Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *Aegis SM-3 BLOCK IIA CO-DEVELOPMENT*

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	Continuing	Continuing
MD09: *SM-3 Block IIA Co-Development*	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	Continuing	Continuing

Note

NA

A. Mission Description and Budget Item Justification

The Aegis Ballistic Missile Defense (Aegis BMD) mission is to deliver an enduring, operationally effective and supportable Ballistic Missile Defense capability on Aegis cruisers and destroyers to defend the nation, deployed forces, friends and allies, and to increase this capability by delivering evolutionary improvements as part of Ballistic Missile Defense System (BMDS) upgrades. The Aegis BMD element of the BMDS builds upon the existing U.S. Navy Aegis Weapons System (AWS) and Standard Missile (SM) infrastructures. Aegis BMD provides a forward-deployable, mobile capability to detect and track Ballistic Missiles of all ranges, and the ability to destroy Short-Range Ballistic Missile (SRBM), Medium-Range Ballistic Missile (MRBM), Intermediate-Range Ballistic Missile (IRBM), and selected long-range class threats in the midcourse phase of flight. Upgrades to both the Aegis BMD Weapon System and the SM-3 configurations will enable Aegis BMD to provide effective, supportable defensive capability against more difficult threats in all phases of flight, including Long Range Ballistic Missiles (LRBMs).

The FY 2011 program is balanced reflecting the four focus areas of the current Missile Defense Program: to develop, rigorously test, and field an integrated BMDS architecture to counter existing regional threats, continue a viable Homeland Defense against rouge threats beyond 2030; demonstrate our proven technologies to show Missile Defense works; and develop technologies to hedge against future missile threat growth.

The best way to dissuade, deter, and defeat ballistic missile threats is through integrated ballistic missile defense capabilities -- weapons, sensors, and Command and Control Battle Management and Communications (C2BMC). A potential or actual attack may cross regions and may fly higher and faster than stand-alone, autonomous capabilities operated by a single Military Service can defend against. Integrated BMD capabilities draw on space-, land-, and sea-based assets operated by multiple Services to provide both the best sensor information on the enemy missile`s location and track as well as a more diverse and effective set of weapon options for the Combatant Commander to defeat the attack -- all connected by a unifying C2BMC system. As a result, an effort funded in a program element (PE) may be critical to the

success of efforts in the other PE -- we refer to these connections as ``interdependencies``. Throughout the budget justification materials we have attempted to highlight interdependencies to fully explain the relationship between different parts of the proposed program.

The U.S./Japan Joint Cooperative Research (JCR) program conducted cooperative research in Ballistic Missile Defense. The research focused on the development of advanced missile technologies in four components of the SM-3 guided missile: sensor, advanced kinetic warhead, second stage propulsion and lightweight nosecone. In FY 2006, the JCR project concluded with the flight testing of the lightweight nosecone in Joint Control Test Vehicle-1 (JCTV-1).

Aegis BMD and the Japan Ministry of Defense (JMOD) have undertaken an SM-3 Cooperative Development (SCD) program, which consists of a spiral upgrade of the SM-3 Blk IB missile to a 21-inch diameter SM-3 missile (SM-3 Blk IIA). The objective of the SCD project is the development and initial at-sea flight test of the SM-3 Blk IIA missile. The SM-3 Blk IIA missile will increase the area that can be defended by Aegis BMD and increase the probability of kill against a larger threat set. It will leverage enhanced capability provided by BMDS sensor upgrades. The SM-3 Blk IIA missile development will build upon established joint research investments by both the U.S. and Japan. The system analysis, system trade studies, and BMD system performance goals established in the U.S./Japan BMD Joint Analysis (JAWS) completed in March 2005 are the foundation for developing the SM-3 Blk IIA missile. Key technology improvements over the current SM-3 Blk IA missile planned for the SM-3 Blk IIA missile include a significant increase in velocity and range provided by a 21-inch diameter rocket motor propulsion stack, and increased seeker sensitivity and divert capability incorporated in an advanced kinetic warhead. Key component technologies to be developed under this Annex include, but are not limited to: Lightweight nosecone, advanced kinetic warhead, 21-inch second stage rocket motor, and 21-inch third stage rocket motor. The U.S. and Japan will equitably share both work and cost.

The Scope of Work of the SCD project can be defined in three phases:

Phase I implements the SCD scope of work as it was defined in the original annex, taking the program through completion of the SDR. Aegis BMD will execute risk reduction efforts for the propulsion, nosecone, seeker and DACS development efforts and test plans, and conduct requirements definition for the SM-3 Blk IIA missile configuration. Phase I will also initiate information exchange related to production and maintenance of the SM-3 Blk IIA missile and introduce the phased engineering approach. Upon completion of requirements definition, a schedule for development and testing, and work share and cost share for development and testing will be refined.

Phase II will capture program changes as set out in the first planned amendment, and refine the scope of work from SDR to completion of the CDR. Aegis BMD will refine requirements and define the performance allocation and component configuration for the development and testing of the SM-3 Blk IIA missile, and both parties will design, fabricate, test, and evaluate the SM-3 Block IIA missile. Both parties will continue the information exchanges related to production and maintenance in Phase II.

Phase III will capture program changes as set out in the second planned amendment, and refine the scope of work from CDR to the completion of the SCD flight test program as defined in the Agreement. This phase defines developmental cost share agreements between the United States and the Government of Japan, completes component engineering and integration, executes cooperative flight tests, and continues discussions on production and maintenance options.

BMD Systems Engineering:

BMD Systems Engineering provides System Description Documents and System Specifications for elements to design, build, integrate and test BMDS components. These products optimize performance at the system level and further ensure that the assessment of the designed BMD System is based on sufficient ground and flight testing. Aegis BMD compliance with BMD System level requirements is monitored in a series of requirements and design reviews both at the system and element levels.

Unifying Missile Defense Functions:

MDA has a set of Unifying Missile Defense Functions (UMDFs), which increase the effectiveness of the BMD System (including probability of engagement success, increase in defended area and raid size capacity, additional redundancy of architecture, unity of command) through the integration of MDA developed capabilities. These UMDF efforts are Sensor Registration (reporting of sensor errors / biases), Correlation (ensuring the information from multiple sensors seeing a threat relates to the same object), System Track (creating a single engageable track of a threat from multiple reports provided by different land, sea, and space based multiple sensors), Discrimination (identifying object details to determine the target from debris or decoys), Battle Management (combining the best sensors and shooters to ensure the highest probability of a kill), Hit / Kill Assessment (determining if the target selected was destroyed after missile impact), and Communications (providing the worldwide connection of sensors and shooters to command authorities). UMDFs are implemented across the BMDS elements to create and utilize system level data and decisions that allow Combatant Commanders the ability to automatically and manually optimize sensor coverage and interceptor inventory to defend against all ranges of ballistic threats.

Common Threat Engineering:

Common threat engineering produces common and consistent adversary trajectory and signature data to enable BMD System and sub-system concept and requirements, design, verification, and assessment. Common Threat data is contained in the Adversary Capability Document (ACD) and Adversary Data Packages (ADP) and drives BMDS ground tests, flight tests, digital simulations, and pre-mission analysis activities. It is also used to develop the BMD System Description Document and BMD System Specification.

BMDS Hardware In The Loop (HWIL):

The BMD Single Stimulation Framework (SSF) utilizes HWIL assets to support primarily BMDS ground testing, pre and post flight test mission construction and reconstruction, portions of the training capability, Wargames, exercises and BMDS contingency studies, as well as various other use cases to enable BMDS performance in a simulated environment. Each BMDS Element supports the M&S Program by providing HWIL representations ready for integration into the BMDS system-level framework to support full-envelope BMDS ground test, flight test, and training events based upon Agency and Warfighter needs.

Proving Missile Defense:

Working with the Services` Operational Test Agencies (OTA), with the support of the Director of Operational Test and Evaluation (DOT&E), MDA has developed a test program to improve confidence in missile defense capabilities under development and ensure the capabilities transferred to the war fighter are operationally effective, suitable, and survivable.

The BMDS performance evaluation strategy is to develop models and simulations of the BMDS and compare their predictions to empirical data collected through comprehensive flight and ground testing to validate their accuracy, rather than physically testing all possible combinations of BMDS configurations, engagement conditions, and target phenomena. The BMDS test review determined how to validate our models and simulations so that our war fighting commanders have

confidence in the predicted performance of the BMDS, especially when those commanders consider employing the BMDS in ways other than originally planned or against threats unknown at this time.

The test plan review resulted in a Integrated Master Test Plan (IMTP) that is event-oriented and extends until the collection of all identified data is completed to ensure adequate test investments. The bottom line is that MDA is focused on conducting meaningful ballistic missile testing that rigorously demonstrates the capabilities of the BMDS.

MiDAESS:

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the BMDS mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the Agency, centralize the acquisition of support services manpower in a more efficient manner and reduce Agency overhead cost. A&AS support includes engineering and technical services; studies, analyses, and evaluations; and management and professional services.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	255.987	318.800	0.000	318.800
Total Adjustments	0.000	255.987	318.800	0.000	318.800
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		255.987			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustment Detail	0.000	0.000	318.800	0.000	318.800

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Missile Defense Agency	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *Aegis SM-3 BLOCK IIA CO-DEVELOPMENT*

Change Summary Explanation

Beginning in FY 2010, funding was transferred to this PE from PE 0603892C, Ballistic Missile Defense Aegis, per Congressional direction.

No FY 2011 data provided in PB10.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *Aegis SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD09: *SM-3 Block IIA Co-Development*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
MD09: *SM-3 Block IIA Co-Development*	0.000	255.987	318.800	0.000	318.800	405.500	416.300	337.300	227.500	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

Note

NA

A. Mission Description and Budget Item Justification

The U.S./Japan Joint Cooperative Research (JCR) program conducted cooperative research in Ballistic Missile Defense. The research focused on the development of advanced missile technologies in four components of the SM-3 guided missile: sensor, advanced kinetic warhead, second stage propulsion and lightweight nosecone. In FY 2006, the JCR project concluded with the flight testing of the lightweight nosecone in Joint Control Test Vehicle-1 (JCTV-1).

In addition, the U.S. and Japan have a mutual interest in the evolutionary development of improvements to the SM-3. In FY 2006, the two countries signed a MOU for the co-development of an upgraded, 21-inch diameter SM-3 missile (SM-3 Blk IIA). The objective of the SCD project is the development and initial at-sea flight test of the SM-3 Blk IIA missile. The SM-3 Blk IIA missile will increase the area that can be defended by Aegis BMD and increase the probability of kill against a larger threat set. It will leverage enhanced capability provided by BMDS sensor upgrades. The SM-3 Blk IIA missile development will build upon established joint research investments by both the U.S. and Japan. The system analysis, system trade studies, and BMD system performance goals established in the U.S./Japan BMD Joint Analysis (JAWS) completed in March 2005 are the foundation for developing the SM-3 Blk IIA missile. Key technology improvements over the current SM-3 Blk IA missile planned for the SM-3 Blk IIA missile include a significant increase in velocity and range provided by a 21-inch diameter rocket motor propulsion stack, and increased seeker sensitivity and divert capability incorporated in an advanced kinetic warhead. Key component technologies to be developed under this Annex include, but are not limited to: Lightweight nosecone, advanced kinetic warhead, 21-inch second stage rocket motor, and 21-inch third stage rocket motor.

The U.S. and Japan will equitably share both work and cost.

The Scope of Work of the SCD project can be defined in three phases:

Phase I implements the SCD scope of work as it was defined in the original annex, taking the program through completion of the SDR. Aegis BMD will execute risk reduction efforts for the propulsion, nosecone, seeker and DACS development efforts and test plans, and conduct requirements definition for the SM-3 Blk IIA missile

configuration. Phase I will also initiate information exchange related to production and maintenance of the SM-3 Blk IIA missile and introduce the phased engineering approach. Upon completion of requirements definition, a schedule for development and testing, and work share and cost share for development and testing will be refined.

Phase II will capture program changes as set out in the first planned amendment, and refine the scope of work from SDR to completion of the CDR. Aegis BMD will refine requirements and define the performance allocation and component configuration for the development and testing of the SM-3 Blk IIA missile, and both parties will design, fabricate, test, and evaluate the SM-3 Block IIA missile. Both parties will continue the information exchanges related to production and maintenance in Phase II.

Phase III will capture program changes as set out in the second planned amendment, and refine the scope of work from CDR to the completion of the SCD flight test program as defined in the Agreement. This phase defines developmental cost share agreements between the United States and the Government of Japan, completes component engineering and integration, executes cooperative flight tests, and continues discussions on production and maintenance options.

The SCD project will:

Develop components for the SM-3 Blk IIA missile and integrate them into an All Up Round (AUR).

21`` 2nd and 3rd stage components
21`` nosecone
Advanced kinetic warhead
Advanced Seeker
Improved Large Diameter Divert and Attitude Control System

Begin engineering of the Aegis Weapon System to exploit the capability of the SM-3 Blk IIA missile and use of threat track data from BMDS sensors.

Integrate the SM-3 Blk IIA missile and VLS with Aegis ship systems

Includes development of a light weight VLS canister
Conduct test and evaluation using ground and flight tests
SM-3 Blk IIA missile
Aegis BMD ship systems
Aegis BMD weapon system

Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *Aegis SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD09: *SM-3 Block IIA Co-Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
SM-3 Blk IIA Development (SCD)	0.000	255.987	318.800	0.000	318.800

See Description Below

FY 2009 Accomplishments:
FY09 Accomplishments captured in PE 0603892C, Ballistic Missile Defense Aegis, project WX09.

FY 2010 Plans:
Complete risk reduction efforts for SM-3 Blk IIA components:

Advanced kinetic warhead
Improved Large Diameter DACS
Continue development of SM-3 Blk IIA including the following components:

21-inch diameter missile 2nd and 3rd stage components:
21-inch diameter nosecone
Advanced kinetic warhead
Advanced Seeker
Improved Large Diameter DACS
Lightweight Composite Canister
Develop Prime Item Development Specifications (PIDS), Critical Item Development Specifications (CIDs) and Interface Control Documents (ICDs)
Continue lightweight canister and vertical launch system modifications integration.
Conduct SM-3 Blk IIA System Design Review.

FY 2011 Base Plans:
SM-3 Blk IIA Missile Development:

Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *Aegis SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD09: *SM-3 Block IIA Co-Development*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Complete SCD In Process Review Complete Technology Maturation Efforts for Divert and Attitude Control System (DACS), Focal Plane Array (FPA), and Read Out Integrated Circuit (ROIC) to obtain a Technical Readiness Level of 6. Complete Incremental Missile Section Level PDRs. BMD 4.0.1 Engineering Release Development: Complete SCD In Process Review Complete Aegis BMD 4.0.1 (ENG REL) SDR level design from FY 2010 Conduct Aegis BMD 4.0.1 (ENG REL) SDR Conduct BMD 4.0.1 (ENG REL) B5-level design studies Generate BMD 4.0.1 (ENG REL) B5 SC packages Initiate BMD 4.0.1 (ENG REL) PDR preparation SCD PDR analysis support (BMD 4.0.1 (ENG REL) models) Complete AWS/SM-3 BLK IIA interface development in support of SCD PDR in FY 2012 Completion of Technology Maturation Efforts for Canister Composite Shell Structure in support of Level 6 by SCD PDR in FY 2012 Conduct MK 29 MOD 0 Canister PDR Complete Class I ECP detailing Vertical Launch System (VLS) integration changes T&E: Complete SCD In Process Review Requirements definition, Material Purchase and Fabrication of VLS Tilt Fixture and Enclosure for PTV-1, CTV-1 and CTV-2 Ground Based Tests Continue Test Document Preparation *FY 2011 OCO Plans:* NA					
Accomplishments/Planned Programs Subtotals	0.000	255.987	318.800	0.000	318.800

Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *Aegis SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD09: *SM-3 Block IIA Co-Development*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603175C: *Ballistic Missile Defense Technology*	117.602	189.229	132.220	0.000	132.220	236.875	239.873	197.118	197.852	0	1,310.769
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	951.414	715.732	436.482	0.000	436.482	250.275	336.711	500.983	521.717	0	3,713.314
• 0603882C: *Ballistic Missile Defense Mid-Course Segment*	1,472.683	1,027.371	1,346.181	0.000	1,346.181	1,112.655	1,291.790	1,099.029	1,033.213	0	8,382.922
• 0603883C: *Ballistic Missile Defense Boost Defense Segment*	384.365	182.317	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	566.682
• 0603884C: *Ballistic Missile Defense Sensors*	682.754	621.017	454.859	0.000	454.859	469.589	681.397	650.525	616.342	0	4,176.483
• 0603886C: *Ballistic Missile Defense System Interceptor*	308.869	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	308.869
• 0603888C: *Ballistic Missile Defense Test and Targets*	906.952	823.333	1,113.425	0.000	1,113.425	1,105.959	951.371	871.929	829.608	0	6,602.577
• 0603890C: *Ballistic Missile Defense Enabling Programs*	402.776	358.751	402.769	0.000	402.769	468.673	457.745	473.871	488.799	0	3,053.384
• 0603891C: *SPECIAL PROGRAMS - MDA*	182.998	250.185	270.189	0.000	270.189	269.040	450.645	517.486	601.315	0	2,541.858
• 0603892C: *BMD AEGIS*	1,054.323	1,435.717	1,467.278	0.000	1,467.278	1,021.878	1,112.668	1,076.739	923.316	0	8,091.919
• 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	209.831	161.609	112.678	0.000	112.678	98.500	56.424	52.928	34.661	0	726.631
• 0603894C: *MULTIPLE KILL VEHICLE*	226.027	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	226.027
• 0603895C: *BMD SYSTEM SPACE PROGRAM*	23.250	12.492	10.942	0.000	10.942	11.182	11.347	11.749	12.155	0	93.117
• 0603896C: *BMD C2BMC*	275.174	334.734	342.625	0.000	342.625	364.085	289.778	323.922	298.936	0	2,229.254
• 0603897C: *BMD HERCULES*	51.629	47.932	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	99.561

Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *Aegis SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD09: *SM-3 Block IIA Co-Development*	

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0603898C: *BMD JOINT WARFIGHTER SUPPORT*	66.283	61.098	68.726	0.000	68.726	62.239	63.451	65.158	67.231	0	454.186
• 0603901C: *DIRECTED ENERGY RESEARCH*	0.000	0.000	98.688	0.000	98.688	101.371	103.449	104.572	104.141	0	512.221
• 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	102.823	86.483	86.198	0.000	86.198	88.181	78.517	80.410	83.087	0	605.699
• 0603906C: *REGARDING TRENCH*	3.159	6.130	7.529	0.000	7.529	8.295	8.286	8.479	8.675	0	50.553
• 0603907C: *SEA BASED X-BAND RADAR (SBX)*	143.878	167.153	153.056	0.000	153.056	150.104	159.832	160.163	197.099	0	1,131.285
• 0603908C: *BMD EUROPEAN INTERCEPTOR SITE*	348.722	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	348.722
• 0603909C: *BMD EUROPEAN MIDCOURSE RADAR*	73.728	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	73.728
• 0603911C: *BMD EUROPEAN CAPABILITY*	0.000	50.226	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	50.226
• 0603912C: *BMD European Comm Support*	26.016	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	26.016
• 0603913C: *ISRAELI COOPERATIVE*	0.000	201.323	121.735	0.000	121.735	111.100	113.101	116.114	119.172	0	782.545
• 0604880C: *LAND-BASED SM-3*	0.000	0.000	281.378	0.000	281.378	345.937	187.062	93.456	139.595	0	1,047.428
• 0604883C: *PRECISION TRACKING SPACE SYSTEM*	0.000	0.000	66.969	0.000	66.969	123.851	184.800	348.360	482.952	0	1,206.932
• 0604884C: *AIRBORNE INFRARED (ABIR)*	0.000	0.000	111.671	0.000	111.671	103.636	123.591	103.668	58.773	0	501.339
• 0605502C: *Small Business Innovative Research BMDO*	124.788	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	124.788
• 0901585C: *Pentagon Reservation*	20.146	19.709	20.482	0.000	20.482	0.000	0.000	0.000	0.000	0	60.337

Exhibit R-2A, RDT&E Project Justification: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *Aegis SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD09: *SM-3 Block IIA Co-Development*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• 0901598C: *Management Headquarters-MDA*	87.151	52.403	29.754	0.000	29.754	29.421	29.974	30.567	31.171	0	290.441

D. Acquisition Strategy

The SM-3 Cooperative Development program for the SM-3 Blk IIA missile will utilize a performance-based approach that ties program decision milestones to the performance of development prototypes, as well as Control Test Vehicle and Guidance Test Vehicle flight test article performance. Acquisition of hardware, software modifications and required services will occur in conjunction with contractual and tasking efforts to U.S. Navy work and events, and as defined by signed agreements between the Governments of the United States and Japan.

If a decision is made to do so, the Land-Based SM-3 project will follow MDA`s capability-based acquisition strategy that emphasizes testing, spiral development and evolutionary acquisition. The details of this plan will be approved in FY 2010.

MDA will transition from the existing legacy, project-oriented Systems Engineering and Technical Assistance (SETA) contractor construct to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense expertise and knowledge across the agency, centralize the acquisition of support services manpower in a more efficient manner and reduce agency overhead costs enterprise-wide. A&AS support includes engineering and technical services; studies, analyses, and evaluation; and management and professional services.

Competition will be used for procurement of any products or services in FY 2011, when appropriate.

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *Aegis SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD09: *SM-3 Block IIA Co-Development*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
SM-3 Blk IIA Development (SCD) SM-3 Blk IIA DEVELOPMENT - MISSILE MD09	SS/CPAF	RAYTHEON AZ	144.272	212.655		250.736		0.000		250.736	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - MISSILE - 2010145023908 MD09	TBD/TBD	NSWC/DD/VA VA	5.989	4.021		1.450		0.000		1.450	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT MD09	TBD/TBD	JHU/APL MD	6.845	8.281		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - 2010145023923 MD09	TBD/TBD	MIT/LL MA	2.566	0.876		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - 2010145023928 MD09	TBD/TBD	NSWC/PHD CA	5.989	0.502		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA	TBD/TBD	NSWC IH MD	5.133	0.076		0.000		0.000		0.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *Aegis SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD09: *SM-3 Block IIA Co-Development*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
DEVELOPMENT - 2010145023934 MD09													
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - 2010145023941 MD09	TBD/TBD	VARIOUS VARIOUS	3.457	3.706		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - AWS MD09	SS/CPAF	LOCKHEED MARTIN NJ	0.000	12.500		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT MD09	TBD/TBD	BAE MD	0.000	11.070		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - 2010145023956 MD09	TBD/TBD	SEG CA	0.000	2.300		0.000		0.000		0.000	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - MISSILE MD09	TBD/TBD	VARIOUS VA, MD, NJ	0.000	0.000		22.200		0.000		22.200	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD)	SS/CPIF	LOCKHEED MARTIN	0.000	0.000		15.625		0.000		15.625	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *Aegis SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD09: *SM-3 Block IIA Co-Development*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
SM-3 BLK IIA DEVELOPMENT - AWS MD09		MOORESTOWN, NJ											
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - AWS - 2010145063238 MD09	C/CPIF	LOCKHEED MARTIN BALTIMORE, MD	0.000	0.000		2.100		0.000		2.100	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - AWS - 2010145063242 MD09	TBD/TBD	PEO IWS MINNEAPOLIS, MN	0.000	0.000		18.600		0.000		18.600	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - AWS - 2010145063245 MD09	TBD/TBD	VARIOUS MD, VA	0.000	0.000		6.550		0.000		6.550	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 BLK IIA DEVELOPMENT - T&E MD09	TBD/TBD	VARIOUS MD, VA, CA	0.000	0.000		1.539		0.000		1.539	Continuing	Continuing	Continuing
		Subtotal	174.251	255.987		318.800		0.000		318.800			

Remarks

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *Aegis SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD09: *SM-3 Block IIA Co-Development*

Support ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.000	0.000		0.000		0.000		0.000			

Remarks

NA

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.000	0.000		0.000		0.000		0.000			

Remarks

NA

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	0.000	0.000		0.000		0.000		0.000			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *Aegis SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD09: *SM-3 Block IIA Co-Development*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

NA

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	174.251	255.987		318.800		0.000		318.800			

Remarks

NA

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *Aegis SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD09: *SM-3 Block IIA Co-Development*

	FY 2009				FY 2010				FY 2011				FY 2012				FY 2013				FY 2014				FY 2015			
	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
SM-3 Blk IIA System Design Review (SDR)	▮																											
SM-3 Blk IIA Preliminary Design Review (PDR)													▮															
SM-3 Blk IIA Critical Design Review (CDR)																	▮											

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Missile Defense Agency		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604881C: *Aegis SM-3 BLOCK IIA CO-DEVELOPMENT*	**PROJECT** MD09: *SM-3 Block IIA Co-Development*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
SM-3 Blk IIA System Design Review (SDR)	1	2009	1	2009
SM-3 Blk IIA Preliminary Design Review (PDR)	1	2012	1	2012
SM-3 Blk IIA Critical Design Review (CDR)	1	2013	1	2013