XX08.

Based on FY08 Congressional direction, the SBX program content, including operations and sustainment, previously planned for FY08 in the Midcourse PE (0603882C) has moved to the new SBX PE (0603907C). Beginning in FY09, SBX content will be captured under the BMD Sensors PE (0603884C).

Beginning in FY08 and throughout the FYDP, management of the UWR and Cobra Dane transfers to the MDA BMDS Sensors component (MDA/SN) PE 0603884C.

Also, based on FY08 Congressional direction, \$50M for BMDS communications previously planned for GMD Block 4.0 fielding in FY08 has been transferred to the C2BMC PE (0603896C).

Funding for European Interceptor Site construction in FY08 and FY09 previously captured in the Midcourse PE RDT&E budget exhibits is now explained in MDA Military Construction (MILCON) DD Forms 1390/1391.

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<u>A. Mission Description and Budget Item Justification</u>		
<u>A.1 System Element Description</u>		
<p>The Ground-Based Midcourse Defense (GMD) element is a key component of the Ballistic Missile Defense System (BMDS). This element consists of multiple sensors, a complex communications system, fire control capability, and ground-based interceptors capable of intercepting intermediate and long-range ballistic missile threats in their midcourse phase of flight. The midcourse phase of flight presents a significant opportunity to engage ballistic missile threats. This phase, compared to boost or terminal, has significant time to provide sensor viewing from multiple platforms and multiple engagement opportunities for hit-to-kill interceptors to perform their functions.</p>		
<p>The comprehensive development and test program within GMD will continually upgrade the system from its initial limited capability to an enhanced capability able to destroy advanced threats in the future. The program incorporates development and fielding of additional component capability enhancements, such as additional interceptors, enhanced sensors, and additional and enhanced Ground Systems (GS) hardware; the execution of the flight and ground testing program, including the demonstration of additional Engagement Sequence Groups (ESGs); and the maintenance, sustainment, and support of the fielded capability. These activities and assets support enhanced capabilities to detect, track, intercept, and defeat ballistic missile threats.</p>		
<p>The currently fielded system is limited, intended to support comprehensive development and testing while providing defense of the United States against attack by a limited number of ballistic missiles. GMD has consistently balanced fielding decisions with this robust development program to deliver required operational capability within the existing resource constraints. The FY 2009 budget submission emphasizes integration of the GMD element into the BMDS by delivering increased engagement capabilities against a broad spectrum of potential threats. This capability is described by Engagement Sequence Groups (ESGs) which define the sequence of events used to enable the weapon system to engage a target. The ESGs provide the structure for describing the level of integration maturity of the GMD system within the BMDS. Each engagement sequence identifies the sensors that support four basic functions (acquire/cue, commit, update, and discriminate) required to launch GMD Ground-Based Interceptors (GBI) against a target. Consistent with the BMDS block development strategy, additional ESGs are incorporated into blocks as sensor systems are upgraded and become available. ESGs are addressed separately in the R-2A for each respective block.</p>		
<p>GMD will expand the BMDS capability by continuing the development of a European Interceptor Site, including up to 10 additional interceptors. Supporting equipment and communications capabilities and other facilities capable of providing appropriate protection of equipment are planned.</p>		

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<p>For FY07, the Ground-based Midcourse Element of the BMDS consisted of Blocks 2004/2006, 2008, and 2010. Beginning in FY08 and throughout the FYDP, the GMD element reflects the new MDA block structure. GMD consists of Blocks 1.0, 3.0, 4.0, and the Sustainment category. These blocks and categories are described as follows:</p> <ul style="list-style-type: none"> • Block 1.0 (Project AX08) includes continued development and fielding of capabilities to defend the U.S. from limited North Korean Long-Range Threats. These capabilities include GBIs and ground-based capabilities (an upgraded Cobra Dane radar, upgraded Early Warning Radars (UEWR), a Sea-Based X-Band (SBX) radar, In-Flight Interceptor Communications System (IFICS) data terminals (IDT), Ground-based Fire Control and Communication (GFC) Nodes, and a Global Communications Network (GCN) including fiber and satellite communications systems). Block 1.0 includes integrated flight and ground testing of the multi-layered BMDS components and the fielding of additional component capability enhancements. The fielding of additional GBIs, integration of UEWRs and the SBX, and fielding of two additional IDTs in Block 1.0 broadens the area of coverage of the initial BMDS. Additionally, efforts include the development of enhanced capabilities to detect, track, intercept, and defeat ballistic missile threats, and the incorporation of simultaneous test and operations upgrades. • Block 3.0 (Project CX08) provides development and fielding of capabilities to expand defense of the U.S. to include limited Iranian long-range threats. These capabilities include an additional missile field at Fort Greely, integrated testing of the multi-layered BMDS components, the fielding of additional GBIs, development and accelerated testing of a 2-stage booster, a fleet avionics upgrade/obsolescence program, and improvement in the ability to engage evolving threats by testing and fielding discrimination algorithms. • Block 4.0 (Project DX08) provides for the expansion of the BMDS capability to defend allies and deployed forces in Europe from limited Iranian long-range threats. These capabilities include a third missile site as well as integrated testing of the multi-layered BMDS components. Block 4.0 incorporates the fielding of additional interceptors including the 2-stage configuration of the 3-stage boost vehicle for the European Interceptor Site (or for expansion of Ft. Greely). Block 4.0 will also incorporate the replacement of obsolescent Ground Systems hardware to include the IBM Regatta GFC processors. • The Sustainment category (Project XX08) provides for the operations and sustainment of GMD fielded capability. This includes Logistics Support previously identified in Project 0808 for FY2008-2013 in the PB08 submittal. The GMD Prime contractor and subcontractors will provide monitoring, diagnostics and maintenance of the fielded GMD components. This effort includes the continued development and validation of maintenance procedures, analysis, repair parts stockage levels, and 24/7 monitoring and diagnostics at Vandenberg AFB, Fort Greely, Missile Defense Integration Operations Center (MDIOC), across the nation-wide GMD Communication Network (GCN) and on board the Sea-Based X-Band Radar (SBX). The government is developing a competitive logistics acquisition strategy for follow-on maintenance in accordance with service transition plans and the Performance Based Logistics concept. 		

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A.2 System Element Budget Justification and Contribution to the Ballistic Missile Defense System (BMDS)

The GMD element provides the capability to the Combatant Commanders to engage ballistic missiles in the midcourse phase of flight. The contribution of the GMD system is comprised of:

- Sensors: UEWRs (Beale AFB and Fylingdales, U.K.), Cobra Dane Radar, Sea-Based X-Band Radar (SBX), and the Aegis external system interface
- Interceptors: On-going interceptor fielding, GBI emplacement, and the Exoatmospheric Kill Vehicle (EKV) transition to rate manufacturing
- Fire Control and Communications: High availability with dedicated communications loop inside fire-control ring, 20,000+ miles of terrestrial / submarine fiber, nine satellite communications (SATCOM) links, dual redundant fire control nodes
- Infrastructure: Operational and support facilities at Fort Greely, Eareckson Air Station, Vandenberg AFB, Beale AFB, Schriever AFB, Fylingdales, U.K., and Adak, AK
- Physical security including fences, sensors, crash barriers, entry control and lighting

A.3 Major System Element Goals

- Continue ground and flight testing of Blocks 1.0, 3.0, and 4.0 interceptors and components
- Continue to field the system at Vandenberg Air Force Base, Fort Greely, AK, and at a third missile site
- Support and sustain the fielded system
- Complete development, fielding and transition to alert of Block 1.0
- Verify capability by operationally realistic testing
- Improve BMDS capability and robustness through continued development and integration
- Expand BMDS via increased ESGs and depth of inventory
- Build an international foundation for missile defense

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A.4 Major Events Schedule and Description			
Major Event	Project	Timeframe	Description
Flight Test			
Flight Tests			
FTG-3	0808	2Q FY 2007	<ul style="list-style-type: none"> Demonstrate the functionality of the GBI engage on UEWB Beale engagement sequence group (ESG) for a GBI launched from Vandenberg AFB performing all functions through acquisition, discrimination, transition to terminal, and intercepting the lethal object. Test was conducted in 2nd Qtr FY 2007. Due to target failure, interceptor was not launched, resulting in a "no test".
FTG-3A	0808	4Q FY 2007	<ul style="list-style-type: none"> Completed with successful intercept in 4th Qtr FY07. Same test objectives as FTG-3. This test was not on PB08 schedule. Due to "no test" result in FTG-3, this test was inserted into the FY07 schedule.
FTG-4	AX08	2Q FY 2008	<ul style="list-style-type: none"> Demonstrate the functionality of the GBI engage on UEWB or AN/TPY-2 ESG for a GBI launched from Vandenberg AFB performing all functions through acquisition, discrimination, transition to terminal, and intercepting the lethal object from a live target complex launched from Kodiak using a more complex target scene than previous tests. In PB08 this test scheduled for 4th Qtr FY 2007. Due to "no test" result of FTG-3 and subsequent insertion of FTG-3A, FTG-4 is rescheduled for 2nd Qtr FY 2008.
FTG-5	AX08	4Q FY 2008	<ul style="list-style-type: none"> Demonstrate BMDS multi-sensor integration and functionality of the GBI engage on UEWB, AN/SPY-1, AN/TPY-2 or SBX for GBI launched from Vandenberg AFB to perform all functions through acquisition, discrimination, transition to terminal, and intercepting a medium/high closing velocity lethal object. Due to insertion of FTG-3A into the GMD FY2007 schedule and resulting rescheduling of FTG-4, this test pushed to the right from the PB08 1st Qtr FY 2008 date.
FTG-6	CX08	2Q FY 2009	<ul style="list-style-type: none"> Demonstrate BMDS functionality of the GBI engage on AN/SPY-1 for GBI launched from Vandenberg AFB to perform all functions through acquisition, discrimination, transition to terminal, and intercepting a medium closing velocity lethal object.
BVT-1	CX08	4Q FY 2009	<ul style="list-style-type: none"> Demonstrate two-stage booster performance on engagement flyout with energy management maneuvers.
Contract Activity			
BMDS Certification			
FTX-02	0808	2Q FY 2007	<ul style="list-style-type: none"> Completed 2nd Qtr FY 2007.
FTM-15	AX08	4Q FY 2008	<ul style="list-style-type: none"> GMD participation in Aegis BMD flight test.
FTS-01	CX08	3Q FY 2009	<ul style="list-style-type: none"> Delayed until mid-CY 2009 due to delays in STSS Program; GMD and SBX test objectives under review.
FTX-05	CX08	4Q FY 2009	<ul style="list-style-type: none"> Test objectives under review.
Integrated/Distributed Ground Tests			
GTD-01	0808	1Q FY 2007	<ul style="list-style-type: none"> Completed 1Q FY 2007

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Major Event	Project	Timeframe	Description
GTX-2A	0808	2Q FY 2007	<ul style="list-style-type: none"> Completed 2nd Qtr FY 2007.
GTG-04-3 (GT-04-3 (IGT-6))	0808	3Q FY 2007	<ul style="list-style-type: none"> Demonstrate the readiness of the GMD Block 06 initial capability upgrades including SBX and Fylingdales UK UEW R for field integration and BMDS ground tests.
GTG-04-4A (GT-04-4A)	0808	3Q FY 2007	<ul style="list-style-type: none"> Demonstrate for the first time the end-to-end integration of the UEW R at Fylingdales and Sea Based Radar into the GMD element from simulated target signatures to the delivery of the Weapons Task Plan to the Command Launch Equipment. This event will also include the installation of GFC/C 6a software occurring first at the Joint National Integration Center (JNIC) GFC/C node, phase A of the test.
GT-04-4B (GT-04-4B (DGT-3B))	0808	4Q FY 2007	<ul style="list-style-type: none"> Demonstrate for the first time the end-to-end integration of the UEW R at Fylingdales UK and Sea Based Radar into the GMD element from simulated target signatures to the delivery of the Weapons Task Plan to the Command Launch Equipment. This event will also include the installation of GFC/C 6a software occurring at the Fort Greely node, phase B of the test.
GTI-02	0808	4Q FY 2007	<ul style="list-style-type: none"> Completed 4th Qtr FY 2007.
GTD-02	AX08	1Q FY 2008	<ul style="list-style-type: none"> Assess BMDS ability to simultaneously execute multiple Block 06 Engagement Sequence Groups (ESG) using theater and strategic assets with Block 06 scenarios while using operational communications.
GTG-03A (GT-06-3 (IGT-7))	AX08	2Q FY 2008	<ul style="list-style-type: none"> Demonstrate the readiness of the GMD Block 06 final capability upgrades including the GFC build 6B for field integration and BMDS ground tests; demonstrate GMD capability to launch multiple interceptor types from a single launch site and/or multiple launch sites.
GTI-03	AX08	3Q FY 2008	<ul style="list-style-type: none"> Assess BMDS ability to simultaneously execute multiple Block 06 ESGs using theater strategic assets with Block 06 scenarios and Block 06 threats.
GTD-03	AX08	4Q FY 2008	<ul style="list-style-type: none"> Assess BMDS ability to simultaneously execute multiple Block 06 Engagement Sequence Groups (ESG) using multiple raid sizes; assess Block 06 functionality and interoperability; demonstrate AN/TPY-2 functionality and interoperability with BMDS.
GTG03B.1 (GT-06-4A (DGT))	AX08	4Q FY 2008	<ul style="list-style-type: none"> Assess GMD's ability to simultaneously execute multiple Block 06 Engagement Sequence Groups (ESG) using theater and strategic assets with Block 06 scenarios while using operational communications; assess final GMD Block 06 functionality and interoperability with specific BMDS elements. Merged under GTD-03.
GTX-03c	CX08	1Q FY 2009	<ul style="list-style-type: none"> Test objectives under review
GTX-09	CX08	2Q FY 2009	<ul style="list-style-type: none"> Test objectives under review
GTI-09	CX08	3Q FY 2009	<ul style="list-style-type: none"> Test objectives under review.
Capability Enhancement GBIs			
LDC Missiles 14-18	0808	1Q FY 2007 - 2Q FY 2007	
LDC Missiles 19-24	0808	3Q FY 2007 - 4Q FY 2007	
GBI Refurbishment (Up to 4 Interceptors)	AX08	1Q FY 2008 - 4Q FY 2008	<ul style="list-style-type: none"> Refurbishment consists of design enhancements on a select number of interceptors that would improve interceptor reliability and performance.
LDC Missiles 25-30	AX08	1Q FY 2008 - 2Q FY 2009	

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Major Event	Project	Timeframe	Description
GBI Refurbishment (Up to 4 Interceptors)	CX08	1Q FY 2009 - 4Q FY 2009	<ul style="list-style-type: none"> Refurbishment consists of design enhancements on a select number of interceptors that would improve interceptor reliability and performance.
LDC Missiles 31-44	CX08	4Q FY 2010 - 4Q FY 2011	
LDC Missiles 45-54	DX08	3Q FY 2012 - 2Q FY 2013	

B. Program Change Summary	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008 PB)	3,043,058	2,520,064	2,359,665
Current President's Budget (FY 2009 PB)	2,985,140	2,243,213	2,076,662
Total Adjustments	-57,918	-276,851	-283,003
Congressional Specific Program Adjustments	0	-261,300	0
Congressional Undistributed Adjustments	0	-15,551	0
Reprogrammings	-10,879	0	0
SBIR/STTR Transfer	-47,039	0	0
Adjustments to Budget Years	0	0	-283,003

FY07 decrease includes SBIR/STTR transfer of \$47.039 million and reprogramming of \$10.879 million. The reprogramming consisted of \$2.890 million for an approved above threshold reprogramming for Near-Term Sea Based Terminal and \$7.989 million for other MDA reprogramming.

FY08 Congressional Specific Program Adjustments include transfer of \$166.3 million to the SBX PE (0603907C), transfer of \$50 million to the BMD C2BMC PE (0603896C), a reduction of \$85 million in European Capability funding, and an addition of \$40 million for CTTO and test infrastructure upgrades.

SBX program content, including operations and sustainment, previously planned for FY08 in the Midcourse PE is now captured in the SBX PE (0603907C).

Beginning in FY09, SBX content will be captured under the BMD Sensors PE (0603884C).

FY09 decrease of \$283.003 million reflects MDA programmatic changes to support program requirements including the realignment of SBX funding to the BMD Sensors PE (0603884C).

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COST (\$ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0808 Ground-Based Midcourse Defense (GMD) Block 2004/2006 Development	2,526,819	0	0	0	0	0	0
RDT&E Articles Qty	28	0	0	0	0	0	0

Note: With the exception of operations and sustainment activities, the content previous planned in FY07 project 0808 for FY08-13 has been captured in FY08-13 project AX08 in accordance with the MDA revised block structure. Operations and sustainment content has been captured in FY08-13 project XX08.

A. Mission Description and Budget Item Justification

Block 2004/2006 (Project 0808) provided the funding for the development and fielding of additional component capability enhancements such as execution of the flight and ground testing program including demonstration of additional Engagement Sequence Groups (ESGs); additional interceptors and Ground Systems (GS) hardware; and the sustainment and support for the fielded capability. These activities and assets supported the enhanced capabilities to detect, track, intercept, and defeat ballistic missile threats.

The GMD Block 2004/2006 (Project 0808) development program provided enhancements of the interceptor Exoatmospheric Vehicle (EKV), sensors, and GMD GS components and infrastructure. Block 2004/2006 provided the following capabilities:

- The EKV -- a “Hit-to-Kill” payload designed to acquire, discriminate, track, and intercept targets in the midcourse phase of flight. The key components and technologies of the EKV include the acquisition and tracking sensors, the on-board maneuvering system, and the on-board vehicle Command, Control, and Communications (C3) systems. For Block 2006, the Capability Enhancement-II (CE-II) EKV was demonstrated as part of the block improvement process in both the ground and flight test programs. This enhancement addressed EKV obsolescence issues and provided additional processor throughput to support system wide discrimination capabilities.
- The sensor development program mixed enhancements to existing radar assets with development of new radar capabilities.
 - The program continued testing of the Upgraded Early Warning Radars (UEWRs) at Beale AFB and Fylingdales, U.K. and the Cobra Dane radar at Shemya, AK.
 - A broad range of X-Band Radar (XBR) technologies continued in development to support the SBX.
- The GMD GS component is an integrated communications network of nodes to enable the GMD element to function as part of the BMDS. Hardware and software upgrades to the GS included improvements for the warfighter, strong authentication, booster drop avoidance, simultaneous test and operations upgrades, and hardware upgrades to address emerging obsolescence issues. GS components being upgraded included:
 - Communications links (e.g., CONUS ring with connections to Alaska leased lines or satellite communications between Eareckson AS, Fort Greely, Schriever AFB, Cheyenne Mountain AFS, Peterson AFB, Buckley AFB, SBX, Fylingdales UK, Beale AFB, Vandenberg AFB, etc.)

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<ul style="list-style-type: none">○ GMD Fire Control and Communications (GFC) Nodes [Fort Greely and Missile Defense Integration Operations Center (MDIOC) with remote operator workstations at Cheyenne Mountain Operations Center (CMOC)]○ In-Flight Interceptor Communications System Data Terminal (IDTs) at various locations. <p>The Block 2004/2006 GMD flight and ground test program was designed to evaluate and verify GMD system performance and collect data to anchor models and simulations. In Block 2004/2006, two Integrated Ground Tests (IGTs)/Distributed Ground Tests (DGTs) were conducted that verified GMD capabilities and support decisions to deploy increased capabilities to the field. In addition, five GMD flight tests were conducted and two BMDS level flight tests were supported to demonstrate an increasing level of element capability to defeat realistic threat complexes. Verification of system performance was completed by exercising high fidelity models and simulations that had been validated with data from the flight and ground test program. Engagement Sequence Groups (ESGs) were demonstrated in the GMD Integrated Test Program. Capabilities of the BMDS will be enhanced as the number of operationally available ESGs and the depth of inventory increases. During Block 2004, GMD demonstrated the capability to execute five ESGs:</p> <ul style="list-style-type: none">● Engage on Cobra Dane (CD) & UEWR● Engage on AN/SPY-1● Launch on AN/SPY-1● Engage on AN/TPY-2 (Search and Track)● Launch on AN/TPY-2 (Search and Track) <p>During Block 2006, additional BMDS ESGs were demonstrated to include:</p> <ul style="list-style-type: none">● Engage on Cobra Dane (CD) & UEWR (Mod 1)● Launch on CD & UEWR● Launch on AN/SPY-1 Mod 1● Engage on SBX● Launch on SBX <p>Block 2004/2006 funding supported the fielding of significant additional assets. This increase the available fielded assets to twenty-four GBIs (with associated ground hardware), six In-Flight Interceptor Communication System (IFICS) Data Terminals (IDTs), three GFC nodes, and five Defense Satellite Communications System (DSCS) terminals. This additional hardware facilitated the conduct of simultaneous test and operations of the GMD element. The resources to operate and sustain the GMD element were also provided within the Block 2004/2006 funding profile. Contractor</p>		

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Logistics Support (CLS) and logistics infrastructure were supplied for the emplaced GBIs, sensors, and Ground Systems (GS) components. Additionally, spare replenishment, power enhancements at Fort Greely, and stockpile reliability testing was provided.

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Sea-Based X-Band Radar	107,864	0	0
RDT&E Articles (Quantity)	3	0	0

The Sea-Based X-Band (SBX) Radar consists of four major operating systems: vessel; X-Band Radar (XBR); In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT), and; the Ground-Based Midcourse Defense (GMD) Communications Network (GCN). The vessel is a commercially designed, self-propelled, semi-submersible oil drilling platform that was modified to meet the functional requirements of the SBX. The vessel has a dynamic positioning capability to enable precision station keeping in potential adverse sea states and weather conditions. The XBR is a phased-array system that also features a mechanical slewing capability in azimuth and elevation. The XBR operates in the X-Band portion of the frequency spectrum and represents the world's largest X-band radar. When fully integrated with the GMD system, it will become the primary midcourse discrimination sensor for Ballistic Missile Defense. X-band technology provides this midcourse sensor with the ability to perform high resolution cued search, acquisition, tracking, and target discrimination. To perform this effort, highly sophisticated algorithms are designed to enhance target acquisition and discrimination of more complex and off-nominal threat sets and targets.

FY07 Accomplishments:

RDT&E Test Articles: Acquisition of XBR software builds 1.6.1 and 2.2 initiated in FY03 delivered in FY07. (Build 2.2 delivered but not tested.)

- Completed and delivered Software Build 1.6.1. The main attribute of this software build was completion of final calibration of the radar in Oct 06. Evolutions of B1.6.1.x software continued throughout the year (Build 1.6.1.5 at end of FY07) as experience was gained on the radar through flight tests, ground tests, targets of opportunity, satellite tracking, and general operation on the vessel.
- Continued flight and ground test support.
 - FTX-02 - This represented the first flight test in which XBR was connected to the GMD Fire Control/Communication (GFC/C) Component. The XBR was successfully cued by another BMDS asset. The target was successfully placed into track. Due to the presented target environment, SBX exhibited several problems with respect to collecting data for the advanced algorithms suite development. Problems were corrected and incorporated in subsequent builds of 1.6.1.x software.
 - FTG-03 - SBX, in shadow mode, supported risk reduction for GBI engage on SBX ESG in FTG-04. However, this flight was declared a “No Test “ due to a target vehicle anomaly.

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<ul style="list-style-type: none"> ○ FTG-03a - SBX was in a shadow mode and supported risk reduction for the GBI engage on SBX ESG in FTG-04. SBX successfully performed its mission on this flight test. ○ GT-04-4A - This represented the first ever GMD Integrated Ground Test (IGT) for SBX. Valuable information was collected on the XBR operational software. Software changes were incorporated into subsequent builds during the FY. ○ GT-04-4B - This represented the first ever GMD Distributed Ground Test (DGT) for SBX. Valuable information was collected on the XBR operational software. Software changes were incorporated into subsequent builds during the FY. ○ GTI-02 - This represented the first ever BMDS IGT for SBX. Valuable information was collected which provided validation information for an Emergency Capability Delivery (ECD) decision for SBX incorporation into the GMD System. ● Conducted Winter Shakedown of the SBX. Voyage was made from the vicinity of Hawaii to the Aleutian Islands and represented the first ever visit of the SBX to its home port in Adak, AK. Vessel remained on station in the Bering Sea for most of Jan/Feb 07. Valuable information was collected on winter operations. ● Completed procurement and installation of Adak Mooring. Due to the Operational Tempo of the GMD System, the classification of the mooring will not be completed until FY09. ● Conducted pre-deployment readiness efforts. ● Completed Phase I Operational Enhancements to upgrade the SBX capability. Phase I consisted of: completion of engineering/design for Helodeck to obtain U.S. Navy and USCG certification; installation of wave sensors and bridge monitoring equipment, completion of engineering/design for vessel mooring modifications; completion of necessary modifications to the Temporary Emergency Radome Pressurization System (TERPS) to convert it into a Permanent Emergency Radome Pressurization System (PERPS), and; completion of engineering/design for an additional port side crane and a Quick Launch Response Boat (QLRB). The port side crane and QLRB were procured. The Operational Tempo of the GMD System has precluded vessel modifications for those items that have completed engineering/design - expected completion for these tasks is FY08. ● Completed Phase II Operational Enhancements to upgrade the SBX capability. Phase II consisted of: engineering/design modifications to galley and scullery to upgrade to U.S. Navy standards; added enhanced communication architecture to SBX Ops Center; and procured and installed emergency generator backup manual control to provide operator capability for restoring emergency power. The Operational Tempo of the GMD System has precluded vessel modifications for those items that have completed engineering/design - expected completion for these tasks is FY08. 		

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	FY 2007	FY 2008	FY 2009
Upgraded Early Warning Radar (UEWR) and Cobra Dane Development	79,153	0	0
RDT&E Articles (Quantity)	0	0	0

Note: Management of Upgraded Early Warning Radar (UEWR) and Cobra Dane Upgrade (CDU) development transfers to the MDA BMDS Sensors component (MDA/SN) PE 0603884C for FY08 and out.

Upgraded Early Warning Radars (UEWRs) and CDU are large, fixed, phased-array surveillance radars used to detect, track, and classify individual targets early in their trajectory. These are multi-mission radars that, in addition to Missile Defense, support other forward users (e.g., other UEWR missions include Missile Warning and Space Surveillance). The UEWR upgrades add new capability to these legacy radars that improves detection, tracking, classification, and reliability/availability performance. These upgrades provide precise tracking early enough to significantly expand the battlespace for the ground-based interceptors. While the UEWRs and CDU, on their own, can provide sufficient data to generate a weapons task plan, they can also cue the X-Band radars to the location and trajectory of incoming targets. For UEWR, this program provides for hardware replacement of decades old processing technology and new communications equipment, and the development of new software that supports each mission. For CDU, the program provides for minor changes to existing hardware and new communications equipment, and the development of missile defense software integrated into the existing legacy software.

FY07 Accomplishments:

- COBRA DANE was first BMDS system to be certified by U.S. Strategic Command (USSTRATCOM).
- Completed UEWR operational testing for Fylingdales UK and Beale AFB sites
- Demonstrated concurrent operations in Missile Warning, Space Surveillance and Missile Defense missions at Beale.
- Completed Trial Period for Beale and Fylingdales UEWRs.
- Achieved Air Force Space Command (AFSPC) operational acceptance of legacy missile warning and space surveillance missions for Fylingdales and Beale UEWRs.
- Achieved Fylingdales UEWR Missile Defense Early Capability Declaration.
- Continued flight and ground test participation of UEWRs.
- Beale UEWR successfully tracked target in FTX-2 and FTG-03A flight tests.
- Fylingdales UEWR successfully tracked a live missile target of opportunity

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	FY 2007	FY 2008	FY 2009
Element Engineering & Integration	208,112	0	0
RDT&E Articles (Quantity)	0	0	0
<p>GMD Element Engineering and Integration (EE&I) provides systems engineering and integration essential for the development and fielding of the functional components of the GMD segment of the BMDS. This program establishes element-level development requirements in the GMD Capabilities Document and ensures these are allocated to the component specifications. GMD EE&I complements the BMDS systems engineering capability by providing detailed insight and analysis into component technical and design-specific issues during fabrication, element-level integration, testing and fielding. It also defines element-level test requirements and objectives and provides element-level analysis and assessments to verify GMD performance. EE&I provides engineering, integration, and operations planning supporting the BMDS, including assessment of future fielding options, and defines requirements for design and development of GM component hardware (H/W) and software (S/W) to implement a safe and secure simultaneous test and operations capability. This capability will allow GMD to continue RDT&E activities with minimal impacts to the BMDS operational capability.</p> <p>FY07 Accomplishments:</p> <ul style="list-style-type: none"> • Completed Block 2006 Initial Capability (Integration Phase 4 (IP-4) Integrated Assessment Review (IAR)). • Completed Block 2006 Delta Preliminary Design Review (PDR). • Completed Block 2006 Delta Critical Design Review (CDR). (Additional Delta CDR for STO will occur in FY09) • Continued software management and specialty engineering. • Continued software verification and validation. • Continued modeling and simulation development of GMD End-to-End Simulation, and Integration of Embedded Test (ET) into Missile Defense System Exerciser (MDSE). • Continued system analyses, integration, and verification. • Supported integrated ground tests and specialty testing. • Conducted pre- and post-flight test analyses. • Completed the integration and testing of engage on AN/TPY-2 ESG. • Continued simultaneous test and operations efforts. • Continued development of Discrimination capabilities. • Upgraded Hardware-in-the-Loop. • Continued Fort Greely power enhancements. 			

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	FY 2007	FY 2008	FY 2009
Ground Systems	285,773	0	0
RDT&E Articles (Quantity)	10	0	0
<p>GMD Ground Systems (GS) enable control and operation of the GMD Element as part of BMDS. The Fire Control sub-component consists of the GMD Fire Control (GFC), Test Exerciser (TEx), and External Systems Interface (ESI). The communications sub-component consists of (1) GMD Communications Network (GCN) and (2) the In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT). The launch systems sub-component consists of launch site components (silos, SIVs) and Launch Support Systems (Command Launch Equipment (CLE) and Launch Support Equipment). The Project 0808 Construction requirements are addressed in the GS Accomplishment/Planned Program.</p> <p>This GMD RDT&E Construction request is further justified in the accompanying DD-1391 Exhibits, RDT&E Construction Data.</p> <p>FY07 Accomplishments: RDT&E Test Articles: Completed acquisition of five (5) silos and associated launch support equipment at Ft Greely. Completed installation and checkout of a second IDT at Fort Greely, and a second GFC node at MDIOC. Completed construction, installation and checkout of a third operational silo at Vandenberg AFB. Completed delivery, installation, and checkout of the first CLE and first Launch Equipment Booster Vehicle Simulator (LEBVS) from the LSS Obsolescence Upgrade activity. Upgraded GS Hardware and software to enable initial capability for conducting simultaneous test and operations.</p> <ul style="list-style-type: none"> • 5 Silos, Installation & Check-out of associated Launch Support Equipment (LSE) were completed at FGA in MF3 for FY07. Modifications of Two Silos in MF1, completed by Installing a New Redesigned Lateral Support Group (LSG) in each Silo (Maintenance Activities). • Continued flight and ground test support. • Completed installation and checkout of a second IDT at Fort Greely increasing our capability to communicate with in-flight interceptors once it is integrated into the BMDS architecture • Completed acquisition, installation and checkout of a second GFC node at MDIOC increasing GMD capability for conducting simultaneous operations, test and upgrades (Fielding). • Completed construction, installation and checkout of a third operational silo allowing for increased quantity of operational GBIs at Vandenberg AFB (Fielding). • Completed fielding of GFC software version 6A and CLE software version 2.7.2 which add additional capabilities including ability to terminate an engagement after GBI is launched, updated sensor load performance models to provide a more accurate representation of predicted Sensor Access and strong authentication to ensure secure processing of critical messages. (Fielding). 			

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<ul style="list-style-type: none"> • Completed development of GFC software version 6B and CLE software build 4.0 which add additional capabilities including improved fault detection / fault isolation, ability to designate first stage booster drop exclusion zones, incorporated Warfighter requested changes to GFC display (Shot Quality Display; Heavy Decision Support (Second Pass); and Terminate Engagement Decision Support) and upgrade to CLE hardware/software to mitigate obsolescence and support increased GBIs. • Initiated construction of a second Relocatable IDT (RIDT). • Initiated construction of a fourth operational silo at Vandenberg AFB. • Replaced legacy Cisco 2924 Ethernet switches inside Communications Node Equipment (CNE) at all locations. • Installed one Communications Node Equipment/Network System Manager (CNE/NSM) and associated Long Haul Communications (LHC) at MDIOC for Simultaneous Operations and Test (STO) Phase 1A. • The following STO Phase 1B equipment was installed, but has not been made operational: <ul style="list-style-type: none"> ○ MDIOC - one CNE/NSM and associated LHC, and one Intelligence Protection Switch (IPS). ○ Fort Greely - one CNE/NSM and associated LHC, and one IPS. ○ Vandenberg AFB - one CNE/NSM and associated LHC. 			
	FY 2007	FY 2008	FY 2009
Element Test and Evaluation	297,788	0	0
RDT&E Articles (Quantity)	3	0	0
<p>GMD Test and Evaluation plans and executes GMD ground and flight tests to evaluate and verify GMD system performance and collect data to anchor models and simulations. GMD Test and Evaluation utilizes a comprehensive infrastructure of ground-test facilities, ranges, sensors and instrumentation resources providing critical risk reduction and measurement of system performance for all GMD element components. This infrastructure allows the element engineers to successfully model and simulate test results into projections of future system performance. GMD Test and Evaluation integrates developmental and operational test planning, shares test resources, collects and assesses test data, collectively resolves test issues, minimizes the duplication of test resources and the time required to execute required testing, and supports BMDS level test and evaluation.</p> <p>FY07 Accomplishments: Flight Test Objectives:</p> <ul style="list-style-type: none"> • FTX-02: Demonstrated GBI engage on SBX ESG through a simulated intercept of a live target; collected SBX data to support assessment of radar functions as a risk reduction path for FTG-04. 			

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<ul style="list-style-type: none"> • FTG-03/03A: Demonstrated the functionality of the GBI launch on/engage on UEWR (Beale AFB) engagement sequence group (ESG) for a GBI launched from Vandenberg AFB, performing all functions through acquisition, discrimination, transition to terminal, and intercepting the lethal object. <p>Ground Test Objectives:</p> <ul style="list-style-type: none"> • GT-04-3: demonstrated the readiness of the GMD Block 06 initial capability upgrades including SBX and Fylingdales UK UEWR for field integration and BMDS ground tests. • GT-04-4: verified the GMD GFC 6A system software upgrade; demonstrated GMD system is consistent with previously demonstrated behavior for Block 04 ESGs; demonstrated GMD capability to perform Block 06 ESGs. • GTD-01: assessed BMDS ability to simultaneously execute multiple Block 04 Engagement Sequence Groups (ESG) using multiple raid sizes; assessed Block 04 functionality and interoperability; demonstrated AN/TPY-2 functionality and interoperability with BMDS. • GTI-02: assessed BMDS ability to simultaneously execute multiple Block 06 ESGs using theater and strategic assets with Block 06 scenarios; assessed BMDS initial Block 06 functionality and interoperability with THAAD, AN/TPY-2, C2BMC, GMD, Aegis, SBIRS, and PATRIOT; exercised functionality used in applicable Block 06 ESGs with priority on: THAAD engage on AN/TPY-2, and ESGs with AN/TPY-2 as a sensor. • Conducted GMD Flight Tests FTG-03 and FTG-03A. <ul style="list-style-type: none"> ○ FTG-03 was a planned intercept mission exercising the GBI Launch On/Engage On Beale UEWR for a GBI launched from VAFB and a target launched from Kodiak Launch Complex (KLC). Additionally, FTG-03 added SBX and Aegis as stand-alone sensors for future test risk reduction. Failure of the target vehicle resulted in a “No Test “. ○ FTG-03A repeated the FTG-03 test configuration and was conducted and accomplished with successful intercept on 28 Sep 2007. ○ Conducted Distributed Ground Tests (DGT) GT-04-4-A and GT-04-4-B. GT-04-4 was a distributed system-level test utilizing an operational test architecture reflecting the GMD element at the time of event execution. GT 04-4A demonstrated for the first time the end-to-end integration of the UEWR at Fylingdales UK and Sea Based Radar into the GMD element from simulated target signatures to the delivery of the Weapons Task Plan to the Command Launch Equipment. This event also included the installation of GFC 6a software occurring first at the JNIC GFC node (phase A) then the Fort Greely (FGA) node (phase B). In addition, GT 04-4 provided the GM element baseline to take forward to the next BMDS-level distributed ground test (GTD-02). • Participated in a BMDS level integrated ground test (GTI-02) as the GMD element. GTI-02 assessed BMDS, with GMD participation, ability to simultaneously execute multiple Block 06 engagement sequence groups (ESGs) using theater and strategic assets with Block 06 scenarios. Participants were: C2BMC, GMD, Aegis BMD, AN/TPY-2, Space Based Infrared System Management Control System (SBIRS MCS), Patriot, Joint Test Action Group (JTAG), Joint Range Extension (JRE), Test Control System (TCS) and TCES. 		

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<ul style="list-style-type: none">• Participated in the first BMDS level distributed ground test (GTD-01) as the GMD element. GTD-01 was led by the Missile Defense Agency Combined Test Force (CTF). GMD utilized all deployed components of the system and integrated with the remainder of the BMDS via the GMD Fire Control/ Communication (GFC)/Command & Control, Battle Management and Communication (C2BMC) interface. GMD hardware and software configuration were the same as GMD Ground Test 04-2 (GT 04-2), conducted earlier in FY06. Participation in this test completed the lab/field test cycle for the first BMDS Ground Test Campaign. Additional BMDS elements were: C2BMC, Aegis BMD, Space-Based Infrared System (SBIRS), and the AN/TPY-2 radar (formerly know as Forward-Based X-Band Radar Transportable (FBX-T)).• Completed acquisition of targets.• Supported one (1) BMDS GTX test (GTX-02-A). GTX-02-A was a BMDS level ground test that assessed the BMDS's ability to simultaneously execute Block 06 ESGs using theater assets with Block 06 scenarios with priority on THAAD Engage On AN/TPY-2. GMD provided the GFC and the JNIC BMC3 Element Lab (BEL) for this event. Performed pre- and post-test analyses of all ground and flight in the System Test Analysis and Reporting (STAR) Lab.• Performed analyses to define target requirements (STAR Lab).• Assessed previous flight and ground test results from data analysis and incorporated in future test objectives.• Continued operation and maintenance of System Test Lab, PCIL -1 and -2, and ISTC-2; transitioned ISTC-1 to MDA (MDA to start funding Operations and Sustainment January 2008).• Upgraded ISTC-1 and 2 with the Capability Enhancement-2 configuration. This upgrade allows the System Test Labs (STLs) to support up to 20 interceptor capability for all future test events.• Upgraded PCIL-1 and -2 to support Pre-Mission Tests (PMTs) and Pre-Distributed Ground Tests (DGTs).• Conducted Pre-Mission Tests (PMT) to support the Flight Test FTG-03, and FTG-03A; Pre-Mission Testing for FTG-04 is currently in progress;• Conducted Post Flight Reconstruction (PFR) (ISTC-2).		

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	FY 2007	FY 2008	FY 2009
Program Management	363,766	0	0
RDT&E Articles (Quantity)	0	0	0
<p>This effort provides for the prime contractor and government management of the GMD program. Included in this effort is program and business management, program administration, technical and testing oversight, subcontractor management, verification of hardware and software development, quality and manufacturing assurance, configuration management, integrated logistics support, and government manpower and infrastructure to develop, test and sustain the GMD system and components.</p> <p>FY07 Accomplishments:</p> <ul style="list-style-type: none"> • Provided government and contractor program staff and infrastructure for the overall management of the GMD program. • Provided technical and business management support activities, financial management, cost and schedule performance analysis, cost estimation and analysis, configuration management and integration activities. • Provided government and contractor program management for European capability implementation. • Provided contractor program management, subcontract management, quality assurance, verification of hardware and software development, and technical and testing oversight. • Provided management for GMD program quality assurance, manufacturing assurance, safety assurance and configuration management. • Ensured GMD compliance with internal and external direction, policies, and regulations. • Provided Integrated Logistics Support for the GMD program. 			
	FY 2007	FY 2008	FY 2009
Operations and Sustainment	491,816	0	0
RDT&E Articles (Quantity)	0	0	0
<p>This effort provided Logistics Support for the GMD Block 2004/2006 fielded capability. The GMD prime contractor and subcontractors provided monitoring, diagnostics, and maintenance of the fielded GMD components, including all GBIs, Silos, GFC nodes, ground launch systems, communications systems, and radars (i.e., SBX, Beale AFB, Cobra Dane, and Fylingdales, UK) on-site and from the manufacturing sites. This effort included the continued development and validation of maintenance procedures, analyses, repair parts stockage levels, and 24/7 monitoring and diagnostics at Vandenberg AFB, Fort Greely, the Missile Defense Integration and Operations Center (MDIOC), across the nationwide GMD Communication Network (GCN) and on board the Sea-Based X-Band Radar (SBX). During this period, the government developed a logistics</p>			

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<p>acquisition strategy for FY08 follow-on maintenance in accordance with service transition plans and the Performance Based Logistics (PBL) concept.</p> <p>FY07 Accomplishments:</p> <ul style="list-style-type: none">• Provided GMD Element operations and sustainment for Prime Mission Equipment (PME), support equipment, and operational facilities at FGA, Earecksen Air Station (EAS), Colorado Springs (COS), VAFB, Beale AFB, and Fylingdales.• Established 24/7/365 on-site field support to all fielded assets through Contractor Logistics Support (CLS) on-site/recall personnel.• Continued operations and support of the SBX vessel and all on-board equipment; the Primary Support Base (PSB) at Adak, AK; the Operations Support Site (OSS) at Ft. Richardson, AK; and the M/V Dove support vessel.• Maintained GMD facilities at FGA; VAFB; EAS; and Adak, AK.• Initiated discussions with the United States Navy to facilitate transition and transfer of the SBX in the FY09/FY10 timeframe.• Completed procurement and installation of the SBX mooring at Adak, AK. Due to the Operational Tempo of the GMD System, the classification of the mooring will not be completed until FY09.• Transitioned non-mission critical logistics infrastructure support to chartered base support organizations.• Continued on-site sustaining engineering through establishment of targeted capability expertise; expanded reliability, availability and maintainability oversight; and streamlined maintenance structure.• Refined spare replenishment posture IAW actual spare usage, and refined level of stockage IAW streamlined maintenance structure.• Initiated stockpile reliability and component aging testing, procured long lead items, and initiated testing.• Initiated security enhancements at Ft. Greely, Vandenberg AFB, Eareckson Air Station, and Adak.• Performed transportation management, planning, and execution for the shipment of prime mission equipment (PME) throughout the CONUS and Alaska.• Developed Operators Technical Manual for the GFC		

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	FY 2007	FY 2008	FY 2009
Ground Based Interceptors	692,547	0	0
RDT&E Articles (Quantity)	12	0	0
<p>The GBI development program funds the development of booster and EKV technologies and provides developmental assets for flight-testing. GMD has successfully demonstrated a hit-to-kill capability in seven (7) separate flight tests. These interceptors will enhance the BMDS capability against long and intermediate range ballistic missile attacks through fielding up to thirty (30) operational missiles in Block 04/06.</p> <p>FY07 Accomplishments:</p> <p>RDT&E Test Articles: Completed acquisition of one (1) GBIs (Flight Test). Completed acquisition of eleven (11) GBIs (Fielding)</p> <ul style="list-style-type: none"> • Supported FTG-03 and FTG-03A Flight Tests. • Initiated acquisition of OBV GBI's for BV+ replacement (LDC-39 through 44 GBI's, 1 FT). Deliveries planned 2Qtr FY11 through 4Qtr FY11. • Completed acquisition of 11 GBI's. Because of FTG-03 "no test," same GBI utilized for FTG-03a retest. Therefore, second planned GBI for Flight Test (FTG-04) was reallocated for fielding, resulting in a total of 11 acquired GBI's. • Completed acquisition of 1 FT GBI. Second planned FTG-04 GBI reallocated to fielding due to re-use of the FTG-03 GBI which was not expended and used on FTG-03a. • Continued GBI ground testing, system level simulation, and Verification, Validation, and Accreditation activities. • Completed GBI producibility / reliability improvements in FY07. First Delivery in 3Qtr FY08. • Completed emplacements through LDC-24 due to the fact that the second planned FTG-04 GBI was reallocated to fielding due to re-use of the FTG-03 GBI on FTG-03a. • Completed EKV processor upgrade in FY07. First Delivery in 2Qtr FY08. • Initiated acquisition of refurbishment parts for 17 GBI's. Parts deliveries will occur in FY08 and FY09, with GBI refurbishment activities planned to begin in FY08. 			

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C. Other Program Funding Summary								
	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603888C Ballistic Missile Defense Test and Targets	584,615	621,861	673,691	672,976	690,938	708,991	719,209	4,672,281
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

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<p><u>D. Acquisition Strategy</u></p> <p>GMD will continue to follow the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, development, and evolutionary acquisition through the use of MDA's new block structure and spiral development. The Department has structured the missile defense acquisition strategy to continually provide needed upgrades to the GMD system components within the new block structure and funding availability. This process allows early implementation of new technologies and enhanced capabilities able to defend against the evolving threats of today and the future. This process also minimizes the risk of obsolescence, provides opportunities for standards updates, and allows decision makers to make informed trades between cost, schedule, and performance while exploring operational and technological possibilities. This developmental approach has been enhanced within the GMD program by additional test infrastructure, improved test management, and improved models and simulations that have enhanced GMD's ability to test in more complex and operationally realistic test environments earlier than the standard acquisition process.</p>		

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis						Date February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment				
I. Product Development Cost (\$ in Thousands)								
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
Sea-Based X-Band Radar								
Sea-Based X-Band Radar	SS/CPAF	Boeing/ AL/AK/AZ/CA/CO /HI/MA/TX/VA	314,173	0	N/A	0	N/A	314,173
Upgraded Early Warning Radar (UEWR) and Cobra Dane Development								
Upgraded Early Warning Radar (UEWR) Development and Cobra Dane Development	SS/CPAF	Boeing/ AL/AK/AZ/CA/CO /MA/VA/UK	200,826	0	N/A	0	N/A	200,826
Element Engineering & Integration								
Systems Engineering & Integration	SS/CPAF	Boeing/ AL/AK/AZ/CA/CO /TX/VA	559,251	0	N/A	0	N/A	559,251
Ground Systems								
Ground Systems	SS/CPAF	Boeing/ AL/AK/AZ/CA/CO /FL/VA	800,742	0	N/A	0	N/A	800,742
Element Test and Evaluation								
	SS/CPAF	Boeing/ AL/AK/AZ/CA/CO /TX/VA	556,281	0	4Q	0	N/A	556,281
Ground Based Interceptors								
Ground Based Interceptor (GBI)	SS/CPAF	Boeing/ AL/AK/AZ/CA/CO /UT/VA	2,265,528	0	N/A	0	N/A	2,265,528
Subtotal Product Development			4,696,801	0		0		4696801
Remarks								

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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The existing prime contract will be complete at the end of first quarter FY09; funding amounts shown in the R-3 for the remaining three quarters of FY09 are estimates.

II. Support Costs Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Sea-Based X-Band Radar								
	C/FP	BAE/AL	24,318	0	N/A	0	N/A	24,318
	MIPR	NAVFAC/HI	8,294	0	N/A	0	N/A	8,294
	MIPR	USCG/HI	1,117	0	N/A	0	N/A	1,117
	FFRDC	GA Tech/GA	981	0	N/A	0	N/A	981
Upgraded Early Warning Radar (UEWR) and Cobra Dane Development								
	FFRDC	MITRE/MA	8,383	0	N/A	0	N/A	8,383
	C/CPFF	Sencom/MA	8,674	0	N/A	0	N/A	8,674
	C/CPFF	ARCTEC/CA	2,775	0	N/A	0	N/A	2,775
	MIPR	ESC/MA	3,441	0	N/A	0	N/A	3,441
Element Engineering & Integration								
EE&I	MIPR	AMCOM/AL	9,548	0	N/A	0	N/A	9,548
	MIPR	NSWC/VA	14,832	0	N/A	0	N/A	14,832
	MIPR	John Hopkins/MD	5,980	0	N/A	0	N/A	5,980
	MIPR	MIT Lincoln Labs/ MA	11,860	0	N/A	0	N/A	11,860
	MIPR	JNIC/CO	13,372	0	N/A	0	N/A	13,372
	C/CPAF	EG&G/VA	5,306	0	N/A	0	N/A	5,306
	FFRDC	MITRE/MA	4,012	0	N/A	0	N/A	4,012
	C/CPAF	TSI/AL	4,603	0	N/A	0	N/A	4,603

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis						Date February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment				
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
	C/CPAF	Various/ AL/NM/VA	1,891	0	N/A	0	N/A	1,891
SPT HSV	C/CPAF	CSC/AL	26,880	0	N/A	0	N/A	26,880
EE&I	MIPR	Sandia/NM	600	0	N/A	0	N/A	600
	C/CPAF	CSC/AL	144	0	N/A	0	N/A	144
	C/CPAF	BAE/AL	86	0	N/A	0	N/A	86
	C/CPAF	Aerospace/AL	300	0	N/A	0	N/A	300
	C/CPAF	IntelCorp/AL	700	0	N/A	0	N/A	700
	MIPR	SMDC STEPAL/ AL	855	0	N/A	0	N/A	855
	C/CPAF	CSC LTAP/ AL, VA	1,800	0	N/A	0	N/A	1,800
Ground Systems								
	FFRDC	MITRE/HSV, AL	4,361	0	N/A	0	N/A	4,361
	C/FP	TSI/HSV, AL	9,991	0	N/A	0	N/A	9,991
	C/CPFF	CSC/AL	10,610	0	N/A	0	N/A	10,610
	MIPR	Various/ AL/MD/VA	1,683	0	N/A	0	N/A	1,683
	MIPR	USACE/AL	3,135	0	N/A	0	N/A	3,135
	MIPR	AMRDEC/AL	1,000	0	N/A	0	N/A	1,000
	C/CPFF	L3 Communications/ AL	3,565	0	N/A	0	N/A	3,565
	C/CPFF	TSI/AL	2,501	0	N/A	0	N/A	2,501
Facilities Construction	MIPR	USACE/AL	41,785	0	N/A	0	N/A	41,785
SPT HSV	C/CPAF	CSC/AL	5,080	0	N/A	0	N/A	5,080
Program Management								
SPT HSV	C/CPAF	CSC/AL	369,174	0	N/A	0	N/A	369,174

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis						Date February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment				
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
SPT HSV (SETAC)	C/CPAF	BAE/AL	5,765	0	N/A	0	N/A	5,765
	MIPR	MDA/AL/VA	38,233	0	N/A	0	N/A	38,233
	MIPR	AMCOM SMDC/ AL/VA	49,894	0	N/A	0	N/A	49,894
Information Technology	SS/CPFF	SAIC/AL	16,192	0	N/A	0	N/A	16,192
	SS/CPFF	BAE Systems/AL	4,450	0	N/A	0	N/A	4,450
	MIPR	AMCOM	4,043	0	N/A	0	N/A	4,043
	MIPR	SMDC/AL	1,400	0	N/A	0	N/A	1,400
TSM	MIPR	SMDC/AL/DC	10,279	0	N/A	0	N/A	10,279
	SS/CPAF	Boeing/ AL/AK/AZ/CA/CO /TX/VA	217,796	0	N/A	0	N/A	217,796
Manufacturing	SS/CPFF	BAE Systems/AL	5,841	0	N/A	0	N/A	5,841
	MIPR	AMRDEC/AL	1,894	0	N/A	0	N/A	1,894
	MIPR	SMDC/AL	20	0	N/A	0	N/A	20
	SS/CPFF	TSI/AL	275	0	N/A	0	N/A	275
	C/CPAF	COLSA/AL	2,208	0	N/A	0	N/A	2,208
	C/CPAF	CSC/AL	171	0	N/A	0	N/A	171
	MIPR	MDA/AL, VA	62,600	0	N/A	0	N/A	62,600
Information Technology	MIPR	NSA/Various	7,981	0	N/A	0	N/A	7,981
Operations and Sustainment								
	SS/CPAF	Boeing/ AL/AK/CA	496,059	0	N/A	0	N/A	496,059
GFX	MIPR	SPAWAR/CA	2,067	0	N/A	0	N/A	2,067
	MIPR	AMCOM SED/AL	1,999	0	N/A	0	N/A	1,999
	MIPR	DISA/VA	40,104	0	N/A	0	N/A	40,104
	MIPR	AMCOM/AL	2,652	0	N/A	0	N/A	2,652
	MIPR	NIST/OH	1,954	0	N/A	0	N/A	1,954

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis						Date February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment				
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
	MIPR	L3 Communications/ AL	4,334	0	N/A	0	N/A	4,334
	MIPR	SMDC FGA/AL	12,349	0	N/A	0	N/A	12,349
	MIPR	611th Air Spt Grp, Elmendorf AFB/ AK	15,139	0	N/A	0	N/A	15,139
	MIPR	VAFB/CA	3,650	0	N/A	0	N/A	3,650
	MIPR	Hill AFB/UT	140	0	N/A	0	N/A	140
Logistics	C/CPFF	L3 Communications/ AL	9,753	0	N/A	0	N/A	9,753
Protection	SS/CPFF	SDC/AK	2,900	0	N/A	0	N/A	2,900
	SS/CPFF	C&A/AL	8,600	0	N/A	0	N/A	8,600
	MIPR	MDA/AL	11,566	0	N/A	0	N/A	11,566
JNIC (GML)	SS/CPAF	JNIC/CO	10,779	0	N/A	0	N/A	10,779
	SS/CPAF	L3 Communications/ CO	6,366	0	N/A	0	N/A	6,366
SPT HSV	C/CPAF	CSC/AL	4,890	0	N/A	0	N/A	4,890
GFX	MIPR	Fylingdales/UK	174	0	N/A	0	N/A	174
	MIPR	FGA Chugach/AK	1,100	0	N/A	0	N/A	1,100
	MIPR	SMDC/AL	1,650	0	N/A	0	N/A	1,650
	MIPR	USARAK/AK	645	0	N/A	0	N/A	645
	MIPR	AMCOM/ AL/AK/HI	3,950	0	N/A	0	N/A	3,950
Ground Based Interceptors								
	SS/FP	BAE/AL	26,605	0	N/A	0	N/A	26,605
	SS/FP	TSI/AL	17,778	0	N/A	0	N/A	17,778

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
	MIPR	AMCOM/AL	3,040	0	N/A	0	N/A	3,040
	MIPR	Various	3,114	0	N/A	0	N/A	3,114
Subtotal Support Costs			1,736,036	0		0		1736036

Remarks

The existing prime contract is completed at the end of first quarter FY09; funding amounts shown in the R-3 for the remaining three quarters of FY09 are estimates.

III. Test and Evaluation Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Element Test and Evaluation								
GMD T&E	MIPR	SMDC/AL	6,009	0	N/A	0	N/A	6,009
	C/CPFF	IEC/CA	4,106	0	N/A	0	N/A	4,106
	MIPR	NAWCWD/HI	3,517	0	N/A	0	N/A	3,517
Targets	MIPR	MDA/AL	170,567	0	N/A	0	N/A	170,567
	C/CPFF	Various	1,169	0	N/A	0	N/A	1,169
	MIPR	DISA/AL	11,805	0	N/A	0	N/A	11,805
	MIPR	Aero Systems Center, Kirtland AFB/NM	4,442	0	N/A	0	N/A	4,442
	MIPR	US Army Space CMD, Peterson AFB/CO	4,532	0	N/A	0	N/A	4,532
	MIPR	VAFB/CA	15,734	0	N/A	0	N/A	15,734
	MIPR	RTTC/AL	1,936	0	N/A	0	N/A	1,936
	MIPR	PRST/HI	5,821	0	N/A	0	N/A	5,821
	C/CPFF	Gray/AL	2,635	0	N/A	0	N/A	2,635

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
	C/CPFF	SMC/CA	1,443	0	N/A	0	N/A	1,443
	MIPR	Maritime Adm/AL	1,480	0	N/A	0	N/A	1,480
	MIPR	AMCOM/NM	2,408	0	N/A	0	N/A	2,408
	MIPR	NAVSEA/MD	2,223	0	N/A	0	N/A	2,223
	MIPR	DISA/AL	11,805	0	N/A	0	N/A	11,805
SPT HSV	C/CPAF	CSC/AL	27,730	0	N/A	0	N/A	27,730
T&E	MIPR	VAFB/CA	13,609	0	N/A	0	N/A	13,609
Subtotal Test and Evaluation			292,971	0		0		292,971

Remarks

IV. Management Services Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost			6,725,808	0		0		6,725,808
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Remarks

The Prime Contractor has the responsibility to balance resources across the GMD program and allocate funding according to program progress. This may require the Prime Contractor to reallocate funding, which would change the estimates provided in this R-3 document.

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	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
Flight Tests																												
FTG-3		▲																										
FTG-3A				▲																								
BMDS Certification																												
FTX-02		▲																										
Integrated/Distributed Ground Tests																												
GTD-01	▲																											
GTX-2A		▲																										
GTG-04-3 (GT-04-3 (IGT-6))			▲																									
GTG-04-4A (GT-04-4A)			▲																									
GT-04-4B (GT-04-4B (DGT-3B))				▲																								
GTI-02				▲																								
Capability Enhancement GBIs																												

Legend	
▲	Significant Event (complete)
★	Milestone Decision (complete)
◆	Element Test (complete)
▼	System Level Test (complete)
▲▼	Complete Activity
▲	Significant Event (planned)
★	Milestone Decision (planned)
◆	Element Test (planned)
▼	System Level Test (planned)
▲▼	Planned Activity

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile		Date February 2008																																			
APPROPRIATION/BUDGET ACTIVITY												R-1 NOMENCLATURE																									
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)												0603882C Ballistic Missile Defense Midcourse Defense Segment																									
Fiscal Year	2007				2008				2009				2010				2011				2012				2013												
	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	1	2	3	4					
Capability Enhancement GBIs																																					
LDC Missiles 14-18																																					
LDC Missiles 19-24																																					

Legend

- | | |
|---|--|
|  Significant Event (complete)
 Milestone Decision (complete)
 Element Test (complete)
 System Level Test (complete)
 Complete Activity |  Significant Event (planned)
 Milestone Decision (planned)
 Element Test (planned)
 System Level Test (planned)
 Planned Activity |
|---|--|

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Flight Tests							
FTG-3	2Q						
FTG-3A	4Q						
BMDS Certification							
FTX-02	2Q						
Integrated/Distributed Ground Tests							
GTD-01	1Q						
GTX-2A	2Q						
GTG-04-3 (GT-04-3 (IGT-6))	3Q						
GTG-04-4A (GT-04-4A)	3Q						
GT-04-4B (GT-04-4B (DGT-3B))	4Q						
GTI-02	4Q						
Capability Enhancement GBIs							
LDC Missiles 14-18	1Q-2Q						
LDC Missiles 19-24	3Q-4Q						

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification					Date February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment			
COST (\$ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0908 Ground-Based Midcourse Defense (GMD) Block 2008 Development	316,479	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0
<p><i>Note: Management of Upgraded Early Warning Radar (UEWR) and Cobra Dane Development transfers to the MDA BMDS Sensors component (MDA/SN) PE 0603884C for FY08 and out.</i></p> <p><i>The content previously planned in FY07 project 0908 for FY08-13 has been captured in FY08-13 project CX08 in accordance with the MDA revised block structure.</i></p> <p><u>A. Mission Description and Budget Item Justification</u></p> <p>Block 2008 (Project 0908) provides the funding for the development and fielding of incremental component capability enhancements to Block 2006, such as fielding of enhanced capabilities to detect, track, intercept and defeat ballistic missile threats; execution of the flight and ground testing program to include the demonstration of additional Engagement Sequence Groups (ESGs); fielding of additional interceptors; and the sustainment and support for the fielded capability.</p> <p>The GMD Block 2008 development program provides an improvement in the ability to engage evolving threats by testing and fielding discrimination algorithms. This capability results in an upgraded release of Ground Systems (GS) and Exoatmospheric Kill Vehicle (EKV) software. During this block, maintenance builds will be delivered to implement changes to address test findings and assure that the warfighter has a robust and stable system.</p> <p>The Block 2008 GMD flight and ground test program is designed to evaluate and verify GMD system performance against a broader range of threats and collect data to further anchor models and simulations. Element Readiness Tests merged with the annual BMDS Ground Test campaigns that will verify GMD capabilities and support decisions to deploy increased capabilities to the field. In addition, four GMD flight tests will be conducted and two BMDS level flight tests will be supported to demonstrate an increasing level of element capability to defeat realistic threat complexes. Verification of system performance will be completed by the running of models and simulations that have been validated with data from the flight and ground test program.</p> <p>ESGs are demonstrated in the GMD Integrated Test Program. Capabilities of the BMDS will be enhanced as the number of operationally available ESGs and the depth of inventory increases. During Block 2008, GMD will demonstrate these additional ESGs:</p> <ul style="list-style-type: none"> • Launch on AN/SPY-1 Mod 2 							

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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- Engage on AN/SPY-1 Mod 1
- Launch on AN/TPY-2 Mod 1
- Engage on AN/TPY-2 Mod 1

Block 2008 funding will support the fielding of additional interceptors. Construction of a third missile field at Fort Greely, AK will be completed and fourteen interceptors (with associated ground hardware) will be installed during this block. The resources to operate and sustain the GMD element are also provided within the Block 2008 funding profile. Contractor Logistics Support (CLS) and logistics infrastructure will be supplied for the emplaced GBIs, sensors, and GS components.

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Ground Systems	100,368	0	0
RDT&E Articles (Quantity)	0	0	0

The GMD Ground Systems (GS) component enables control and operation of the GMD Element as part of the BMDS. The Fire Control sub-component consists of the GMD Fire Control (GFC), Test Exerciser (TEx), and External Systems Interface (ESI). The communications sub-component consists of (1) GMD Communications Network (GCN) and (2) the In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT). Launch Systems products include Launch Site Components and Launch Support Systems. The launch systems sub component consists of launch site components (silos, silo interface vaults (SIVs)) and Launch Support Systems (Command Launch Equipment (CLE) and Launch Support Equipment).

This GMD RDT&E Construction request is further justified in the accompanying DD-1391 Exhibits, RDT&E Construction Data.

FY07 Accomplishments:

- Initiated planning and construction of a new missile field at Fort Greely, that will contain fourteen (14) silos and associated launch support equipment.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment	
	FY 2007	FY 2008	FY 2009
Ground Based Interceptor	186,483	0	0
RDT&E Articles (Quantity)	0	0	0
<p>The GBI development program funds the development of booster and EKV technologies. It also provides developmental assets for flight-testing. GMD has successfully demonstrated a hit-to-kill capability in seven (7) separate flight tests. This demonstrated capability of the GMD program will enhance the BMDS against long and intermediate range ballistic missile attacks through fielding of up to fourteen (14) operational missiles in Block 2008.</p> <p>FY07 Accomplishments:</p> <ul style="list-style-type: none"> Continued acquisition of fourteen (14) GBIs (Fielding). 			
	FY 2007	FY 2008	FY 2009
Element Test and Evaluation	29,628	0	0
RDT&E Articles (Quantity)	0	0	0
<p>GMD Test and Evaluation plans and executes GMD ground and flight tests to evaluate and verify GMD system performance and collect data to anchor models and simulations. Flight tests utilize a comprehensive infrastructure of ground-test facilities, ranges, sensors and instrumentation resources providing critical risk reduction and measurement of system performance for all GMD element components. This infrastructure allows the element engineers to successfully model and simulate test results into projections of future system performance. GMD Test and Evaluation integrates developmental and operational test planning, shares test resources, collects and assesses test data, collectively resolves test issues, minimizes the duplication of test resources and the time required to execute required testing, and supports BMDS level test and evaluation.</p> <p>FY07 Accomplishments:</p> <ul style="list-style-type: none"> Initiated acquisition of two (2) targets. 			

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment				
C. Other Program Funding Summary								
	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603888C Ballistic Missile Defense Test and Targets	584,615	621,861	673,691	672,976	690,938	708,991	719,209	4,672,281
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment	
<p><u>D. Acquisition Strategy</u></p> <p>GMD will continue to follow the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, development, and evolutionary acquisition through the use of MDA's new block structure and spiral development. The Department has structured the missile defense acquisition strategy to continually provide needed upgrades to the GMD system components within the new block structure and funding availability. This process allows early implementation of new technologies and enhanced capabilities able to defend against the evolving threats of today and the future. This process also minimizes the risk of obsolescence, provides opportunities for standards updates, and allows decision makers to make informed trades between cost, schedule, and performance while exploring operational and technological possibilities. This developmental approach has been enhanced within the GMD program by additional test infrastructure, improved test management, and improved models and simulations that have enhanced GMD's ability to test in more complex and operationally realistic test environments earlier than the standard acquisition process.</p>		

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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I. Product Development Cost (\$ in Thousands)								
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Ground Systems								
Ground Systems	SS/CPAF	Boeing/ AL/AK/AZ/CA/CO /VA	100,368	0	N/A	0	N/A	100,368
Ground Based Interceptor								
Ground Based Interceptor (GBI)	SS/CPAF	Boeing/ AL/AK/AZ/CA/CO /UT/VA	238,130	0	N/A	0	N/A	238,130
Element Test and Evaluation								
Element Test and Evaluation	SS/CPAF	Boeing/ AL/AK/AZ/CA/CO /TX/VA	0	0	N/A	0	N/A	0
Subtotal Product Development			338,498	0		0		338,498

Remarks
The existing prime contract will be complete at the end of first quarter FY09; funding amounts shown in the R-3 for the remaining three quarters of FY09 are estimates.

II. Support Costs Cost (\$ in Thousands)								
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs								

Remarks

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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III. Test and Evaluation Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
Element Test and Evaluation								
Targets	MIPR	MDA/AL	29,628	0	N/A	0	N/A	29,628
Subtotal Test and Evaluation			29,628	0		0		29628

Remarks

IV. Management Services Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost			368,126	0		0		368,126
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Remarks

The existing prime contract will be complete at the end of the first quarter of FY09; funding amounts shown in the R-3 for the remaining three quarters of FY09 are estimates.

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	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
Flight Tests																												
FTG-3			▲																									
FTG-3A				▲																								
BMDS Certification																												
FTX-02		▲																										
Integrated/Distributed Ground Tests																												
GTD-01	▲																											
GTX-2A		▲																										
GTG-04-3 (GT-04-3 (IGT-6))			▲																									
GTG-04-4A (GT-04-4A)			▲																									
GTG-04-4B (GT-04-4B (DGT-3B))				▲																								
GTI-02				▲																								

Legend	
▲	Significant Event (complete)
★	Milestone Decision (complete)
◆	Element Test (complete)
▼	System Level Test (complete)
▲▼	Complete Activity
▲	Significant Event (planned)
★	Milestone Decision (planned)
◆	Element Test (planned)
▼	System Level Test (planned)
▲▼	Planned Activity

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Flight Tests							
FTG-3	3Q						
FTG-3A	4Q						
BMDS Certification							
FTX-02	2Q						
Integrated/Distributed Ground Tests							
GTD-01	1Q						
GTX-2A	2Q						
GTG-04-3 (GT-04-3 (IGT-6))	3Q						
GTG-04-4A (GT-04-4A)	3Q						
GTG-04-4B (GT-04-4B (DGT-3B))	4Q						
GTI-02	4Q						

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification					Date February 2008		
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment			
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COST (\$ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0008 Ground-Based Midcourse Defense (GMD) Block 2010	61,399	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: The content previously planned in FY07 project 0008 for FY08-13 has been captured for FY08-13 in project DX08 in accordance with the MDA revised block structure.

A. Mission Description and Budget Item Justification

Block 2010 (Project 0008) provides the funding for the expansion of the BMDS capability at a third missile site; execution of the flight and ground testing program to include the demonstration of additional Engagement Sequence Groups (ESGs); fielding of additional interceptors; and the sustainment and support for the fielded capability.

Block 2010 incorporates the next increment of fielded capability with up to ten (10) additional interceptors for either a European Site or expanded inventory at Fort Greely, AK.

Block 2010 planned additional enhancements for European Capability include:

- European Interceptor Site (EIS) with ten (10) additional silos and ten (10) Silo Interface Vaults (SIVs) capable of supporting interceptors, Launch Support Equipment (LSE) racks that will interface with the existing Command Launch Equipment (CLE) assets and capabilities comparable to other operational silos.
- A Relocatable IFICS Data Terminal (RIDT) capable of sending in-flight target updates to and receiving in-flight status reports from interceptors launched from European Capability.
- GMD Communication Network (GCN) infrastructure connecting European Capability components to GMD Fire Control (GFC) Nodes located at Missile Defense Integration and Operations Center (MDIOC) and Fort Greely, AK.
- Command Launch Equipment to launch European Capability GBIs.
- European Capability facilities including: Interceptor Monitoring Facility, Mechanical Electrical Building (MEB), Interceptor Storage Facility, RIDT Building, Military Satellite Communications (MILSATCOM) facility and other facilities at the European Interceptor Site (EIS) capable of providing appropriate protection of equipment.
- Replacement of obsolete Ground Systems hardware to include the GFC IBM Regatta servers. A rehost of GFC software will be completed to maintain Block 10 functionality on the new hardware platform.
- 10 GBIs -- 2-stage Boosters.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment	
<p>ESGs are demonstrated in the GMD Integrated Test Program. Capabilities of the BMDS will be enhanced as the number of operationally available ESGs increases. During Block 2010, GMD will demonstrate capability in four additional BMDS ESGs:</p> <ul style="list-style-type: none"> • Engage on UEWR (Clear, AK) • Launch on UEWR (Clear, AK) • Engage on FBX-T (Hercules Algorithm) • Launch on FBX-T (Hercules Algorithm) 			
<u>B. Accomplishments/Planned Program</u>			
	FY 2007	FY 2008	FY 2009
Ground Systems	31,920	0	0
RDT&E Articles (Quantity)	0	0	0
<p>The GMD Ground System (GS) Component enables fire control and operation of the GMD Element as part of the BMDS. The European Interceptor Site (EIS) Ground System project includes ten (10) missile silos and Silo Interface Vault (SIVs), the IFICS Data Terminal, GMD Communication Network (GCN), Command Launch Equipment, and upgrading of Ground Systems hardware.</p> <p>FY07 Accomplishments:</p> <ul style="list-style-type: none"> • Conducted initial geo-technical site survey location studies/charrettes for EIS. Geo-technical surveys are planned to complete in FY08. • Initiated planning and design for EIS silo complex. • Conducted initial environmental, safety and health management analyses/documentation and compliance planning studies/charrettes with completion of activities anticipated to occur in FY08. • Initiated site activation planning with applicable U.S. and Foreign Government agencies.. 			

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment				
	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
Ground Based Interceptor		29,479				0		0
RDT&E Articles (Quantity)		0				0		0
<p>The Ground Based Interceptor consists of an Exoatmospheric Kill Vehicle and a Booster Vehicle. These interceptors will enhance the BMDS capability against long and intermediate range ballistic missile attacks by adding ten (10) fielded interceptors. The Block 2010 program will incorporate the integration of a two-stage booster which is based on and leverages the existing three-stage design.</p> <p>FY07 Accomplishments:</p> <ul style="list-style-type: none"> Initiated design and development of the 2-Stage booster. Initial parts were acquired for qualification testing. (European Capability Fielding). <p>C. Other Program Funding Summary</p>								
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603888C Ballistic Missile Defense Test and Targets	584,615	621,861	673,691	672,976	690,938	708,991	719,209	4,672,281
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

D. Acquisition Strategy

GMD will continue to follow the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, development, and evolutionary acquisition through the use of MDA's new block structure and spiral development. The Department has structured the missile defense acquisition strategy to continually provide needed upgrades to the GMD system components within the new block structure and funding availability. This process allows early implementation of new technologies and enhanced capabilities able to defend against the evolving threats of today and the future. This process also minimizes the risk of obsolescence, provides opportunities for standards updates, and allows decision makers to make informed trades between cost, schedule, and performance while exploring operational and technological possibilities. This developmental approach has been enhanced within the GMD program by additional test infrastructure, improved test management, and improved models and simulations that have enhanced GMD's ability to test in more complex and operationally realistic test environments earlier than the standard acquisition process.

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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I. Product Development Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Ground Systems								
Planning;Design/Site Activation	C/CPAF	Boeing/ AL/AK/AZ/CA/CO /MA/VA/Europe Site	22,630	0	N/A	0	N/A	22,630
RDT&E Construction	C/CPAF	Boeing/ Europe Site	9,290	0	N/A	0	N/A	9,290
Ground Based Interceptor								
Ground Based Interceptor	SS/CPAF	Boeing/ AL/AK/AZCACO UT/VA	29,479	0	N/A	0	N/A	29,479
Subtotal Product Development			61,399	0		0		61399

Remarks
The existing prime contract is completed at the end of first quarter FY09; funding amounts shown in the R-3 for the remaining three quarters of FY09 are estimates.

II. Support Costs Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Support Costs								

Remarks

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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III. Test and Evaluation Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation								

Remarks

IV. Management Services Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost			61,399	0		0		61,399
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Remarks

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDTE&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	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
Flight Tests																												
FTG-3			▲																									
FTG-3A				▲																								
BMDS Certification																												
FTX-02		▲																										
Integrated/Distributed Ground Tests																												
GTD-01	▲																											
GTX-2A		▲																										
GTG-04-3 (GT-04-3 (IGT-6))			▲																									
GTG-04-4A (GT-04-4A)			▲																									
GTG-04-4B (GT-04-4B (DGT-3B))				▲																								
GTI-02				▲																								

Legend	
▲	Significant Event (complete)
★	Milestone Decision (complete)
◆	Element Test (complete)
▼	System Level Test (complete)
▲▼	Complete Activity
▲	Significant Event (planned)
☆	Milestone Decision (planned)
◇	Element Test (planned)
▼	System Level Test (planned)
▲▼	Planned Activity

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Flight Tests							
FTG-3	3Q						
FTG-3A	4Q						
BMDS Certification							
FTX-02	2Q						
Integrated/Distributed Ground Tests							
GTD-01	1Q						
GTX-2A	2Q						
GTG-04-3 (GT-04-3 (IGT-6))	3Q						
GTG-04-4A (GT-04-4A)	3Q						
GTG-04-4B (GT-04-4B (DGT-3B))	4Q						
GTI-02	4Q						

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification					Date February 2008		
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment			
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COST (\$ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
AX08 Ground Based Midcourse Defense (GMD) Block 1.0	0	1,387,288	25,178	0	0	0	0
RDT&E Articles Qty	0	18	6	0	0	0	0

Note: The content in FY08-13 project AX08 is a continuation of the efforts reported in FY07 in project 0808 and was explained in that project in PB08.

A. Mission Description and Budget Item Justification

With the exception of operations and sustainment activities (found in project XX08), the content previously planned in FY07 project 0808 for FY08-13 has been captured in FY08-13 project AX08 in accordance with the MDA revised block structure.

Block 1.0 provides the funding for the development and fielding of additional component capability enhancements such as execution of the flight and ground testing program to include demonstration of additional Engagement Sequence Groups (ESGs); additional interceptors and Ground Systems (GS) hardware; and the sustainment and support for the fielded capability. These activities and assets support the enhanced capabilities to detect, track, intercept, and defeat ballistic missile threats.

The GMD Block 1.0 development program provides enhancements of the interceptor Exoatmospheric Kill Vehicle (EKV), sensors, and GMD GS components and infrastructure. Block 1.0 provides the following capabilities:

- The EKV is a “Hit-to-Kill” payload designed to acquire, discriminate, track, and intercept targets in the midcourse phase of flight. The key components and technologies of the EKV include the acquisition and tracking sensors, the on-board maneuvering system, and the on-board vehicle communications systems. For Block 1.0, the Capability Enhancement-II (CE-II) EKV will be demonstrated as part of the block improvement process in both the ground and flight test programs. This update addresses EKV obsolescence issues and provides additional processor throughput to support system wide discrimination capabilities.
- The sensor development program is a mix of enhancements to existing radar assets and development of new radar capabilities.
 - The program will continue testing of the Upgraded Early Warning Radars (UEWRs) at Beale AFB and Fylingdales, U.K. and the Cobra Dane radar at Shemya, AK.
 - A broad range of X-Band Radar (XBR) technologies will continue in development to support the SBX.
- The GMD GS component is an integrated communications network of nodes to enable the GMD element to function as part of the BMDS. Hardware and software upgrades to the GS will include improvements for the warfighter, strong authentication, booster drop avoidance, simultaneous test and operations upgrades, and hardware upgrades to address emerging obsolescence issues. GS components being upgraded include:

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<ul style="list-style-type: none">○ Communications links (e.g., CONUS ring with connections to Alaska leased lines or satellite communications between Eareckson AS, Fort Greely, Schriever AFB, Cheyenne Mountain AFS, Peterson AFB, Buckley AFB, SBX, Fylingdales UK, Beale AFB, Vandenberg AFB, etc.)○ GMD Fire Control and Communications (GFC) Nodes [Fort Greely and Missile Defense Integration and Operations Center (MDIOC) with remote operator workstations at Cheyenne Mountain Operations Center (CMOC)]○ In-Flight Interceptor Communications System Data Terminal (IDTs) at various locations <p>The Block 1.0 GMD flight and ground test program is designed to evaluate and verify GMD system performance and collect data to anchor models and simulations. In Block 1.0, one Integrated Ground Tests (IGTs) and one Distributed Ground Tests (DGTs) will be conducted that will verify GMD capabilities and support decisions to deploy increased capabilities to the field. In addition, five GMD flight tests will be conducted and two BMDS level flight tests will be supported to demonstrate an increasing level of element capability to defeat realistic threat complexes. Verification of system performance will be completed by exercising high fidelity models and simulations that have been validated with data from the flight and ground test program. Engagement Sequence Groups (ESGs) are demonstrated in the GMD Integrated Test Program. Capabilities of the BMDS will be enhanced as the number of operationally available ESGs and the depth of inventory increases. During Block 1.0, GMD will demonstrate the capability to execute five ESGs:</p> <ul style="list-style-type: none">● Launch on/Engage on Cobra Dane (CD) & UEWR● Launch on/Engage on SBX● Launch on/Engage on AN/SPY-1 Mod 1● Launch on AN/TPY-2 (Search and Track) <p>During Block 1.0, additional BMDS ESGs will be demonstrated to include:</p> <ul style="list-style-type: none">● Engage on Cobra Dane (CD) & UEWR (Mod 1)● Launch on CD & UEWR● Engage on AN/TPY-2● Launch on AN/TPY-2● Engage (Mod 1) on SBX● Launch on SBX <p>Block 1.0 funding will support the fielding of significant additional assets. This will increase the available fielded assets to thirty GBIs (with associated ground hardware), six In-Flight Interceptor Communication System (IFICS) Data Terminals (IDTs), three GFC nodes, and five Defense</p>		

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Satellite Communications System (DSCS) terminals. This additional hardware will facilitate the conduct of simultaneous test and operations of the GMD element.

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Program Management	0	267,265	0
RDT&E Articles (Quantity)	0	0	0

This effort provides for the prime contractor and government management of the GMD program. Included in this effort is program and business management, program administration, technical and testing oversight, subcontractor management, verification of hardware and software development, quality and manufacturing assurance, configuration management, integrated logistic support, and government manpower and infrastructure to develop, test and sustain the GMD system and components.

FY08 Planned Program:

- Provide management for GMD program quality assurance, manufacturing and mission assurance, safety assurance and configuration management.
- Provide government and contractor program staff and infrastructure for the overall management of the GMD program.
- Provide technical and business management support activities, financial management, cost and schedule performance analysis, cost estimation and analysis, configuration management and integration activities.
- Provide contractor program management, subcontract management, quality assurance, verification of hardware and software development, and technical and testing oversight.
- Ensure GMD program compliance with internal and external direction, policies, and regulations.
- Provide Integrated Logistics Support for the GMD program through a Performance Based Logistics approach.

	FY 2007	FY 2008	FY 2009
Element Engineering and Integration	0	189,080	0
RDT&E Articles (Quantity)	0	0	0

GMD Element Engineering and Integration (EE&I) provides systems engineering and integration essential for the development and fielding of the functional components of the GMD segment of the BMDS. This program establishes element-level development requirements in the GMD Capabilities Document and ensures these are allocated to the component specifications; complements the BMDS systems engineering capability by providing detailed insight and analysis into component technical and design-specific issues during fabrication, element-level integration, testing and

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fielding; defines element-level test requirements and objectives and provides element-level analysis and assessments to verify GMD performance; provides engineering, integration, and operations planning supporting the BMDS, including assessment of future fielding options; and defines requirements for design and development of GM component H/W and S/W to implement a safe and secure simultaneous test and operations capability. This capability will allow GMD to continue RDT&E activities with minimal impacts to the BMDS operational capability.

FY08 Planned Program:

- Continue software management and specialty engineering.
- Continue software verification and validation.
- Continue modeling and simulation development.
- Continue system analyses, integration, and verification.
- Support integrated ground tests and specialty testing.
- Conduct pre- and post-flight test analyses.
- Continue development of discrimination capabilities.
- Continue Fort Greely power enhancements.
- Initiate system engineering and requirements development and site design efforts for European Capability.

Note: Plans for Ground Systems Software Version 6B and CLE SW 4.0, described here in PB08, are now captured in the Ground Systems planned program.

	FY 2007	FY 2008	FY 2009
Ground Systems	0	168,275	23,302
RDT&E Articles (Quantity)	0	6	0

The GMD Ground Systems (GS) Component enables control and operation of the GMD Element as part of the BMDS. The Fire Control sub-component consists of the GMD Fire Control (GFC), Test Exerciser (TEx), and External Systems Interface (ESI). The communications sub-component consists of (1) GMD Communications Network (GCN) and (2) the In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT). The launch systems sub component consists of launch site components (silos, SIVs) and Launch Support Systems (Command Launch Equipment (CLE) and Launch Support Equipment). The Project AX08 Construction requirements are addressed in the GS Accomplishment/Planned Program. This GMD RDT&E Construction request is further justified and contained in the accompanying DD-1391 Exhibits, RDT&E Construction Data.

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<p>FY08 Planned Program: RDT&E Test Articles: Complete acquisition of five (5) silos and associated launch support equipment at Fort Greely. Complete installation and checkout of a second RIDT at Vandenberg AFB. Complete construction, installation and checkout of a fourth operational silo at Vandenberg AFB. Complete development of CLE Software Build 4.1. Installation and Check out of LSS (CLE(10), LEBVS(13), LSE(3)) Obsolescence hardware upgrades at each Integration and System Test Laboratory (STL's).</p> <ul style="list-style-type: none">• Complete construction, installation and checkout of five (5) additional silos and associated launch support equipment at Fort Greely supporting the emplacement of additional Ground Based Interceptors.• Complete construction, installation, and checkout of a fourth operational silo allowing for increased quantity of operational GBIs at Vandenberg AFB.• Complete development GMD STO Phase II upgrades to accommodate simultaneous test, operations, and upgrades.• Complete development GMD STO Phase III upgrades to accommodate simultaneous test, operations, and upgrades.• Initiate fielding of GFC/C software version 6B which adds additional capabilities including improved fault detection / fault isolation, ability to designate first stage booster drop exclusion zones, incorporate Warfighter requested changes to GFC display (Shot Quality Display; Heavy Decision Support (Second Pass); and Terminate Engagement Decision Support).• Complete development of CLE Software Build 4.1 which includes the support of increased GBIs, Unit Reference Number (URN) changes, Certification and Accreditation (C&A) changes, Fly out Fan (FoF) and database changes for FTG-05, 06, 07.• Procure and integrate LSS (CLE, LEBVS, LSE) Obsolescence hardware upgrades, install CLE software build 4.1, ship, and install at all Integration and System Test Laboratories (STL's) and initiate installation at all fielded sites.• Incorporate Warfighter requested changes - Provide dynamic upgrades to enhance system utility and the Warfighter's flexibility based upon the Warfighter's feedback <p>FY09 Planned Program:</p> <ul style="list-style-type: none">• Complete integration of a fourth operational silo allowing for increased quantity of operational GBIs at Vandenberg AFB.• Complete fielding, integration and testing of GMD STO Phase II upgrades to accommodate initial simultaneous test and operation (STO).• Complete fielding, integration and testing of GMD STO Phase III upgrades to accommodate initial simultaneous test and operations.• Provide engineering and project management support for Ground Systems (GFC/CLE/IDT/GCN) CLE Software Development, including analysis of software performance and event anomalies; providing the capability to find and fix problems in the fielded and test systems; and respond to Test Incident Reports (TIR's) resulting from ground and flight test events.• Complete Post Silo refurbishment, in preparation for the next flight test.		

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- Complete fielding of GFC software version 6B which adds additional capabilities including improved fault detection / fault isolation, ability to designate first stage booster drop exclusion zones, incorporate Warfighter requested changes to GFC display (Shot Quality Display; Heavy Decision Support (Second Pass); and Terminate Engagement Decision Support). Complete fielding of CLE Software version 4.1 and upgrade to CLE hardware/software to mitigate obsolescence and support increased GBIs.
- Incorporate Warfighter requested changes - Provide dynamic upgrades to enhance system utility and the Warfighter's flexibility based upon the Warfighter's feedback

	FY 2007	FY 2008	FY 2009
Element Test and Evaluation	0	289,480	0
RDT&E Articles (Quantity)	0	2	0

GMD Test and Evaluation plans and executes GMD ground and flight tests to evaluate and verify GMD system performance and collect data to anchor models and simulations. GMD Test and Evaluation utilizes a comprehensive infrastructure of ground-test facilities, ranges, sensors and instrumentation resources providing critical risk reduction and measurement of system performance for all GMD element components. This infrastructure allows the element engineers to successfully model and simulate test results into projections of future system performance. GMD Test and Evaluation integrates developmental and operational test planning, shares test resources, collects and assesses test data, collectively resolves test issues, minimizes the duplication of test resources and the time required to execute required testing, and supports BMDS level test and evaluation.

FY08 Planned Program:

RDT&E Test Articles: Complete acquisition of two (2) targets.

Flight Test Objectives:

- FTG-04: Demonstrate the functionality of the GBI engage on UEWR or AN/TPY-2 ESG for a GBI launched from Vandenberg AFB performing all functions through acquisition, discrimination, transition to terminal, and intercepting the lethal object from a live target complex launched from Kodiak using a more complex target scene than previous tests.
- FTG-05: Demonstrate BMDS functionality of the GBI engage on SBX, with multi-sensor integration, for GBI launched from Vandenberg AFB to perform all functions through acquisition, discrimination, transition to terminal, and interception.
- FTM-15: SBX acquire, track and discriminate Aegis test target, to perform simulated GBI intercept either in real-time or in post-mission analysis. The test results will be used as risk reduction for future GMD flight tests.

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<p>Ground Test Objectives:</p> <ul style="list-style-type: none"> • GTD-02: Assess BMDS ability to simultaneously execute multiple Block 1.0 Engagement Sequence Groups (ESG) using theater and strategic assets with Block 1.0 scenarios while using operational communications. • GTD-03: Assess BMDS ability to simultaneously execute multiple Block 1.0 Engagement Sequence Groups (ESG) using multiple raid sizes; assess Block 1.0 functionality and interoperability; demonstrate AN/TPY-2 functionality and interoperability with BMDS. • GTI-03: Assess BMDS ability to simultaneously execute multiple Block 1.0 ESGs using theater and strategic assets with Block 1.0 scenarios and Block 1.0 threats. • GT-06-3: Demonstrate the readiness of the GMD Block 1.0 final capability upgrades including the GFC build 6B for field integration and BMDS ground tests; demonstrate GMD capability to launch multiple interceptor types from a single launch site and/or multiple launch sites. • GT-06-4: Assess GMD's ability to simultaneously execute multiple Block 1.0 Engagement Sequence Groups (ESG) using theater and strategic assets with Block 1.0 scenarios while using operational communications; assess final GMD Block 1.0 functionality and interoperability with specific BMDS elements. Merged with GTD-03. • Support the tests in accordance with the MDA Integrated Master Test Plan (IMTP) and Master Integration Plan (MIP) to ensure ESG Integration into the BMDS. • Support 1 BMDS Ground Test Series (GTD-02/GTI-03) and 1 GTX test (GTX-03). <ul style="list-style-type: none"> ○ GTD-02 is a BMDS distributed test which assesses BMDS ability to simultaneously execute multiple Block 1.0 ESGs using theater and strategic assets with Block 1.0 scenarios while using operational communications. It exercises functionality used in Block 1.0 ESGs with priority on THAAD engage on AN/TPY-2 and ESGs with AN/TPY-2 as surveillance/initial track sensor. GMD components are used to support this test (SBX, Fylingdales UK, Beale AFB, Cobra Dane). ○ GTI-03 will assess BMDS, with GMD participation ability, to simultaneously execute multiple Block 1.0 (ESGs) using theater and strategic assets with Block 1.0 scenarios and Block 1.0 threats in a laboratory environment. Participants are: C2BMC, GMD, Aegis BMD, AN/TPY-2, Space Based Infrared System Management Control System (SBIRS MCS), Patriot, Joint Test Action Group (JTAG), JRE, Test Control System (TCS) and TCES. ○ GTX-03 is a BMDS level test which will assess BMDS ability to execute Block 1.0 ESGs using theater assets with Block 1.0 scenarios and Block 1.0 threats while integrating AN/TPY-2 track forwarding capability and Aegis BMDS Signal Processor (BSP) upgrade. GMD is a participant only. • Conduct Integrated Ground Test (IGT) GT-06-3 which is a laboratory test that demonstrates the readiness of the GMD Block 1.0 final capability upgrades including the GFC build 6B for field integration and BMDS ground tests. In addition, GT-06-3 will demonstrate GMD capability to launch multiple interceptor types from a single launch site and/or multiple launch sites. GMD will participate with laboratory Hardware-in-the- 		

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Loop/Software-in-the-Loop (HWIL/SWIL) components of the system and integrate in the laboratory with the remainder of the Ballistic Missile Defense System (BMDS) Element representations.

- Conduct GT-06-4 (A, B) which are Distributed Ground Tests (DGT) that support BMDS Distributed Ground Test GTD-03 utilizing GFC build 6B software. GMD will participate with all deployed components of the system and integrate with the remainder of the BMDS via the GMD Fire Control/ Communication (GFC) to Command & Control, Battle Management and Communication (C2BMC) interface. The GT-06-4 test event will complete the lab/field test cycle for the GMD Element test in support of BMDS Ground Test Campaign #3. Merged with GTD-03.
- Perform pre- and post-test analyses of all ground and flight tests in the System Test Analysis and Reporting (STAR) Lab.
- Perform analyses to define target requirements (STAR Lab).
- Assess previous flight and ground test results from data analysis and incorporate into future test objectives.
- Continue operation and maintenance of System Test Labs (PCIL -1 and -2, and ISTC-2).
- Maintain upgrades of ISTC-2 Capability Enhancement-2. configuration to support GTIs and GTs (20 GBIs in each lab).
- Conduct Pre-Mission Tests (PMT) to support the Flight Tests (FTG-04 and FTG-05) and Post Flight Reconstruction (PFR) (ISTC-2). (FTG-04 is in PCIL-1, FTG-05 is in PCIL-2).
- Continue ground and flight test planning, design, and scheduling.
- Complete Target Checkout for two (2) targets.
- Continue to exercise the system against targets of opportunity as they arise.

	FY 2007	FY 2008	FY 2009
Ground Based Interceptor	0	473,188	1,876
RDT&E Articles (Quantity)	0	10	6

The GBI development program funds the development of booster and EKV technologies and provides developmental assets for flight-testing. GMD has successfully demonstrated a hit-to-kill capability in seven (7) separate flight tests. These interceptors will enhance the BMDS capability against long and intermediate range ballistic missile attacks through fielding up to thirty (30) operational missiles in Block 1.0. Beginning in FY08, up to four (4) GBIs annually will be removed from silos for refurbishment. Upon refurbishment, they will be emplaced in silos beginning in 2QFY08.

FY08 Planned Program:
RDT&E Test Articles: Complete acquisition of two (2) GBIs (Flight Test). Complete acquisition of three (3) GBIs (Fielding).

- Complete acquisition of two (2) GBIs (Flight Test).

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- Continue GBI ground testing, system level simulation, and Verification, Validation, and Accreditation activities.
- Support FTG-04 and FTG-05 Flight Tests.
- Continue GBI Refurbishment Program: complete refurbishment of three (3) GBIs.
- Complete acquisition of three (3) GBIs (Fielding).

FY09 Planned Program:

- Complete acquisition of three (3) GBIs (Fielding).

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603888C Ballistic Missile Defense Test and Targets	584,615	621,861	673,691	672,976	690,938	708,991	719,209	4,672,281
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505

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	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

D. Acquisition Strategy

GMD will continue to follow the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, development, and evolutionary acquisition through the use of MDA's new block structure and spiral development. The Department has structured the missile defense acquisition strategy to continually provide needed upgrades to the GMD system components within the new block structure and funding availability. This process allows early implementation of new technologies and enhanced capabilities able to defend against the evolving threats of today and the future. This process also minimizes the risk of obsolescence, provides opportunities for standards updates, and allows decision makers to make informed trades between cost, schedule, and performance while exploring operational and technological possibilities. This developmental approach has been enhanced within the GMD program by additional test infrastructure, improved test management, and improved models and simulations that have enhanced GMD's ability to test in more complex and operationally realistic test environments earlier than the standard acquisition process.

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I. Product Development Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Element Engineering and Integration								
Systems Engineering & Integration	SS/CPAF	Boeing/ AL/AK/AZ/CA/CO /TX/VA	0	138,101	1/2Q	0	N/A	138,101
Ground Systems								
Ground Systems	SS/CPAF	Boeing/ AL/AK/AZ/CA/CO /VA	0	153,644	1/2Q	23,302	N/A	176,946
Element Test and Evaluation								
Element Test & Evaluation	SS/CPAF	Boeing/AL/AK/ AZ/COOA/CO/TX/ VA	0	135,930	1/2Q	0	N/A	135,930
Ground Based Interceptor								
Ground Based Interceptor	SS/CPAF	Boeing/AL/AK/AZ /CA/CO/UT/VA	0	468,844	1/2Q	1,876	1/2Q	470,720
Subtotal Product Development			0	896,519		25,178		921697

Remarks
 The existing prime contract will be complete at the end of first quarter FY09; funding amounts shown in the R-3 for the remaining three quarters of FY09 are estimates.

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II. Support Costs Cost (\$ in Thousands)								
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Program Management								
SPT HSV	C/CPAF	CSC/AL	0	28,200	1/2Q	0	N/A	28,200
SPT HSV (SETAC)	C/CPAF	BAE/AL	0	1,425	1/2Q	0	N/A	1,425
	MIPR	MDA/AL/VA	0	11,400	1/2Q	0	N/A	11,400
	MIPR	Various/AL/VA	0	10,267	1/2Q	0	N/A	10,267
JNIC (GML)	SS/CPAF	JNIC/CO	0	5,690	1/2Q	0	N/A	5,690
JNIC (GML)	SS/CPAF	L3 Communications/ CO	0	0	1/2Q	0	N/A	
Information Technology	SS/CPFF	SAIC/AL	0	8,711	1/2Q	0	N/A	8,711
	SS/CPFF	BAE Systems/AL	0	2,060	1/2Q	0	N/A	2,060
	MIPR	AMCOM	0	618	1/2Q	0	N/A	618
	MIPR	SMCD/AL	0	515	1/2Q	0	N/A	515
	SS/CPAF	Boeing/AL/AK/AZ /CA/CO/TX/VA	0	149,902	1/2Q	0	N/A	149,902
Manufacturing	SS/CPAF	BAE Systems/AL	0	2,822	1/2Q	0	N/A	2,822
	MIPR	AMRDEC/AL	0	466	1/2Q	0	N/A	466
	MIPR	SMDC/AL	0	0	4Q	0	N/A	
	SS/CPAF	TSI/AL	0	62	1/2Q	0	N/A	62
	C/CPAF	CSC/AL	0	0	4Q	0	N/A	
	C/CPAF	COLSA/AL	0	0	4Q	0	N/A	
Program Management	MIPR	MDA/AL/VA	0	22,817	1/2Q	0	N/A	22,817
Information Technology	MIPR	NSA/Various	0	3,193	1/2Q	0	N/A	3,193
DFW World-wide Support	MIPR	MDA DFW/AL	0	19,000	1/2Q	0	N/A	19,000
	MIPR	Various/Various	0	117	1/2Q	0	N/A	117
Element Engineering and Integration								
	MIPR	AMCOM/AL	0	5,357	1/2Q	0	N/A	5,357

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis						Date February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment				
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
	C/CPAF	EG&G/VA	0	2,700	1/2Q	0	N/A	2,700
	FFRDC	Johns Hopkins/MD	0	3,578	1/2Q	0	N/A	3,578
	FFRDC	MIT Lincoln Labs/MA	0	1,620	1/2Q	0	N/A	1,620
	FFRDC	MITRE/MA	0	3,240	1/2Q	0	N/A	3,240
	C/CPAF	TSI/AL	0	1,760	1/2Q	0	N/A	1,760
	MIPR	JNIC/CO	0	1,890	1/2Q	0	N/A	1,890
	MIPR	NSWC/VA	0	2,700	1/2Q	0	N/A	2,700
	MIPR	Sandia/NM	0	540	1/2Q	0	N/A	540
	C/CPAF	Various/ AL/NM/VA	0	400	1/2Q	0	N/A	400
EE&I	C/CPAF	CSC/AL	0	130	N/A	0	N/A	130
	C/CPAF	BAE/AL	0	77	N/A	0	N/A	77
	C/CPAF	Aerospace/AL	0	270	N/A	0	N/A	270
	C/CPAF	IntelCorp/AL	0	630	N/A	0	N/A	630
	MIPR	SMDC STEPAL/AL	0	720	N/A	0	N/A	720
	C/CPAF	CSC LTAP/AL/VA	0	1,350	N/A	0	N/A	1,350
SPT HSV	C/CPAF	CSC/AL	0	24,017	1/2Q	0	N/A	24,017
Ground Systems								
	FFRDC	MITRE/AL	0	324	1/2Q	0	N/A	324
	C/FP	TSI/AL	0	2,277	1/2Q	0	N/A	2,277
	MIPR	Various/AL/MD/VA	0	0	4Q	0	N/A	
	C/CPFF	CSC/AL	0	4,639	1/2Q	0	N/A	4,639
	MIPR	USACE/AL	0	810	1/2Q	0	N/A	810
	MIPR	AMRDEC/AL	0	540	1/2Q	0	N/A	540
	C/CPFF	L3 Communications/AL	0	893	1/2Q	0	N/A	893
	C/CPFF	TSI/AL	0	664	1/2Q	0	N/A	664
Facilities Construction	MIPR	USACE/AK	0	0	1/2Q	0	N/A	

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
SPT HSV	C/CPAF	CSC/AL	0	4,484	1/2Q	0	N/A	4,484
Ground Based Interceptor								
	SS/FP	BAE Systems/AL	0	3,037	1/2Q	0	N/A	3,037
	SS/FP	TSI/AL	0	740	1/2Q	0	N/A	740
	MIPR	AMCOM/AL	0	557	1/2Q	0	N/A	557
	MIPR	Various	0	10	1/2Q	0	N/A	10
Subtotal Support Costs			0	337,219		0		337219

Remarks

The existing prime contract will be complete at the end of first quarter FY09; funding amounts shown in the R-3 for the remaining three quarters of FY09 are estimates.

III. Test and Evaluation Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Element Test and Evaluation								
	MIPR	SMDC/AL	0	1,066	1/2Q	0	N/A	1,066
	MIPR	AMCOM/NM	0	868	1/2Q	0	N/A	868
	MIPR	NAVSEA/MD	0	836	1/2Q	0	N/A	836
	MIPR	DISA/AL	0	1,805	1/2Q	0	N/A	1,805
	MIPR	Aero Systems Center, Kirtland/NM	0	1,642	1/2Q	0	N/A	1,642
	MIPR	US Army Space CMD, Peterson AFB/CO	0	2,448	1/2Q	0	N/A	2,448
	MIPR	VAFB/CA	0	5,299	1/2Q	0	N/A	5,299
	MIPR	RTTC/AL	0	575	1/2Q	0	N/A	575

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
	MIPR	PRST/HI	0	2,674	1/2Q	0	N/A	2,674
	C/CPFF	Gray/AL	0	1,023	1/2Q	0	N/A	1,023
	C/CPFF	SMC/CA	0	252	1/2Q	0	N/A	252
	C/CPFF	IEC/CA	0	605	1/2Q	0	N/A	605
	MIPR	Maritime Adm/AL	0	1,066	1/2Q	0	N/A	1,066
	C/CPFF	Various/Various	0	0	4Q	0	N/A	
	MIPR	NAWCWD/HI	0	1,008	1/2Q	0	N/A	1,008
Targets			0	99,637	1/2Q	0	N/A	99,637
GMD T&E	MIPR	VAFB/CA	0	3,888	1/2Q	0	N/A	3,888
HSV SPT	C/CPAF	CSC/AL	0	28,858	1/2Q	0	N/A	28,858
Subtotal Test and Evaluation			0	153,550		0		153,550

Remarks

IV. Management Services Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost			0	1,387,288		25,178		1,412,466
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Remarks

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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Fiscal Year	2007				2008				2009				2010				2011				2012				2013							
	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				
Flight Tests																																
FTG-4						▲																										
FTG-5								▲																								
Integrated/Distributed Ground Tests																																
GTD-02						▲																										
GTG-03A (GT-06-3 (IGT-7))							▲																									
GTI-03								▲																								
GTG03B.1 (GT-06-4A (DGT))											▲																					
GTD-03								▲																								
Capability Enhancement GBIs																																
LDC Missiles 25-30								▲	—	—	—	▲																				
GBI Refurbishment (Up to 4 Interceptors)								▲	—	—	—	▲																				

Legend	
▲	Significant Event (complete)
★	Milestone Decision (complete)
◆	Element Test (complete)
▼	System Level Test (complete)
▲—▲	Complete Activity
▲	Significant Event (planned)
☆	Milestone Decision (planned)
◇	Element Test (planned)
▼	System Level Test (planned)
▲—▲	Planned Activity

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Flight Tests							
FTG-4		2Q					
FTG-5		4Q					
BMDS Certification							
FTM-15		4Q					
Integrated/Distributed Ground Tests							
GTD-02		1Q					
GTG-03A (GT-06-3 (IGT-7))		2Q					
GTI-03		3Q					
GTG03B.1 (GT-06-4A (DGT))		4Q					
GTD-03		4Q					
Capability Enhancement GBIs							
LDC Missiles 25-30		1Q-4Q	1Q-2Q				
GBI Refurbishment (Up to 4 Interceptors)		1Q-4Q					

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification					Date February 2008		
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment			
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COST (\$ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
CX08 Ground Based Midcourse Defense (GMD) Block 3.0	0	453,423	1,393,087	1,114,073	21,400	10,531	10,134
RDT&E Articles Qty	0	6	13	11	0	0	0

Note: Management of Upgraded Early Warning Radar (UEWR) and Cobra Dane Development transfers to the MDA BMDS Sensors component (MDA/SN) PE 0603884C for FY08 and out.

The content in FY08-13 project CX08 is a continuation of the efforts reported in FY07 project 0908 and was explained in that project in PB08.

A. Mission Description and Budget Item Justification

Block 3.0 provides the funding for the development and fielding of incremental component capability enhancements to Block 1.0, such as fielding of enhanced capabilities to detect, track, intercept and defeat ballistic missile threats; execution of the flight and ground testing program to include the demonstration of additional Engagement Sequence Groups (ESGs); and the fielding of additional interceptors. Block 3.0 also includes the development and testing of the two-stage interceptor capability (planned for deployment in Block 4.0), as well as implementation of a fleet avionics upgrade/obsolescence program.

The GMD Block 3.0 development program provides an improvement in the ability to engage evolving threats by testing and fielding discrimination algorithms. This capability will result in an upgraded release of Ground Systems (GS) and Exoatmospheric Kill Vehicle (EKV) software. During this block, maintenance builds will also be delivered to implement changes to address test findings and assure that the warfighter has a robust and stable system.

The Block 3.0 GMD flight and ground test program is designed to evaluate and verify GMD system performance against a broader range of threats and collect data to further anchor models and simulations. One Integrated Ground Tests (IGTs) and one Distributed Ground Tests (DGTs) will be conducted that will verify GMD capabilities and support decisions to deploy increased capabilities to the field. In addition, four GMD flight tests will be conducted and two BMDS level flight tests will be supported to demonstrate an increasing level of element capability to defeat realistic threat complexes. Verification of system performance will be completed by the running of models and simulations that have been validated with data from the flight and ground test program.

ESGs are demonstrated in the GMD Integrated Test Program. Capabilities of the BMDS will be enhanced as the number of operationally available ESGs and the depth of inventory increases. During Block 3.0, GMD will demonstrate the capability in two additional ESGs:

- Launch on UEWR (Thule)

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2008													
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment													
<ul style="list-style-type: none"> Engage on UEWR (Thule) <p>Block 3.0 funding will support the fielding of additional interceptors. Construction of a third missile field at Fort Greely, AK will be completed and fourteen interceptors (with associated ground hardware) will be installed during this block.</p> <p><u>B. Accomplishments/Planned Program</u></p> <table border="1"> <thead> <tr> <th></th> <th align="center">FY 2007</th> <th align="center">FY 2008</th> <th align="center">FY 2009</th> </tr> </thead> <tbody> <tr> <td>Program Management</td> <td align="center">0</td> <td align="center">0</td> <td align="right">288,470</td> </tr> <tr> <td>RDT&E Articles (Quantity)</td> <td align="center">0</td> <td align="center">0</td> <td align="center">0</td> </tr> </tbody> </table> <p>This effort provides for the prime contractor and government management of the GMD program. Included in this effort is program and business management, program administration, technical and testing oversight, subcontractor management, verification of hardware and software development, quality and manufacturing assurance, configuration management, integrated logistic support, and government manpower and infrastructure to develop, test and sustain the GMD system and components.</p> <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> Provide management for GMD program quality assurance, manufacturing and mission assurance, safety assurance and configuration management. Provide government and contractor program staff and infrastructure for the overall management of the GMD program. Provide technical and business management support activities, financial management, cost and schedule performance analysis cost estimation and analysis, configuration management and integration activities. Provide contractor program management, subcontract management, quality assurance, verification of hardware and software development, and technical and testing oversight. Ensure GMD program compliance with internal and external direction, policies, and regulations. Provide Integrated Logistics Support for the GMD program through a Performance Based Logistics approach. Designate and implement a “Mission Assurance and Manufacturing Engineering Program “ to include Quality, Configuration Management, Manufacturing, Engineering, and Safety. 					FY 2007	FY 2008	FY 2009	Program Management	0	0	288,470	RDT&E Articles (Quantity)	0	0	0
	FY 2007	FY 2008	FY 2009												
Program Management	0	0	288,470												
RDT&E Articles (Quantity)	0	0	0												

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment	
	FY 2007	FY 2008	FY 2009
Ground Systems	0	188,423	249,167
RDT&E Articles (Quantity)	0	6	0
<p>The GMD Ground Systems (GS) enable control and operation of the GMD Element as part of the BMDS. The Fire Control sub-component consists of the GMD Fire Control (GFC), Test Exerciser (TEEx), and External Systems Interface (ESI). The communications sub-component consists of (1) GMD Communications Network (GCN) and (2) the In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT). Launch Systems products include Launch Site Components and Launch Support Systems. The launch systems sub component consists of launch site components (silos, SIVs) and Launch Support Systems (Command Launch Equipment (CLE) and Launch Support Equipment). This GMD RDT&E Construction request is further justified in the accompanying DD-1391 Exhibits, RDT&E Construction Data.</p> <p>FY08 Planned Program:</p> <ul style="list-style-type: none"> • Continue flight-test and ground-test support. • Continue construction of a new missile field at Fort Greely with fourteen (14) silos and associated launch support equipment. • Complete acquisition, installation and checkout of a second Relocatable IDT at Vandenberg AFB (Fielding). • Initiate Ground Systems Hardware Obsolescence Mitigation Program. • Complete GFC and CLE Near Term Discrimination Software (ECP 289/394) development. • Provide engineering and management to define and document necessary design modifications to transition from the contractor provided GCN LHC transport network to a government provided LHC transport network. Engineering effort will include finalization of specs, IDD, and Boeing documentation, including test plans and changes to CONOPS. The work will culminate in a joint Boeing, MDA/BC, DISA CDR. • Begin development of GFC Life Cycle Software Build 6C.1 and CLE Life Cycle Software Build 4.3. • Initiate Ground Systems software upgrades to accommodate accelerated 2-stage booster verification test (BVT-1) planned for FY09. <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> • Continue flight-test and ground-test support. • Complete fabrication and shipment of 14 Launch Site Components (Silo, SIV and SCMs and construction) for MF 2. • Complete acquisition, installation and checkout of a second Relocatable IDT at Vandenberg AFB. • Complete Close-out activities associated with GS Obsolescence hardware upgrades. • Complete the testing and initiate fielding of the GFC and CLE Near Term Discrimination capability to take advantage of discrimination data from the TPY-2 sensor. 			

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment	
<ul style="list-style-type: none"> • Implement GCN Long Haul Communications (LHC) transition to DISA. • Complete development and initiate fielding of GFC Life Cycle Software Build 6C.1. Complete development and initiate fielding of CLE Life Cycle Software Build 4.3. • Initiate Ground Systems software upgrades to accommodate accelerated 2-stage interceptor test planned for FY10. 			
	FY 2007	FY 2008	FY 2009
Element Engineering and Integration	0	0	203,500
RDT&E Articles (Quantity)	0	0	0
<p>GMD Element Engineering and Integration (EE&I) provides systems engineering and integration essential for the development and fielding of the functional components of the GMD segment of the BMDS. This program establishes element-level development requirements in the GMD Capabilities Document and ensures these are allocated to the component specifications. Complements the BMDS systems engineering capability by providing detailed insight and analysis into component technical and design-specific issues during fabrication, element-level integration, testing and fielding; defines element-level test requirements and objectives and provides element-level analysis and assessments to verify GMD performance; and provides engineering, integration, and operations planning supporting the BMDS, including assessment of future fielding options. Additionally, the EE&I program integrates Discrimination via extended phenomenology measurements to improve the classification in terms of mass, shape and dynamics: refine accuracy measurements in terms of position, orientation and velocity; and develop multi-sensor multi-phenomenology correlation and integration.</p> <p>FY09 Planned Program:</p> <ul style="list-style-type: none"> • Continue software management and specialty engineering. • Continue software verification and validation. • Continue modeling and simulation development. • Continue system analyses, integration, and verification. • Support integrated ground tests and specialty testing. • Conduct pre- and post-flight test analyses. • Continue development and integration of a Near Term Discrimination capability into the GMD system. • Continue system engineering and integration efforts for European Capability. • Complete the integration and testing of engage/launch on UEW (Thule). 			

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)		R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment	
	FY 2007	FY 2008	FY 2009
Ground Based Interceptor	0	265,000	355,653
RDT&E Articles (Quantity)	0	0	11
<p>The GBI development program funds the development of booster and EKV technologies. It also provides developmental assets for flight-testing. GMD has successfully demonstrated a hit-to-kill capability in seven (7) separate flight tests. This demonstrated capability of the GMD program will enhance the BMDS against long and intermediate range ballistic missile attacks through fielding of up to fourteen (14) operational missiles in Block 3.0. In Block 3.0 the GBI refurbishment program will continue, with up to four (4) GBIs annual completing refurbishment.</p> <p>FY08 Planned Program:</p> <ul style="list-style-type: none"> • Continue acquisition of fourteen (14) GBIs (Fielding). • Continue development of a two-stage booster. • Initiate development of the GBI Fleet Avionics Upgrade / Obsolescence Program. • Support the continuing development of a near term Discrimination capability enhancements into the EKV. • To support the acceleration of the 2-Stage development program, initiate acquisition of one (1) 2-Stage GBI for the Booster Verification Test (BVT) (Flight Test). • Continue acquisition of two (2) GBIs for Ground Test, originally initiated as 3-Stage GBIs in Block 1, now part of the acceleration of the 2-Stage development program. <p>FY09 Planned Program:</p> <p>RDT&E Test Articles: Complete acquisition of two (2) GBIs (Flight Test). Complete acquisition of three (3) GBIs (Fielding). Complete acquisition of two (20 GBIs (Ground Test).</p> <ul style="list-style-type: none"> • Complete acquisition of three (3) Block 3.0 GBIs (Fielding) (initially to storage). • Complete acquisition of one (1) 3-Stage GBI (Flight Test). • To support the acceleration of the 2-Stage development program, complete acquisition of one (1) 2-Stage GBI for the Booster Verification Test (BVT) (Flight Test). • To support the acceleration of the 2-Stage development program, initiate acquisition of one (1) 2-Stage GBI (Flight Test) for the FY10 2-Stage Interceptor Flight Test. • Continue GBI ground testing, system level simulation, and Verification, Validation, and Accreditation activities. • Continue development of a two Stage Booster. 			

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification			Date February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment		
<ul style="list-style-type: none"> • Continue GBI Refurbishment program; complete refurbishment of up to four (4) GBIs. • Continue Development of a Near Term Discrimination capability into the EKV. • Initiate acquisition for the GBI Fleet Avionics Upgrade / Obsolescence Program for three (3) GBIs (Fielding). • Complete acquisition of two (2) GBIs for Ground Test, originally initiated as 3 stage GBIs in Block 1, now part of the acceleration of the 2 stage development program. 			
	FY 2007	FY 2008	FY 2009
Element Test and Evaluation	0	0	296,297
RDT&E Articles (Quantity)	0	0	2
<p>GMD Test and Evaluation plans and executes GMD ground and flight tests to evaluate and verify GMD system performance and collect data to anchor models and simulations. Flight tests utilize a comprehensive infrastructure of ground-test facilities, ranges, sensors and instrumentation resources providing critical risk reduction and measurement of system performance for all GMD element components. This infrastructure allows the element engineers to successfully model and simulate test results into projections of future system performance. GMD Test and Evaluation integrates developmental and operational test planning, shares test resources, collects and assesses test data, collectively resolves test issues, minimizes the duplication of test resources and the time required to execute required testing, and supports BMDS level test and evaluation.</p> <p>FY09 Planned Program: RDT&E Test Articles: Complete acquisition of 2 targets. Flight Test Objectives:</p> <ul style="list-style-type: none"> • FTG-06: Demonstrate BMDS functionality of the GBI engage on SBX for GBI launched from Vandenberg AFB to perform all functions through acquisition, discrimination, transition to terminal, and intercepting a lethal object at medium closing velocity. • BVT-1: Demonstrate two-stage booster performance on engagement flyout with energy management maneuvers. • FTS-01: Demonstrate Simulated GBI engage on STSS system track with SBX sensor support, and collect signature data on targets for discrimination analysis. • FTX-05: Characterize the Fylingdales UEWR radar, and possibly the Thule UEWR radar through either a foreign cooperative launch effort or use of a Long Range Air-Launched Target (LRALT) mission. <p>Ground Test Objectives:</p> <ul style="list-style-type: none"> • GTI-09: Assess BMDS ability to simultaneously execute multiple Block 1.0 ESGs using theater and strategic assets with Block 1.0 scenarios; assess BMDS initial Block 1.0 functionality and interoperability with THAAD, AN/TPY-2, C2BMC, GMD, Aegis, SBIRS, and PATRIOT; 			

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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Exercise functionality used in applicable Block 1.0 ESGs with priority on: THAAD engage on AN/TPY-2, and ESGs with AN/TPY-2 as a sensor.

- Support 1 BMDS Ground Test Series (1 GTI test and 1 GTD test) and 1 GTX test. (GMD does not have any element level ground tests planned for FY09. GMD will participate in three BMDS level ground tests: one integrated (GTI), one distributed (GTD) and one focused (GTX)).
- Perform pre- and post-test analyses of all ground and flight in the System Test Analysis and Reporting (STAR) Lab.
- Perform analyses to define target requirements (STAR Lab).
- Conduct Pre-Mission Test (PMT) to support the Flight Tests (FTG-06 and FTG-07) and Post Flight Reconstruction (PFR) (PCIL-2).
- Assess previous flight and ground test results from data analysis and incorporate into future test objectives.
- Continue operation and maintenance of System Test Lab, PCIL -1 and -2, and ISTC-2.
- Continue ground and flight test planning, design, and scheduling.
- Continue to exercise the system against targets of opportunity as they arise.
- Engage on UEWR (Clear, AK).
- Launch on UEWR (Clear, AK).
- Engage on FBX-T (Hercules Algorithm).
- Launch on FBX-T (Hercules Algorithm).

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603888C Ballistic Missile Defense Test and Targets	584,615	621,861	673,691	672,976	690,938	708,991	719,209	4,672,281
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date February 2008		
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment				
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	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

D. Acquisition Strategy

GMD will continue to follow the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, development, and evolutionary acquisition through the use of MDA's new block structure and spiral development. The Department has structured the missile defense acquisition strategy to continually provide needed upgrades to the GMD system components within the new block structure and funding availability. This process allows early implementation of new technologies and enhanced capabilities able to defend against the evolving threats of today and the future. This process also minimizes the risk of obsolescence, provides opportunities for standards updates, and allows decision makers to make informed trades between cost, schedule, and performance while exploring operational and technological possibilities. This developmental approach has been enhanced within the GMD program by additional test infrastructure, improved test management, and improved models and simulations that have enhanced GMD's ability to test in more complex and operationally realistic test environments earlier than the standard acquisition process.

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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I. Product Development Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Ground Systems								
Ground Systems	SS/CPAF	Boeing/ AL/AK/AZ/CA/CO /VA	0	188,423	1/2Q	230,823	1/2Q	419,246
Element Engineering and Integration								
Systems Engineering and Integration	SS/CPAF	Boeing/ AL/AK/AZ/CA/CO /TX/VA	0	0	N/A	146,531	1/2Q	146,531
Ground Based Interceptor								
Ground Based Interceptor	SS/CPAF	Boeing/ AL/AK/AZ/CA/CO /UT/VA	0	265,000	1/2Q	354,009	1/2Q	619,009
Element Test and Evaluation								
Element Test and Evaluation	SS/CPAF	Boeing/ AL/AK/AZ/CA/CO /TX/VA	0	0	N/A	137,911	1/2Q	137,911
Subtotal Product Development			0	453,423		869,274		1322697

Remarks

The existing prime contract will be complete at the end of first quarter FY09; funding amounts shown in the R-3 for the remaining three quarters of FY09 are estimates.

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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II. Support Costs Cost (\$ in Thousands)								
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Program Management								
SPT HSV	C/CPAF	CSC/AL	0	0	N/A	26,530	1/2Q	26,530
SPT HSV (SETAC)	C/CPAF	BAE/AL	0	0	N/A	1,354	1/2Q	1,354
	MIPR	MDA/AL/VA	0	0	N/A	10,830	1/2Q	10,830
	MIPR	Various/AL/VA	0	0	N/A	9,753	1/2Q	9,753
JNIC (GML)	SS/CPAF	JNIC/CO	0	0	N/A	5,861	1/2Q	5,861
JNIC (GML)	SS/CPAF	L3 Communications/ CO	0	0	N/A	2,907	1/2Q	2,907
Information Technology	SS/CPAF	SAIC/AL	0	0	N/A	8,973	1/2Q	8,973
	SS/CPAF	BAE Systems/AL	0	0	N/A	2,122	1/2Q	2,122
	MIPR	AMCOM	0	0	N/A	637	1/2Q	637
	MIPR	SMDC/AL	0	0	N/A	532	1/2Q	532
	SS/CPAF	Boeing/ AL/AK/AZ/CA/CO /TX/VA	0	0	N/A	148,149	1/2Q	148,149
Manufacturing	SS/CPAF	BAE Systems/AL	0	0	N/A	2,484	1/2Q	2,484
	MIPR	AMRDEC/AL	0	0	N/A	410	1/2Q	410
	MIPR	SMDC/AL	0	0	N/A	0	4Q	
	SS/CPAF	TSI/AL	0	0	N/A	55	1/2Q	55
	C/CPAF	CSC/AL	0	0	N/A	0	4Q	
	C/CPAF	COLSA/AL	0	0	N/A	0	4Q	
Program Management	MIPR	MDA/AL/VA	0	0	N/A	23,150	1/2Q	23,150
Information Technology	MIPR	NSA/Various	0	0	N/A	3,289	1/2Q	3,289
	MIPR	Various/Various	0	0	N/A	22,434	1/2Q	22,434
DFW World-wide support	MIPR	MDA DFW/AL	0	0	N/A	19,000	1/2Q	19,000
Ground Systems								

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis						Date February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)					R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment			
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
	FFRDC	MITRE/AL	0	0	N/A	386	1/2Q	386
	C/FP	TSI/AL	0	0	N/A	2,710	1/2Q	2,710
	MIPR	Various/ AL/MD/VA	0	0	N/A	618	1/2Q	618
	C/CPFF	CSC/AL	0	0	N/A	5,520	1/2Q	5,520
	MIPR	USACE/AL	0	0	N/A	964	1/2Q	964
	MIPR	AMRDEC/AL	0	0	N/A	643	1/2Q	643
	C/CPFF	L3 Communications/ AL	0	0	N/A	1,063	1/2Q	1,063
	C/CPFF	TSI/AL	0	0	N/A	790	1/2Q	790
Facilities Construction	MIPR	USACE/AK	0	0	N/A	0	4Q	
SPT HSV	C/CPAF	CSC/AL	0	0	N/A	5,650	1/2Q	5,650
Element Engineering and Integration								
	MIPR	AMCOM/AL	0	0	N/A	5,089	1/2Q	5,089
	C/CPAF	EG&G/VA	0	0	N/A	2,565	1/2Q	2,565
	FFRDC	Johns Hopkins/MD	0	0	N/A	3,399	1/2Q	3,399
	FFRDC	MIT Lincoln Labs/ MA	0	0	N/A	1,539	1/2Q	1,539
	FFRDC	MITRE/MA	0	0	N/A	3,078	1/2Q	3,078
	C/CPAF	TSI/AL	0	0	N/A	1,672	1/2Q	1,672
	MIPR	JNIC/CO	0	0	N/A	1,796	1/2Q	1,796
	MIPR	NSWC/VA	0	0	N/A	2,565	1/2Q	2,565
	MIPR	Sandia/NM	0	0	N/A	513	1/2Q	513
	C/CPAF	Various/ AL/NM/VA	0	0	N/A	380	1/2Q	380
EE&I	C/CPAF	CSC/AL	0	0	N/A	123	1/2Q	123
	C/CPAF	BAE/AL	0	0	N/A	74	1/2Q	74

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis						Date February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment				
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
	C/CPAF	Aerospace/AL	0	0	N/A	256	1/2Q	256
	C/CPAF	IntelCorp/AL	0	0	N/A	598	1/2Q	598
	MIPR	SMDC STEPAL/AL	0	0	N/A	684	1/2Q	684
	C/CPAF	CSC LTAP/AL/VA	0	0	N/A	1,282	1/2Q	1,282
	MIPR	MDA/VA	0	0	N/A	31,356	1/2Q	31,356
SPT HSV	C/CPAF	CSC/AL	0	0	N/A	0	N/A	
Ground Based Interceptor								
	SS/FP	BAE Systems/AL	0	0	N/A	1,147	1/2Q	1,147
	SS/FP	TSI/AL	0	0	N/A	281	1/2Q	281
	MIPR	AMCOM/AL	0	0	N/A	212	1/2Q	212
	MIPR	Various/Various	0	0	N/A	4	1/2Q	4
Element Test and Evaluation								
	MIPR	SMDC/AL	0	0	N/A	842	1/2Q	842
	MIPR	AMCOM/NM	0	0	N/A	685	1/2Q	685
	MIPR	NAVSEA/MD	0	0	N/A	661	1/2Q	661
	MIPR	DISA/AL	0	0	N/A	1,426	1/2Q	1,426
	MIPR	Aero Systems Center/ Kirtland AFB/NM	0	0	N/A	1,297	1/2Q	1,297
	MIPR	US Army Space CMD/ Peterson AFB/CO	0	0	N/A	1,934	1/2Q	1,934
	MIPR	VAFB/CA	0	0	N/A	4,976	1/2Q	4,976
	MIPR	RTTC/AL	0	0	N/A	454	1/2Q	454
	MIPR	PRST/HI	0	0	N/A	2,113	1/2Q	2,113
	C/CPFF	Gray/AL	0	0	N/A	808	1/2Q	808
	C/CPFF	SMC/CA	0	0	N/A	1,990	1/2Q	1,990
	C/CPFF	IEC/CA	0	0	N/A	478	1/2Q	478

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
	MIPR	Maritime Adm/AL	0	0	N/A	842	1/2Q	842
	C/CPFF	Various	0	0	N/A	172	1/2Q	172
	MIPR	NAWCD/HI	0	0	N/A	796	1/2Q	796
Targets			0	0	N/A	104,712	1/2Q	104,712
GMD T&E	MIPR	VAFB/CA	0	0	N/A	3,072	1/2Q	3,072
SPT HSV	C/CPAF	CSC/AL	0	0	N/A	25,050	1/2Q	25,050
	MIPR	MDA/VA	0	0	N/A	6,078	1/2Q	6,078
Subtotal Support Costs			0	0		523,813		523,813

Remarks

The existing prime contract will be complete at the end of first quarter FY09; funding amounts shown in the R-3 for the remaining three quarters of FY09 are estimates.

III. Test and Evaluation Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
Element Test and Evaluation								
Subtotal Test and Evaluation			0	0		0		0

Remarks

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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IV. Management Services Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost			0	453,423		1,393,087		1,846,510
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Remarks

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDTE&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	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
Flight Tests																												
FTG-6										▲																		
BVT-1											▲																	
FTG-7														▲														
FTG-8																▲												
BMDS Certification																												
FTS-01											▲																	
FTX-05												▲																
FTX-06															▲													
Integrated/Distributed Ground Tests																												
GTX-03c										▲																		
GTX-09											▲																	
GTI-09												▲																
GTD-09															▲													

Legend	
▲	Significant Event (complete)
★	Milestone Decision (complete)
◆	Element Test (complete)
▼	System Level Test (complete)
▲▼	Complete Activity
▲	Significant Event (planned)
☆	Milestone Decision (planned)
◇	Element Test (planned)
▼	System Level Test (planned)
▲▼	Planned Activity

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	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
Integrated/Distributed Ground Tests																												
GTX-10															▲													
GTI-10																▲												
GTD-10																												▲
Capability Enhancement GBIs																												
LDC Missiles 31-44																												▲
GBI Refurbishment (Up to 4 Interceptors)																												▲

Legend	
▲	Significant Event (complete)
★	Milestone Decision (complete)
◆	Element Test (complete)
▼	System Level Test (complete)
▲	Significant Event (planned)
☆	Milestone Decision (planned)
◇	Element Test (planned)
▼	System Level Test (planned)
▲	Complete Activity
▲	Planned Activity

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Flight Tests							
FTG-6			2Q				
BVT-1			4Q				
FTG-7				2Q			
FTG-8				4Q			
BMDS Certification							
FTS-01			3Q				
FTX-05			4Q				
FTX-06				2Q			
Integrated/Distributed Ground Tests							
GTX-03c			1Q				
GTX-09			2Q				
GTI-09			3Q				
GTD-09			4Q				
GTX-10				2Q			
GTI-10				3Q			
GTD-10				4Q			
Capability Enhancement GBIs							
LDC Missiles 31-44				4Q	1Q-4Q		
GBI Refurbishment (Up to 4 Interceptors)			1Q-4Q				

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification					Date February 2008		
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment			
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COST (\$ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
DX08 Ground Based Midcourse Defense (GMD) Block 4.0	0	77,133	328,110	360,950	1,089,961	604,144	688,920
RDT&E Articles Qty	0	0	0	14	12	6	0

Note: The content in FY08-13 project DX08 is a continuation of the efforts reported in FY07 project 0008 and was explained in that project in PB08.

Funding for European Interceptor Site construction in FY08 and FY09 previously captured in the Midcourse PE RDT&E budget exhibits is now explained in MDA Military Construction (MILCON) DD Forms 1390/1391.

A. Mission Description and Budget Item Justification

Block 4.0 provides the funding for the expansion of the BMDS capability at a third missile site; execution of the flight and ground testing program to include the demonstration of additional Engagement Sequence Groups (ESGs); and the fielding of additional interceptors.

Block 4.0 incorporates the next increment of fielded capability with up to ten (10) additional interceptors for either a European Site or expanded inventory at Fort Greely, AK.

Block 4.0 planned additional enhancements for European Capability include:

- European Interceptor Site (EIS) with ten (10) additional silos and ten (10) Silo Interface Vaults (SIVs) capable of supporting interceptors, Launch Support Equipment (LSE) racks that will interface with the existing Command Launch Equipment (CLE) assets and capabilities comparable to other operational silos.
- A Relocatable IFICS Data Terminal (RIDT) capable of sending in-flight target updates to and receiving in-flight status reports from interceptors launched from European Capability.
- GMD Communication Network (GCN) infrastructure connecting European Capability components to GMD Fire Control (GFC) Nodes located at Joint National Integration Center (JNIC) and Fort Greely, AK.
- Command Launch Equipment to launch European Capability GBIs.
- European Capability facilities including: Interceptor Monitoring Facility, Mechanical Electrical Building (MEB), Interceptor Storage Facility, RIDT Building, Military Satellite Communications (MILSATCOM) facility and other facilities at the European Interceptor Site (EIS) capable of providing appropriate protection of equipment.
- Replacement of obsolete Ground Systems hardware to include the GFC IBM Regatta servers. A rehost of GFC software will be completed to maintain Block 4.0 functionality on the new hardware platform. Engagement Planning capabilities will be incorporated to improve mitigation of environments.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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- 10 GBIs -- 2-stage Booster.

ESGs are demonstrated in the GMD Integrated Test Program. Capabilities of the BMDS will be enhanced as the number of operationally available ESGs increases. During Block 4.0, GMD will demonstrate capability in four additional BMDS ESGs:

- Engage on UEWR (Clear, AK)
- Launch on UEWR (Clear, AK)
- Engage on FBX-T (Hercules Algorithm)
- Launch on FBX-T (Hercules Algorithm)

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Ground Systems	0	77,133	308,927
RDT&E Articles (Quantity)	0	0	0

The GMD Ground Systems (GS) enable fire control and operation of the GMD Element as part of the BMDS. The European Site Ground System project includes ten (10) missile silos and Silo Interface Vault (SIVs), an IFICS Data Terminal, connectivity to the GMD Communication Network (GCN), Command Launch Equipment, and upgraded Ground Systems hardware.

FY08 Planned Program:

- Initiate planning and design for a European Interceptor Site (EIS) silo complex.
- Initiate planning of long lead Ground Systems hardware (CLE, silos, SIVs) for the European Interceptor Site.
- Initiate software upgrade to Ground System software to accommodate additional missile site.
- Continue system engineering and integration efforts for European Capability.

FY09 Planned Program:

- Complete planning and design for a European Interceptor Site (EIS) silo complex.
- Initiate acquisition of Long Lead Ground Systems hardware (CLE, LEBVS, Mobile GECOS, silos, SIVs, and CNEs) for the European Interceptor Site.
- Initiate European Interceptor Site activation.
- Initiate development and construction of IDT for European Capability.

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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- Continue software upgrade to Ground System software to accommodate EIS capabilities.

	FY 2007	FY 2008	FY 2009
Ground Based Interceptor	0	0	19,183
RDT&E Articles (Quantity)	0	0	0

The Ground Based Interceptor consists of an Exoatmospheric Kill Vehicle and a Booster Vehicle. These interceptors will enhance the BMDS capability against long and intermediate range ballistic missile attacks by adding ten (10) fielded interceptors. The Block 4.0 program will incorporate the integration of a two-stage booster which is based on and leverages the existing three-stage design.

FY09 Planned Program:

- Initiate acquisition of up to ten (10) two-stage GBIs (European Capability Fielding), pending successfully meeting the criteria described in Section 226 of the FY08 National Defense Authorization Report.
- Initiate incorporation of the GBI Fleet Avionics Upgrade / Obsolescence Program for European Capability GBIs, pending successfully meeting the criteria described in Section 226 of the FY08 National Defense Authorization Report.

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603888C Ballistic Missile Defense Test and Targets	584,615	621,861	673,691	672,976	690,938	708,991	719,209	4,672,281
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

D. Acquisition Strategy

GMD will continue to follow the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, development, and evolutionary acquisition through the use of MDA's new block structure and spiral development. The Department has structured the missile defense acquisition strategy to continually provide needed upgrades to the GMD system components within the new block structure and funding availability. This process allows early implementation of new technologies and enhanced capabilities able to defend against the evolving threats of today and the future. This process also minimizes the risk of obsolescence, provides opportunities for standards updates, and allows decision makers to make informed trades between cost, schedule, and performance while exploring operational and technological possibilities. This developmental approach has been enhanced within the GMD program by additional test infrastructure, improved test management, and improved models and simulations that have enhanced GMD's ability to test in more complex and operationally realistic test environments earlier than the standard acquisition process.

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis						Date February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)					R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment			
I. Product Development Cost (\$ in Thousands)								
Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Ground Systems								
Planning/Design/Site Activation	C/CPAF	Boeing/ AL/AK/AZ/CA/CO /MA/VA/Europe Site	0	28,380	1/2Q	65,459	1/2Q	93,839
BMDS Communications Equipment (GM)	MIPR	DISA/ Europe Site	0	0	N/A	67,230	1/2Q	67,230
Engineering Services	C/CPAF	Boeing/ AL/AK/AZ/CA/CO /VA/Europe Site	0	0	N/A	11,800	1/2Q	11,800
Missile Complex Hardware	C/CPAF	Boeing/ AL/AK/AZ/CA/CO /VA/Europe Site	0	6,400	1/2Q	62,916	1/2Q	69,316
BMDS Element Integration	C/CPAF	Boeing/ AL/AK/AZ/CA/CO /VA/Europe Site	0	17,500	1/2Q	18,000	1/2Q	35,500
Ground Systems Software Upgrade	C/CPAF	Boeing/ AL/AK/AZ/CA/CO /VA/Europe Site	0	2,000	1/2Q	21,200	1/2Q	23,200
System Test Lab Upgrade	C/CPAF	Boeing/ AL/AK/AZ/CA/CO /VA/Europe Site	0	2,000	1/2Q	22,200	1Q	24,200
Weapon System Integration	C/CPAF	Boeing/ AL/AK/AZ/CA/CO /VA/Europe Site	0	20,853	1/2Q	24,800	1/2Q	45,653
BMDS Communications Equipment (GM)	MIPR	DISA/ Europe Site	0	0	N/A	4,200	1/2Q	4,200
Ground Based Interceptor								

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
Ground Based Interceptor	SS/CPAF	Boeing/ AL/AK/AZ/CA/CO /UT/VA	0	0	4Q	19,183	1/2Q	19,183
Subtotal Product Development			0	77,133		316,988		394121

Remarks

The existing prime contract will be complete at the end of first quarter FY09; funding amounts shown in the R-3 for the remaining three quarters of FY09 are estimates.

II. Support Costs Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
Ground Systems								
SPT HSV	C/CPAF	CSC/ AL	0	0	N/A	11,122	1/2Q	11,122
Subtotal Support Costs			0	0		11,122		11122

Remarks

III. Test and Evaluation Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
Subtotal Test and Evaluation								

Remarks

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis					Date February 2008		
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment			
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IV. Management Services Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost			0	77,133		328,110		405,243
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Remarks

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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Fiscal Year	2007				2008				2009				2010				2011				2012				2013				
	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	
Flight Tests																													
FTG-9																													
FTG-10																													
FTG-11																													
FTG-12																													
FTG-13																													
FTG-14																													
BMDS Certification																													
FTX-X (3)																													
FTX-X (4)																													
FTX-X (5)																													
Integrated/Distributed Ground Tests																													
GTX-11																													
GTI-11																													

Legend	
	Significant Event (complete)
	Milestone Decision (complete)
	Element Test (complete)
	System Level Test (complete)
	Complete Activity
	Significant Event (planned)
	Milestone Decision (planned)
	Element Test (planned)
	System Level Test (planned)
	Planned Activity

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Flight Tests							
FTG-9					2Q		
FTG-10					4Q		
FTG-11						2Q	
FTG-12						4Q	
FTG-13							2Q
FTG-14							4Q
BMDS Certification							
FTX-X (3)					2Q		
FTX-X (4)						2Q	
FTX-X (5)							2Q
Integrated/Distributed Ground Tests							
GTX-11					2Q		
GTI-11					3Q		
GTD-11					4Q		
GTX-12						2Q	
GTI-12						3Q	
GTD-12						4Q	
GTX-13							2Q
GTI-13							3Q
GTD-13							4Q
Capability Enhancement GBIs							
LDC Missiles 45-54						3Q-4Q	1Q-2Q

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification					Date February 2008		
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment			
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COST (\$ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
XX08 Ground Based Midcourse Defense (GMD) Sustainment	0	279,173	266,605	202,956	230,372	303,105	374,319
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: The content in FY08-13 project XX08 is a continuation of the efforts reported in FY07 project 0808 and was explained in that project in PB08.

A. Mission Description and Budget Item Justification

The Sustainment Block (Project XX08) provides for the operations and sustainment of GMD fielded capability. This includes Logistics Support previously identified in Project 0808 for FY2008-2013 in the PB08 submittal. The GMD Prime contractor and subcontractors will provide monitoring, diagnostics and maintenance of the fielded GMD components. This effort includes the continued development and validation of maintenance procedures, analysis, repair parts stockage levels, and 24/7 monitoring and diagnostics at Vandenberg AFB, Fort Greely, Missile Defense Integration Operations Center (MDIOC), across the nation-wide GMD Communication Network (GCN) and on board the Sea-Based X-Band Radar (SBX). The government is developing a competitive logistics acquisition strategy for follow-on maintenance in accordance with service transition plans and the Performance Based Logistics concept.

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Operations and Sustainment	0	279,173	266,605
RDT&E Articles (Quantity)	0	0	0

FY08 Planned Program:

- Implement a logistics acquisition strategy for follow-on maintenance in accordance with service transition plans and Performance Based Logistics (PBL) concept, incorporating performance metrics and incentivized mission capable response diagnostics.
- Provide GMD Element operations and sustainment for Prime Mission Equipment (PME), support equipment, and operational facilities at FGA, EAS, COS, VAFB, Beale AFB, and Fylingdales.
- Continue 24/7/365 operations and support for the SBX vessel and all on-board equipment; the Primary Support Base (PSB) at Adak, AK; the Operations Support Site (OSS) at Ft. Richardson, AK; and the M/V Dove support vessel. (GMD will continue to contract for operations and support of the SBX, although funding will be provided through the MDA SBX PE (0603907C)).
- Continue to maintain GMD facilities at FGA; VAFB; EAS; and Adak, AK.
- Support continued discussions/negotiations with the United States Navy to facilitate transition and transfer of the SBX in the FY09/FY10 timeframe. (MDA/SN is the program lead starting in FY08).

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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- Continue minimal spare replenishment through improved logistics repair analysis captured through performance metrics.
- Continue on-site sustaining engineering, ensuring logistics analysis is incorporated in technical data products.
- Continue stockpile reliability and component aging testing.
- Develop, validate, verify and field System Level GMD Technical Manuals.
- Update training materials and sustainment training packages to maintain operational and maintenance crew proficiency.
- Continue security enhancements at FGA, VAFB, EAS, and Adak.
- Plan and execute the shipment of PME to sites throughout Alaska.
- Evaluate security requirements at FGA and VAFB.

FY09 Planned Program:

- Provide GMD Element operations and sustainment for PME, support equipment, and operational facilities at FGA, COS, and VAFB.
- Continue to maintain GMD facilities at FGA and VAFB.
- Continue minimal spare replenishment through improved logistics repair analysis captured through performance metrics.
- Continue on-site sustaining engineering, ensuring logistics analysis is incorporated in technical data products.
- Continue stockpile reliability and component aging testing.
- Continue to develop, validate, verify and field System Level GMD Technical Manuals.
- Update training materials and sustainment training packages to maintain operational and maintenance crew proficiency.
- Continue security enhancements at FGA and VAFB.
- Initiate Performance Based Logistics (PBL) through full incorporation of PBL metrics.

C. Other Program Funding Summary

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603888C Ballistic Missile Defense Test and Targets	584,615	621,861	673,691	672,976	690,938	708,991	719,209	4,672,281
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
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PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

D. Acquisition Strategy

GMD will continue to follow the Missile Defense Agency's capability-based acquisition strategy that emphasizes testing, development, and evolutionary acquisition through the use of MDA's new block structure and spiral development. The Department has structured the missile defense acquisition strategy to continually provide needed upgrades to the GMD system components within the new block structure and funding availability. This process allows early implementation of new technologies and enhanced capabilities able to defend against the evolving threats of today and the future. This process also minimizes the risk of obsolescence, provides opportunities for standards updates, and allows decision makers to make informed trades between cost, schedule, and performance while exploring operational and technological possibilities. This developmental approach has been enhanced within the GMD program by additional test infrastructure, improved test management, and improved models and simulations that have enhanced GMD's ability to test in more complex and operationally realistic test environments earlier than the standard acquisition process.

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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I. Product Development Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Product Development								

Remarks

II. Support Costs Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Operations and Sustainment								
	SS/CPAF	Boeing/ AL/AK/CA	0	194,932	1/2Q	186,453	1/2Q	381,385
GFX	MIPR	SPAWAR/ CA	0	1,056	1/2Q	930	1/2Q	1,986
	MIPR	AMCOM SED/AL	0	1,115	1/2Q	981	1/2Q	2,096
	MIPR	DISA/VA	0	18,025	1/2Q	17,845	1/2Q	35,870
	MIPR	AMCOM/AL	0	1,808	1/2Q	1,591	1/2Q	3,399
	MIPR	NIST/OH	0	1,253	1/2Q	1,103	1/2Q	2,356
	MIPR	L3 Communications/ AL	0	1,426	1/2Q	1,255	1/2Q	2,681
	MIPR	SMDC FGA/ AL	0	6,930	1/2Q	6,098	1/2Q	13,028
	MIPR	611th Air SptGrp, Elmendorf AFB/ AK	0	9,405	1/2Q	8,276	1/2Q	17,681
	MIPR	VAFB/CA	0	2,574	1/2Q	2,265	1/2Q	4,839
	MIPR	Hill AFB/UT	0	128	1/2Q	110	1/2Q	238

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/Oblg Date	FY 2009 Cost	FY 2009 Award/Oblg Date	Total Cost
Logistics	C/CPFF	L3 Communications/AL	0	3,168	1/2Q	2,788	1/2Q	5,956
Protection	SS/CPFF	SDC/AK	0	1,545	1/2Q	1,591	1/2Q	3,136
	SS/CPFF	C&A/AL	0	4,532	1/2Q	4,668	1/2Q	9,200
	MIPR	MDA/AL	0	11,396	1/2Q	11,738	1/2Q	23,134
JNIC (GML)	SS/CPAF	JNIC/CO	0	5,690	1/2Q	5,861	1/2Q	11,551
	SS/CPAF	L3 Communications/CO	0	2,822	1/2Q	2,907	1/2Q	5,729
SPT HSV	C/CPAF	CSC/AL	0	4,670	1/2Q	4,440	1/2Q	9,110
GFX	MIPR	Fylingdales/UK	0	152	1/2Q	134	1/2Q	286
	MIPR	FGA Chugach/AK	0	998	1/2Q	848	1/2Q	1,846
	MIPR	SMDC/AL	0	1,485	1/2Q	1,265	1/2Q	2,750
	MIPR	USARAK/AK	0	499	1/2Q	424	1/2Q	923
	MIPR	AMCOM/AL/AK/HI	0	3,564	1/2Q	3,034	1/2Q	6,598
Subtotal Support Costs			0	279,173		266,605		545778

Remarks

The existing prime contract will be complete at the end of first quarter FY09; funding amounts shown in the R-3 for the remaining three quarters of FY09 are estimates.

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Missile Defense Agency (MDA) Exhibit R-3 RDT&E Project Cost Analysis	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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III. Test and Evaluation Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Test and Evaluation								

Remarks

IV. Management Services Cost (\$ in Thousands)

Cost Categories:	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2008 Cost	FY 2008 Award/ Oblg Date	FY 2009 Cost	FY 2009 Award/ Oblg Date	Total Cost
Subtotal Management Services								

Remarks

Project Total Cost			0	279,173		266,605		545,778
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Remarks

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Missile Defense Agency (MDA) Exhibit R-4 Schedule Profile

Date
February 2008

APPROPRIATION/BUDGET ACTIVITY
RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)

R-1 NOMENCLATURE
0603882C Ballistic Missile Defense Midcourse Defense Segment

Fiscal Year	2007				2008				2009				2010				2011				2012				2013			
	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
Capability Enhancement GBIs																												
LDC Missiles 14-18	▲————▲																											
LDC Missiles 19-24			▲————▲																									
LDC Missiles 25-30					▲————▲																							
LDC Missiles 31-44													▲————▲															
LDC Missiles 45-54																	▲————▲											
GBI Refurbishment (Up to 8 Interceptors) (4 per year)					▲————▲				▲————▲																			

Legend

▲	Significant Event (complete)	▲	Significant Event (planned)
★	Milestone Decision (complete)	☆	Milestone Decision (planned)
◆	Element Test (complete)	◇	Element Test (planned)
▼	System Level Test (complete)	▽	System Level Test (planned)
▲————▲	Complete Activity	▲————▲	Planned Activity

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Missile Defense Agency (MDA) Exhibit R-4A Schedule Detail						Date February 2008	
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment			
Schedule Profile	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Capability Enhancement GBIs							
LDC Missiles 14-18	1Q-3Q						
LDC Missiles 19-24	3Q-4Q						
LDC Missiles 25-30		1Q-4Q	1Q-2Q				
LDC Missiles 31-44				4Q	1Q-4Q		
LDC Missiles 45-54					4Q	1Q-3Q	
GBI Refurbishment (Up to 8 Interceptors) (4 per year)		1Q-4Q	1Q-4Q				

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification	Date February 2008
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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment
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COST (\$ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
0602 Program-Wide Support	80,443	0	0	0	0	0	0
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: Efforts within this project continue in FY 2008 under project ZX40

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program such as strategic planning, program integration, business management, cost estimating, contracting, and financial management, to include preparation of financial statements, reimbursement of financial services provided by DFAS, internal review and audit, earned-value management, and program assessment. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Many of these costs reside within the Missile Defense Agency Executing Agents in the Services: Army Space and Missile Defense Command, Army PEO Space and Missile Defense, Office of Naval Research, and various Air Force laboratory and acquisition activities, although some functions and costs within this program element are performed by MDA employees assigned within the National Capital Region (NCR). Other costs included herein provide facility capabilities for MDA Executing Agent locations, such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuation on a limited number of foreign contracts.

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Civilian Salaries and Support	80,443	0	0
RDT&E Articles (Quantity)	0	0	0

See Section A: Mission Description and Budget Item Justification

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment				
C. Other Program Funding Summary								
	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	Total Cost
PE 0207998C BRAC	0	103,219	159,938	61,931	8,724	0	0	333,812
PE 0603175C Ballistic Missile Defense Technology	183,849	108,423	118,718	115,234	120,152	127,012	130,358	903,746
PE 0603881C Ballistic Missile Defense Terminal Defense Segment	1,082,454	1,045,276	1,019,073	795,659	719,847	548,283	439,752	5,650,344
PE 0603883C Ballistic Missile Defense Boost Defense Segment	622,218	510,241	421,229	423,927	652,642	799,792	991,839	4,421,888
PE 0603884C Ballistic Missile Defense Sensors	514,989	586,121	1,221,143	1,184,280	1,099,649	1,077,632	823,583	6,507,397
PE 0603886C Ballistic Missile Defense System Interceptors	341,358	340,107	386,817	500,966	708,803	815,433	553,136	3,646,620
PE 0603888C Ballistic Missile Defense Test and Targets	584,615	621,861	673,691	672,976	690,938	708,991	719,209	4,672,281
PE 0603890C Ballistic Missile Defense System Core	425,889	413,934	432,262	482,947	605,219	561,947	571,498	3,493,696
PE 0603891C Special Programs - MDA	347,377	196,892	288,315	304,234	538,050	818,136	786,349	3,279,353
PE 0603892C Ballistic Missile Defense Aegis	1,125,426	1,126,337	1,157,783	1,234,220	1,078,539	1,066,712	1,102,542	7,891,559
PE 0603893C Space Tracking & Surveillance System	311,402	231,528	242,441	266,509	560,130	735,727	938,191	3,285,928
PE 0603894C Multiple Kill Vehicle	133,615	229,943	354,455	488,294	649,632	708,582	879,385	3,443,906
PE 0603895C BMD System Space Program	0	16,552	29,771	41,638	56,199	133,915	157,548	435,623
PE 0603896C BMD C2BMC	249,179	447,616	289,277	287,194	270,762	256,767	259,159	2,059,954
PE 0603897C BMD Hercules	46,268	52,462	55,955	55,289	56,400	51,902	52,784	371,060
PE 0603898C BMD Joint Warfighter Support	49,833	49,394	69,982	73,997	77,205	80,168	81,948	482,527
PE 0603904C Missile Defense Integration & Operations Center	104,389	78,557	96,404	100,437	100,366	101,512	102,840	684,505
PE 0603905C BMD Concurrent Test and Operations	21,870	0	0	0	0	0	0	21,870
PE 0603906C Regarding Trench	0	1,986	2,978	4,964	4,963	8,933	8,933	32,757
PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
PE 0605502C Small Business Innovative Research - MDA	142,510	0	0	0	0	0	0	142,510
PE 0901585C Pentagon Reservation	15,527	6,019	19,734	5,040	5,284	5,370	5,456	62,430
PE 0901598C Management Headquarters - MDA	93,350	80,392	86,453	70,355	69,855	69,855	69,855	540,115

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APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment			
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COST (\$ in Thousands)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
ZX40 Program-Wide Support	0	46,196	63,682	70,089	43,525	28,657	30,159
RDT&E Articles Qty	0	0	0	0	0	0	0

Note: In accordance with the Missile Defense Agency revised block structure, the content previously planned in Project 0602 for FY08-FY13 is now captured in Project ZX40.

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program such as strategic planning, program integration, business management, cost estimating, contracting, and financial management, to include preparation of financial statements, reimbursement of financial services provided by DFAS, internal review and audit, earned-value management, and program assessment. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Many of these costs reside within the Missile Defense Agency Executing Agents in the Services: Army Space and Missile Defense Command, Army PEO Space and Missile Defense, Office of Naval Research, and various Air Force laboratory and acquisition activities, although some functions and costs within this program element are performed by MDA employees assigned within the National Capital Region (NCR). Other costs included herein provide facility capabilities for MDA Executing Agent locations, such as physical and technical security, legal services, travel and training, office and equipment leases, utilities and communications, supplies and maintenance, and similar operating expenses. Also includes funding for charges on canceled appropriations in accordance with Public Law 101-510, legal settlements, and foreign currency fluctuation on a limited number of foreign contracts.

B. Accomplishments/Planned Program

	FY 2007	FY 2008	FY 2009
Civilian Salaries and Support	0	46,196	63,682
RDT&E Articles (Quantity)	0	0	0

See Section A: Mission Description and Budget Item Justification

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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification						Date February 2008		
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)				R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment				
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PE 0603907C Sea Based X-Band Radar (SBX)	0	165,243	0	0	0	0	0	165,243
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Missile Defense Agency (MDA) Exhibit R-2A RDT&E Project Justification		Date February 2008
APPROPRIATION/BUDGET ACTIVITY RDT&E, DW/04 Advanced Component Development and Prototypes (ACD&P)	R-1 NOMENCLATURE 0603882C Ballistic Missile Defense Midcourse Defense Segment	

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