Department of Defense
Fiscal Year (FY) 2012 Budget Estimates

February 2011

Missile Defense Agency

Justification Book Volume 2

Research, Development, Test & Evaluation, Defense-Wide

(Includes Procurement, O&M, and MILCON)

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Defense Security Service..... Volume 5

Defense Technical Information Center.....Volume 5

Defense Threat Reduction Agency.....Volume 5

The Joint Staff..... Volume 5

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Introduction & Explanation of Contents

The Department of Defense FY2012 President's Budget RDT&E, Defense-wide Volume 2, Missile Defense Agency (MDA) justification materials consists of one book provided herein. Included in this volume for convenience are the Missile Defense Agency's Procurement, Operations and Maintenance, and Military Construction budget documentation.

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Defense-Wide
FY 2012 President's Budget
Exhibit R-1 FY 2012 President's Budget
Total Obligational Authority
(Dollars in Thousands)

08 Feb 2011

Summary Recap of Budget Activities	FY 2010 (Base & OCO)	FY 2011 Base Request with CR Adj*	FY 2011 OCO Request with CR Adj*	FY 2011 Total Request with CR Adj*	FY 2011 Annualized CR Base**	FY 2011 Annualized CR OCO**	FY 2011 Annualized CR Total**
Advanced Technology Development (ATD)	164,670	230,908		230,908	230,500		230,500
Advanced Component Development & Prototypes	6,522,843	7,173,490		7,173,490	7,160,820		7,160,820
RDT&E Management Support	183,203	50,236		50,236	50,147		50,147
Total Research, Development, Test & Evaluation	6,870,716	7,454,634		7,454,634	7,441,467		7,441,467
Summary Recap of FYDP Programs							
Research and Development	6,788,743	7,404,398		7,404,398	7,391,320		7,391,320
Administration and Associated Activities	81,973	50,236		50,236	50,147		50,147
Total Research, Development, Test & Evaluation	6,870,716	7,454,634		7,454,634	7,441,467		7,441,467

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Summary Recap of Budget Activities	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Advanced Technology Development (ATD)	356,246		356,246
Advanced Component Development & Prototypes	6,191,906		6,191,906
RDT&E Management Support	28,908		28,908
Total Research, Development, Test & Evaluation	6,577,060		6,577,060

Summary Recap of FYDP Programs			
Research and Development	6,548,152		6,548,152
Administration and Associated Activities	28,908		28,908
Total Research, Development, Test & Evaluation	6,577,060		6,577,060

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Missile Defense Agency	6,870,716	7,454,634		7,454,634	7,441,467		7,441,467
Total Research, Development, Test & Evaluation	6,870,716	7,454,634		7,454,634	7,441,467		7,441,467

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Total Research, Development, Test & Evaluation	6,577,060		6,577,060

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Appropriation: 0400D Research, Development, Test & Eval, DW

Line No	Program Element Number	Item	Act	FY 2010 (Base & OCO)	FY 2011 Base Request with CR Adj*	FY 2011 OCO Request with CR Adj*	FY 2011 Total Request with CR Adj*	FY 2011 Annualized CR Base**	FY 2011 Annualized CR OCO**	FY 2011 Annualized CR Total**	Sec
31	0603175C	Ballistic Missile Defense Technology	03	164,670	132,220		132,220	131,986		131,986	U
36	0603274C	Special Program - MDA Technology	03								U
68	0603901C	Directed Energy Research	03		98,688		98,688	98,514		98,514	U
69	0603902C	Next Generation Aegis Missile	03								U
		Advanced Technology Development (ATD)		164,670	230,908		230,908	230,500		230,500	
83	0603881C	Ballistic Missile Defense Terminal Defense Segment	04	690,054	436,482		436,482	435,711		435,711	U
84	0603882C	Ballistic Missile Defense Midcourse Defense Segment	04	1,022,019	1,346,181		1,346,181	1,343,803		1,343,803	U
85	0603883C	Ballistic Missile Defense Boost Defense Segment	04	172,419							U
87	0603884C	Ballistic Missile Defense Sensors	04	544,352	454,859		454,859	454,055		454,055	U
88	0603888C	Ballistic Missile Defense Test & Targets	04	737,863	1,113,425		1,113,425	1,111,458		1,111,458	U
89	0603890C	BMD Enabling Programs	04	355,870	402,769		402,769	402,057		402,057	U
90	0603891C	Special Programs - MDA	04	253,157	270,189		270,189	269,712		269,712	U
91	0603892C	AEGIS BMD	04	1,418,992	1,467,278		1,467,278	1,464,686		1,464,686	U
92	0603893C	Space Tracking & Surveillance System	04	148,506	112,678		112,678	112,479		112,479	U
93	0603895C	Ballistic Missile Defense System Space Programs	04	11,913	10,942		10,942	10,923		10,923	U
94	0603896C	Ballistic Missile Defense Command and Control, Battle Management and Communicati	04	327,074	342,625		342,625	342,020		342,020	U

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Appropriation: 0400D Research, Development, Test & Eval, DW

Line No	Program Element Number	Item	Act	FY 2012 Base	FY 2012 OCO	FY 2012 Total	Sec
31	0603175C	Ballistic Missile Defense Technology	03	75,003		75,003	U
36	0603274C	Special Program - MDA Technology	03	61,458		61,458	U
68	0603901C	Directed Energy Research	03	96,329		96,329	U
69	0603902C	Next Generation Aegis Missile	03	123,456		123,456	U
		Advanced Technology Development (ATD)		356,246		356,246	
83	0603881C	Ballistic Missile Defense Terminal Defense Segment	04	290,452		290,452	U
84	0603882C	Ballistic Missile Defense Midcourse Defense Segment	04	1,161,001		1,161,001	U
85	0603883C	Ballistic Missile Defense Boost Defense Segment	04				U
87	0603884C	Ballistic Missile Defense Sensors	04	222,374		222,374	U
88	0603888C	Ballistic Missile Defense Test & Targets	04	1,071,039		1,071,039	U
89	0603890C	BMD Enabling Programs	04	373,563		373,563	U
90	0603891C	Special Programs - MDA	04	296,554		296,554	U
91	0603892C	AEGIS BMD	04	960,267		960,267	U
92	0603893C	Space Tracking & Surveillance System	04	96,353		96,353	U
93	0603895C	Ballistic Missile Defense System Space Programs	04	7,951		7,951	U
94	0603896C	Ballistic Missile Defense Command and Control, Battle Management and Communicati	04	364,103		364,103	U

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Line No	Program Element Number	Item	Act	FY 2010 (Base & OCO)	FY 2011 Base Request with CR Adj*	FY 2011 OCO Request with CR Adj*	FY 2011 Total Request with CR Adj*	FY 2011 Annualized CR Base**	FY 2011 Annualized CR OCO**	FY 2011 Annualized CR Total**	Sec
95	0603897C	Ballistic Missile Defense Hercules	04	45,250							U
96	0603898C	Ballistic Missile Defense Joint Warfighter Support	04	58,105	68,726		68,726	68,605		68,605	U
97	0603904C	Missile Defense Integration & Operations Center (MDIOC)	04	82,926	86,198		86,198	86,046		86,046	U
98	0603906C	Regarding Trench	04	5,785	7,529		7,529	7,516		7,516	U
99	0603907C	Sea Based X-Band Radar (SBX)	04	157,739	153,056		153,056	152,786		152,786	U
100	0603911C	BMD European Capability	04	47,342							U
101	0603913C	Israeli Cooperative Programs	04	195,652	121,735		121,735	121,520		121,520	U
110	0604880C	Land-Based SM-3 (LBSM3)	04		281,378		281,378	280,881		280,881	U
111	0604881C	AEGIS SM-3 Block IIA Co-Development	04	247,825	318,800		318,800	318,237		318,237	U
112	0604883C	Precision Tracking Space Sensor RDT&E	04		66,969		66,969	66,851		66,851	U
113	0604884C	Airborne Infrared (ABIR)	04		111,671		111,671	111,474		111,474	U
		Advanced Component Development & Prototypes		6,522,843	7,173,490		7,173,490	7,160,820		7,160,820	
156	0605502C	Small Business Innovative Research - MDA	06	101,230							U
181	0901585C	Pentagon Reservation	06	19,679	20,482		20,482	20,446		20,446	U
182	0901598C	Management HQ - MDA	06	62,294	29,754		29,754	29,701		29,701	U
		RDT&E Management Support		183,203	50,236		50,236	50,147		50,147	
Total Research, Development, Test & Eval, DW				6,870,716	7,454,634		7,454,634	7,441,467		7,441,467	

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Line No	Program Element Number	Item	Act	FY 2012 Base	FY 2012 OCO	FY 2012 Total	Sec
95	0603897C	Ballistic Missile Defense Hercules	04				U
96	0603898C	Ballistic Missile Defense Joint Warfighter Support	04	41,225		41,225	U
97	0603904C	Missile Defense Integration & Operations Center (MDIOC)	04	69,325		69,325	U
98	0603906C	Regarding Trench	04	15,797		15,797	U
99	0603907C	Sea Based X-Band Radar (SBX)	04	177,058		177,058	U
100	0603911C	BMD European Capability	04				U
101	0603913C	Israeli Cooperative Programs	04	106,100		106,100	U
110	0604880C	Land-Based SM-3 (LBSM3)	04	306,595		306,595	U
111	0604881C	AEGIS SM-3 Block IIA Co-Development	04	424,454		424,454	U
112	0604883C	Precision Tracking Space Sensor RDT&E	04	160,818		160,818	U
113	0604884C	Airborne Infrared (ABIR)	04	46,877		46,877	U
		Advanced Component Development & Prototypes		6,191,906		6,191,906	
156	0605502C	Small Business Innovative Research - MDA	06				U
181	0901585C	Pentagon Reservation	06				U
182	0901598C	Management HQ - MDA	06	28,908		28,908	U
		RDT&E Management Support		28,908		28,908	
Total Research, Development, Test & Eval, DW				6,577,060		6,577,060	

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Missile Defense Agency
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31	0603175C	Ballistic Missile Defense Technology	03	164,670	132,220		132,220	131,986		131,986	U
36	0603274C	Special Program - MDA Technology	03								U
68	0603901C	Directed Energy Research	03		98,688		98,688	98,514		98,514	U
69	0603902C	Next Generation Aegis Missile	03								U
		Advanced Technology Development (ATD)		164,670	230,908		230,908	230,500		230,500	
83	0603881C	Ballistic Missile Defense Terminal Defense Segment	04	690,054	436,482		436,482	435,711		435,711	U
84	0603882C	Ballistic Missile Defense Midcourse Defense Segment	04	1,022,019	1,346,181		1,346,181	1,343,803		1,343,803	U
85	0603883C	Ballistic Missile Defense Boost Defense Segment	04	172,419							U
87	0603884C	Ballistic Missile Defense Sensors	04	544,352	454,859		454,859	454,055		454,055	U
88	0603888C	Ballistic Missile Defense Test & Targets	04	737,863	1,113,425		1,113,425	1,111,458		1,111,458	U
89	0603890C	BMD Enabling Programs	04	355,870	402,769		402,769	402,057		402,057	U
90	0603891C	Special Programs - MDA	04	253,157	270,189		270,189	269,712		269,712	U
91	0603892C	AEGIS BMD	04	1,418,992	1,467,278		1,467,278	1,464,686		1,464,686	U
92	0603893C	Space Tracking & Surveillance System	04	148,506	112,678		112,678	112,479		112,479	U
93	0603895C	Ballistic Missile Defense System Space Programs	04	11,913	10,942		10,942	10,923		10,923	U
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99	0603907C	Sea Based X-Band Radar (SBX)	04	157,739	153,056		153,056	152,786		152,786	U
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182	0901598C	Management HQ - MDA	06	62,294	29,754		29,754	29,701		29,701	U
	RDT&E Management Support			183,203	50,236		50,236	50,147		50,147	
Total Missile Defense Agency				6,870,716	7,454,634		7,454,634	7,441,467		7,441,467	

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Appropriation: 0400D Research, Development, Test & Eval, DW

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96	0603898C	Ballistic Missile Defense Joint Warfighter Support	04	41,225		41,225	U
97	0603904C	Missile Defense Integration & Operations Center (MDIOC)	04	69,325		69,325	U
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99	0603907C	Sea Based X-Band Radar (SBX)	04	177,058		177,058	U
100	0603911C	BMD European Capability	04				U
101	0603913C	Israeli Cooperative Programs	04	106,100		106,100	U
110	0604880C	Land-Based SM-3 (LBSM3)	04	306,595		306,595	U
111	0604881C	AEGIS SM-3 Block IIA Co-Development	04	424,454		424,454	U
112	0604883C	Precision Tracking Space Sensor RDT&E	04	160,818		160,818	U
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181	0901585C	Pentagon Reservation	06				U
182	0901598C	Management HQ - MDA	06	28,908		28,908	U
		RDT&E Management Support		28,908		28,908	
		Total Missile Defense Agency		6,577,060		6,577,060	

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Program Element Table of Contents (by Budget Activity then Line Item Number)

Budget Activity 03: Advanced Technology Development (ATD)
Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide

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36	03	0603274C	SPECIAL PROGRAMS - MDA TECHNOLOGY	Volume 2 - 15
68	03	0603901C	DIRECTED ENERGY RESEARCH	Volume 2 - 17
69	03	0603902C	STANDARD MISSILE-3 BLOCK IIB (SM-3 IIB)	Volume 2 - 27

Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)
Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
83	04	0603881C	Ballistic Missile Defense Terminal Defense Segment	Volume 2 - 35
84	04	0603882C	Ballistic Missile Defense Mid-Course Segment	Volume 2 - 87
85	04	0603883C	Ballistic Missile Defense Boost Defense Segment	Volume 2 - 123
87	04	0603884C	Ballistic Missile Defense Sensors	Volume 2 - 137
88	04	0603888C	Ballistic Missile Defense Test and Targets	Volume 2 - 181

Budget Activity 04: Advanced Component Development & Prototypes (ACD&P)
Appropriation 0400: Research, Development, Test & Evaluation, Defense-Wide

Line Item	Budget Activity	Program Element Number	Program Element Title	Page
89	04	0603890C	Ballistic Missile Defense Enabling Programs	Volume 2 - 267
90	04	0603891C	SPECIAL PROGRAMS - MDA	Volume 2 - 449
91	04	0603892C	BMD AEGIS	Volume 2 - 453
92	04	0603893C	SPACE TRACKING & SURVEILLANCE SYSTEM	Volume 2 - 507
93	04	0603895C	BMD SYSTEM SPACE PROGRAM	Volume 2 - 547
94	04	0603896C	BMD C2BMC	Volume 2 - 571
95	04	0603897C	BMD HERCULES	Volume 2 - 615
96	04	0603898C	BMD JOINT WARFIGHTER SUPPORT	Volume 2 - 623
97	04	0603904C	MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)	Volume 2 - 697
98	04	0603906C	REGARDING TRENCH	Volume 2 - 761
99	04	0603907C	SEA BASED X-BAND RADAR (SBX)	Volume 2 - 765
100	04	0603911C	BMD EUROPEAN CAPABILITY	Volume 2 - 785
101	04	0603913C	ISRAELI COOPERATIVE	Volume 2 - 793
110	04	0604880C	LAND-BASED SM-3	Volume 2 - 825
111	04	0604881C	SM-3 BLOCK IIA CO-DEVELOPMENT	Volume 2 - 837
112	04	0604883C	PRECISION TRACKING SPACE SYSTEM	Volume 2 - 853
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BMD EUROPEAN CAPABILITY	0603911C	100	04	Volume 2 - 785
BMD HERCULES	0603897C	95	04	Volume 2 - 615
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Missile Defense Agency
Fiscal Year 2012-2016 President`s Budget
FY 2012 through FY 2016 Appropriation Summary
($ Thousands)

Line Number	Program Element	Budget Project	Program	Budget Activity	FY10 Actual	FY11	FY12	FY13	FY14	FY15	FY16	FY12-FY16
Operations and Maintenance												
	0208866C		O&M	NA	0	0	202,758	243,683	286,281	310,958	337,060	1,380,740
		MD07	THAAD	NA	0	0	50,821	53,929	76,728	86,110	90,502	358,090
		MD11	BMDS AN/TPY-2 Radars	NA	0	0	151,937	189,754	209,553	224,848	246,558	1,022,650
			Budget Activity NA Total	NA	0	0	202,758	243,683	286,281	310,958	337,060	1,380,740
			Operations and Maintenance Total	NA	0	0	202,758	243,683	286,281	310,958	337,060	1,380,740
Procurement												
	0208866C		PROCUREMENT	NA	835,710	952,950	1,778,738	1,769,246	2,036,065	2,355,196	2,191,122	10,130,367
31		30	THAAD Procurement	NA	419,004	858,870	0	0	0	0	0	0
32		355	Aegis Block 5 Procurement	NA	225,625	94,080	0	0	0	0	0	0
33		MD07	THAAD	NA	0	0	833,150	728,561	921,781	955,514	745,430	4,184,436
34		MD09	AEGIS BMD	NA	0	0	565,393	675,126	737,440	807,883	1,025,521	3,811,363
35		MD11	BMDS AN/TPY-2 Radars	NA	191,081	0	380,195	365,559	376,844	380,715	380,250	1,883,563
		MD73	Aegis Ashore Phase III	NA	0	0	0	0	0	211,084	39,921	251,005
			Budget Activity NA Total	NA	835,710	952,950	1,778,738	1,769,246	2,036,065	2,355,196	2,191,122	10,130,367
			Procurement Total	NA	835,710	952,950	1,778,738	1,769,246	2,036,065	2,355,196	2,191,122	10,130,367
RDT&E												
31	0603175C		Ballistic Missile Defense Technology	03	164,670	132,220	75,003	103,844	111,712	164,378	170,851	625,788
		WX25	Advanced Technology Development	03	162,088	0	0	0	0	0	0	0
		MD25	Advanced Technology	03	0	127,236	72,331	100,060	107,404	158,384	164,631	602,810
		ZX40	Program-Wide Support	03	2,582	0	0	0	0	0	0	0
		MD40	Program Wide Support	03	0	4,984	2,672	3,784	4,308	5,994	6,220	22,978
36	0603274C		SPECIAL PROGRAMS - MDA TECHNOLOGY	03	0	0	61,458	37,866	41,007	43,940	46,434	230,705
		MD81	Special Programs - MDA Technology	03	0	0	61,458	37,866	41,007	43,940	46,434	230,705
68	0603901C		DIRECTED ENERGY RESEARCH	03	0	98,688	96,329	91,953	93,134	92,304	95,003	468,723
		MD69	Directed Energy Research	03	0	95,398	92,643	88,390	89,325	88,764	91,371	450,493
		MD40	Program-Wide Support	03	0	3,290	3,686	3,563	3,809	3,540	3,632	18,230
69	0603902C		STANDARD MISSILE-3 BLOCK IIB (SM-3 IIB)	03	0	0	123,456	433,106	384,647	401,141	394,803	1,737,153
		MD70	Standard Missile-3 Block IIB (SM-3 IIB)	03	0	0	118,876	416,857	369,406	386,241	380,173	1,671,553
		MD40	Program-Wide Support	03	0	0	4,580	16,249	15,241	14,900	14,630	65,600
			Budget Activity 03 Total	03	164,670	230,908	356,246	666,769	630,500	701,763	707,091	3,062,369

Line Number	Program Element	Budget Project	Program	Budget Activity	FY10 Actual	FY11	FY12	FY13	FY14	FY15	FY16	FY12-FY16
83	0603881C		Ballistic Missile Defense Terminal Defense Segment	04	690,054	436,482	290,452	318,745	309,894	340,969	320,638	1,580,698
		BX07	Terminal High Altitude Area Defense (THAAD) Block 2.0	04	576,337	0	0	0	0	0	0	0
		EX07	Terminal High Altitude Area Defense (THAAD) Block 5.0	04	17,129	0	0	0	0	0	0	0
		XX07	Terminal High Altitude Area Defense (THAAD) Sustainment	04	36,937	0	0	0	0	0	0	0
		MD07	THAAD	04	0	420,463	276,667	302,951	293,312	323,739	304,668	1,501,337
		WX06	Patriot Advanced Capability-3 (PAC-3)	04	20,961	0	0	0	0	0	0	0
		MD06	Patriot Advanced Capability-3 (PAC-3)	04	0	1,200	1,230	1,182	1,138	1,153	1,239	5,942
		ZX40	Program-Wide Support	04	38,690	0	0	0	0	0	0	0
		MD40	Program-Wide Support	04	0	14,819	12,555	14,612	15,444	16,077	14,731	73,419
84	0603882C		Ballistic Missile Defense Mid-Course Segment	04	1,022,019	1,346,181	1,161,001	1,040,949	925,943	856,839	875,969	4,860,701
		CX08	Ground Based Midcourse Defense (GMD) Block 3.0	04	822,878	0	0	0	0	0	0	0
		XX08	Ground Based Midcourse Defense (GMD) Sustainment	04	187,070	0	0	0	0	0	0	0
		MD08	Ground Based Midcourse	04	0	1,300,655	1,112,771	997,349	884,402	820,197	838,630	4,653,349
		ZX40	Program-Wide Support	04	12,071	0	0	0	0	0	0	0
		MD40	Program-Wide Support	04	0	45,526	48,230	43,600	41,541	36,642	37,339	207,352
85	0603883C		Ballistic Missile Defense Boost Defense Segment	04	172,419	0	0	0	0	0	0	0
		WX19	Airborne Laser Capability Development	04	167,608	0	0	0	0	0	0	0
		ZX40	Program-Wide Support	04	4,811	0	0	0	0	0	0	0
87	0603884C		Ballistic Missile Defense Sensors	04	544,352	454,859	222,374	357,271	336,514	318,321	348,944	1,583,424
		BX11	Ballistic Missile Defense Radars Block 2.0	04	2,995	0	0	0	0	0	0	0
		CX11	Ballistic Missile Defense Radars Block 3.0	04	11,658	0	0	0	0	0	0	0
		EX11	Ballistic Missile Defense Radars Block 5.0	04	102,929	0	0	0	0	0	0	0
		WX11	Ballistic Missile Defense Radars Capability Development	04	264,015	0	0	0	0	0	0	0
		XX11	Ballistic Missile Defense Radars Sustainment	04	107,074	0	0	0	0	0	0	0
		MD11	BMDS Radars	04	0	440,023	211,981	342,307	321,416	304,708	334,070	1,514,482
		ZX40	Program-Wide Support	04	55,681	0	0	0	0	0	0	0
		MD40	Program-Wide Support	04	0	14,836	10,393	14,964	15,098	13,613	14,874	68,942

Line Number	Program Element	Budget Project	Program	Budget Activity	FY10 Actual	FY11	FY12	FY13	FY14	FY15	FY16	FY12-FY16
88	0603888C		Ballistic Missile Defense Test and Targets	04	737,863	1,113,425	1,071,039	898,680	790,906	787,113	878,215	4,425,953
		WX04	Test & Evaluation Capability Development	04	3,618	0	0	0	0	0	0	0
		XX04	Concurrent, Test, Training & Ops (CTTO)	04	33,514	0	0	0	0	0	0	0
		YX04	Test & Evaluation	04	339,515	0	0	0	0	0	0	0
		MD04	Test Program	04	0	559,133	455,993	466,694	383,940	406,262	351,721	2,064,610
		MX04	BMD Test & Targets Development Support	04	0	0	32,389	31,337	23,549	25,237	27,123	139,635
		YX05	Targets and Countermeasures Core	04	338,168	0	0	0	0	0	0	0
		MD05	Targets Program	04	0	517,065	540,689	363,009	347,933	321,954	461,937	2,035,522
		ZX40	Program-Wide Support	04	23,048	0	0	0	0	0	0	0
		MD40	Program-Wide Support	04	0	37,227	41,968	37,640	35,484	33,660	37,434	186,186
89	0603890C		Ballistic Missile Defense Enabling Programs	04	355,870	402,769	373,563	331,203	314,193	336,749	346,560	1,702,268
		YX24	Systems Engineering & Integration	04	94,785	0	0	0	0	0	0	0
		MD24	System Engineering & Integration	04	0	124,040	133,890	97,521	101,666	111,826	112,062	556,965
		YX28	Intelligence & Security	04	20,024	0	0	0	0	0	0	0
		MD28	Intelligence & Security	04	0	15,905	18,865	16,773	15,627	15,226	16,195	82,686
		YX29	Producibility and Manufacturing Technology	04	41,619	0	0	0	0	0	0	0
		MD29	Producibility & Manufacturing Technology	04	0	36,575	0	0	0	0	0	0
		YX30	BMD Information Management Systems	04	109,324	0	0	0	0	0	0	0
		MD30	BMD Information Management Systems	04	0	111,829	116,508	112,919	96,783	105,018	109,678	540,906
		YX31	Modeling & Simulation	04	47,478	0	0	0	0	0	0	0
		MD31	Modeling & Simulation	04	0	64,623	56,617	59,393	57,473	62,187	63,775	299,445
		YX32	Quality, Safety, and Mission Assurance	04	29,184	0	0	0	0	0	0	0
		MD32	Quality, Safety, and Mission Assurance	04	0	32,881	33,045	30,725	28,548	28,091	30,078	150,487
		ZX40	Program-Wide Support	04	13,456	0	0	0	0	0	0	0
		MD40	Program-Wide Support	04	0	16,916	14,638	13,872	14,096	14,401	14,772	71,779

Line Number	Program Element	Budget Project	Program	Budget Activity	FY10 Actual	FY11	FY12	FY13	FY14	FY15	FY16	FY12-FY16
90	0603891C		SPECIAL PROGRAMS - MDA	04	253,157	270,189	296,554	377,845	416,052	430,969	452,448	1,973,868
		WX27	Special Programs	04	253,157	0	0	0	0	0	0	0
		MD27	Special Programs	04	0	270,189	296,554	377,845	416,052	430,969	452,448	1,973,868
91	0603892C		BMD AEGIS	04	1,418,992	1,467,278	960,267	957,992	1,001,510	970,607	1,033,710	4,924,086
		BX09	AEGIS BMD Block 2.0	04	50,679	0	0	0	0	0	0	0
		BX18	Sea-Based Terminal BMD Block 2.0	04	24,915	0	0	0	0	0	0	0
		EX09	AEGIS BMD Block 5.0	04	1,086,209	0	0	0	0	0	0	0
		WX09	AB Capability Development	04	176,598	0	0	0	0	0	0	0
		XX09	AEGIS BMD Sustainment	04	39,981	0	0	0	0	0	0	0
		MD09	Aegis BMD	04	0	1,412,560	906,368	866,467	910,277	885,600	951,748	4,520,460
		MX09	Aegis BMD Development Support	04	0	0	12,600	51,400	46,300	43,500	37,900	191,700
		ZX40	Program-Wide Support	04	40,610	0	0	0	0	0	0	0
		MD40	Program-Wide Support	04	0	54,718	41,299	40,125	44,933	41,507	44,062	211,926
92	0603893C		SPACE TRACKING & SURVEILLANCE SYSTEM	04	148,506	112,678	96,353	53,577	47,592	32,289	34,308	264,119
		WX12	Space Tracking and Surveillance System (STSS) Capability Development	04	148,506	0	0	0	0	0	0	0
		MD12	Space Tracking and Surveillance System (STSS)	04	0	108,842	92,078	51,049	45,167	30,630	32,551	251,475
		MD40	Program-Wide Support	04	0	3,836	4,275	2,528	2,425	1,659	1,757	12,644
93	0603895C		BMD SYSTEM SPACE PROGRAM	04	11,913	10,942	7,951	6,781	6,465	6,496	6,915	34,608
		WX33	MD Space Exp Center (MDSEC)	04	9,640	0	0	0	0	0	0	0
		MD33	MD Space Exp Center (MDSEC)	04	0	10,535	7,951	6,781	6,465	6,496	6,915	34,608
		ZX40	Program-Wide Support	04	2,273	0	0	0	0	0	0	0
		MD40	Program-Wide Support	04	0	407	0	0	0	0	0	0

Line Number	Program Element	Budget Project	Program	Budget Activity	FY10 Actual	FY11	FY12	FY13	FY14	FY15	FY16	FY12-FY16
94	0603896C		BMD C2BMC	04	327,074	342,625	364,103	330,337	353,081	338,835	304,217	1,690,573
		BX01	Ballistic Missile Defense C2BMC Block 2.0	04	25,738	0	0	0	0	0	0	0
		CX01	Ballistic Missile Defense C2BMC Block 3.0	04	247,801	0	0	0	0	0	0	0
		WX01	BC Capability Development	04	729	0	0	0	0	0	0	0
		XX01	Command & Control, Battle Management, Communications (C2BMC) Sustainment	04	42,561	0	0	0	0	0	0	0
		MD01	Command & Control, Battle Management, Communications (C2BMC)	04	0	331,155	286,456	250,406	269,854	241,408	219,247	1,267,371
		MX01	Command & Control, Battle Management, Communications (C2BMC) Development Support	04	0	0	62,725	66,095	67,386	82,937	72,003	351,146
		ZX40	Program-Wide Support	04	10,245	0	0	0	0	0	0	0
		MD40	Program-Wide Support	04	0	11,470	14,922	13,836	15,841	14,490	12,967	72,056
95	0603897C		BMD HERCULES	04	45,250	0	0	0	0	0	0	0
		WX02	Hercules Capability Development	04	43,414	0	0	0	0	0	0	0
		ZX40	Program-Wide Support	04	1,836	0	0	0	0	0	0	0
96	0603898C		BMD JOINT WARFIGHTER SUPPORT	04	58,105	68,726	41,225	58,089	55,961	56,479	60,684	272,438
		YX03	Joint Warfighter	04	53,548	0	0	0	0	0	0	0
		XX03	Joint Warfighter Sustainment	04	1,260	0	0	0	0	0	0	0
		MD03	Joint Warfighter Support	04	0	66,414	39,535	55,656	53,450	54,064	58,097	260,802
		ZX40	Program-Wide Support	04	3,297	0	0	0	0	0	0	0
		MD40	Program-Wide Support	04	0	2,312	1,690	2,433	2,511	2,415	2,587	11,636
97	0603904C		MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)	04	82,926	86,198	69,325	64,514	55,808	56,769	54,621	301,037
		CX22	Missile Defense Integration & Operations Center (MDIOC) - Block 3.0	04	21,942	0	0	0	0	0	0	0
		YX22	Missile Defense Integration & Operations Center (MDIOC) Core	04	58,522	0	0	0	0	0	0	0
		MD22	Missile Defense Integration and Operations Center (MDIOC)	04	0	83,298	66,484	61,812	53,304	54,341	52,293	288,234
		ZX40	Program-Wide Support	04	2,462	0	0	0	0	0	0	0
		MD40	Program-Wide Support	04	0	2,900	2,841	2,702	2,504	2,428	2,328	12,803
98	0603906C		REGARDING TRENCH	04	5,785	7,529	15,797	9,092	6,997	5,493	2,064	39,443
		WX35	Regarding Trench	04	5,785	0	0	0	0	0	0	0
		MD35	Regarding Trench	04	0	7,529	15,797	9,092	6,997	5,493	2,064	39,443
99	0603907C		SEA BASED X-BAND RADAR (SBX)	04	157,739	153,056	177,058	172,622	162,628	185,934	173,587	871,829
		XX46	Sea Based X-Band Radar Sustainment	04	157,739	0	0	0	0	0	0	0
		MD46	Sea Based X-Band Radar (SBX) Development	04	0	153,056	23,002	13,992	14,032	14,083	13,988	79,097
		MX46	Sea Based X-Band Radar Development Support	04	0	0	146,800	151,400	141,300	163,900	152,200	755,600
		MD40	Program-Wide Support	04	0	0	7,256	7,230	7,296	7,951	7,399	37,132

Line Number	Program Element	Budget Project	Program	Budget Activity	FY10 Actual	FY11	FY12	FY13	FY14	FY15	FY16	FY12-FY16
100	0603911C		BMD EUROPEAN CAPABILITY	04	47,342	0	0	0	0	0	0	0
		DX48	European Capability Block 4	04	47,342	0	0	0	0	0	0	0
101	0603913C		ISRAELI COOPERATIVE	04	195,652	121,735	106,100	99,873	95,819	96,840	103,977	502,609
		MD20	Israeli Upper Tier	04	0	50,766	53,220	50,892	52,607	54,368	55,660	266,747
		WX26	Israeli ARROW Program	04	123,877	0	0	0	0	0	0	0
		MD26	Israeli ARROW Program	04	0	24,247	11,755	10,665	10,663	10,701	11,142	54,926
		WX34	Short Range Ballistic Missile Defense	04	71,775	0	0	0	0	0	0	0
		MD34	Short Range Ballistic Missile Defense (SRBMD)	04	0	46,722	41,125	38,316	32,549	31,771	37,175	180,936
110	0604880C		LAND-BASED SM-3	04	0	281,378	306,595	149,320	60,628	41,417	154,842	712,802
		MD68	AEGIS Ashore	04	0	281,378	295,511	143,066	57,908	39,647	148,242	684,374
		MD40	Program-Wide Support	04	0	0	11,084	6,254	2,720	1,770	6,600	28,428
111	0604881C		SM-3 BLOCK IIA CO-DEVELOPMENT	04	247,825	318,800	424,454	357,194	279,444	203,553	25,165	1,289,810
		MD09	SM-3 Block IIA Co-Development	04	247,825	318,800	407,500	343,495	268,447	196,344	25,156	1,240,942
		MD40	Program-Wide Support	04	0	0	16,954	13,699	10,997	7,209	9	48,868
112	0604883C		PRECISION TRACKING SPACE SYSTEM	04	0	66,969	160,818	272,881	302,344	273,623	331,205	1,340,871
		MD10	Precision Tracking Space System (PTSS)	04	0	64,716	154,227	261,452	288,779	261,922	317,087	1,283,467
		MD40	Program-Wide Support	04	0	2,253	6,591	11,429	13,565	11,701	14,118	57,404
113	0604884C		AIRBORNE INFRARED (ABIR)	04	0	111,671	46,877	49,948	49,173	33,035	34,249	213,282
		MD67	Airborne Infrared (ABIR)	04	0	111,671	44,956	47,856	46,967	31,622	32,789	204,190
		MD40	Program-Wide Support	04	0	0	1,921	2,092	2,206	1,413	1,460	9,092
			Budget Activity 04 Total	04	6,522,843	7,173,490	6,191,906	5,906,913	5,570,952	5,372,330	5,542,318	28,584,419
156	0605502C		Small Business Innovative Research BMDO	06	101,230	0	0	0	0	0	0	0
		ZX45	Small Business Innovative Research (SBIR)	06	101,230	0	0	0	0	0	0	0
181	0901585C		Pentagon Reservation	06	19,679	20,482	0	0	0	0	0	0
		ZX42	Pentagon Reservation Maintenance Reserve Fund (PRMRF)	06	19,679	0	0	0	0	0	0	0
		MD42	Pentagon Reservation Maintenance Reserve Fund (PRMRF)	06	0	20,482	0	0	0	0	0	0
182	0901598C		Management Headquarters-MDA	06	62,294	29,754	28,908	29,112	27,728	27,827	29,949	143,524
		ZX38	Management Headquarters	06	62,294	0	0	0	0	0	0	0
		MD38	Management Headquarters	06	0	29,754	28,908	29,112	27,728	27,827	29,949	143,524
			Budget Activity 06 Total	06	183,203	50,236	28,908	29,112	27,728	27,827	29,949	143,524
			RDT&E Total	06	6,870,716	7,454,634	6,577,060	6,602,794	6,229,180	6,101,920	6,279,358	31,790,312

Line Number	Program Element	Budget Project	Program	Budget Activity	FY10 Actual	FY11	FY12	FY13	FY14	FY15	FY16	FY12-FY16
MILCON												
	0603884C		Major MILCON		93,000	0	58,800	105,866	31,844	0	0	196,510
			UEWR Upgrade, Clear AFS, AK		0	0	0	16,437	0	0	0	16,437
			Von Braun Complex Phase IV		0	0	58,800	0	0	0	0	58,800
			Aegis BMD Facility Expansion		24,500	0	0	0	0	0	0	0
			Aegis BMD Ashore (ABA) Test Complex		68,500	0	0	0	0	0	0	0
			Land Based SM-3 Launch Facility HN1		0	0	0	89,429	0	0	0	89,429
			Airborne Infrared Facility		0	0	0	0	31,844	0	0	31,844
			Minor MILCON		3,717	0	0	1,847	0	3,501	3,763	9,111
					3,717	0	0	1,847	0	3,501	3,763	9,111
			Planning and Design		2,000	0	8,368	1,600	3,479	6,176	6,346	25,969
					2,000	0	8,368	1,600	3,479	6,176	6,346	25,969
			MILCON Total	NA	98,717	0	67,168	109,313	35,323	9,677	10,109	231,590
BRAC												
	0207998C		BRAC	NA	86,622	8,679	0	0	0	0	0	0
		ZX36	Base Realignment and Closure (BRAC)	NA	86,622	0	0	0	0	0	0	0
		MD36	Base Realignment and Closure (BRAC)	NA	0	8,679	0	0	0	0	0	0
			Budget Activity NA Total	NA	86,622	8,679	0	0	0	0	0	0
			BRAC Total	NA	86,622	8,679	0	0	0	0	0	0
			PROGRAM TOTAL		7,891,765	8,416,263	8,625,724	8,725,036	8,586,849	8,777,751	8,817,649	43,533,009

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PART SUMMARY

Missile Defense

The Missile Defense Agency (MDA) mission is to defend the U.S., deployed forces and allies from ballistic missile attack. MDA is researching, developing and fielding a global, integrated and multi-layered Ballistic Missile Defense System (BMDS), comprising multiple sensors, interceptors and battle management capabilities.

In accordance with the President's Management Agenda, Budget and Performance Integration Initiative, this program has been assessed using the Program Assessment Rating Tool (PART). Remarks regarding program performance and plans for performance improvement can be located at the Expectmore.gov website.

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Missile Defense Agency Congressional Reporting Requirements		
Reporting Requirement Reference	**Reporting Requirement Language**	**Budget Documentation**
Sec. 225 of the FY11 National Defense Authorization Act (H.R. 6523), p. 34.	**SEC. 225. ACQUISITION ACCOUNTABILITY REPORTS ON THE BALLISTIC MISSILE DEFENSE SYSTEM.** (a) BASELINES REQUIRED.—The Secretary of Defense shall ensure that the Missile Defense Agency establishes and maintains an acquisition baseline for each program element of the ballistic missile defense system, as specified in section 223 of title 10, United States Code. (b) ELEMENTS OF BASELINES.—Each acquisition baseline required by subsection (a) for a program element shall include the following: (1) A comprehensive schedule for the program element, including— (A) research and development milestones; (B) acquisition milestones, including design reviews and key decision points; (C) key test events, including ground and flight tests and ballistic missile defense system tests; and (D) delivery and fielding schedules. (2) A detailed technical description of— (A) the capability to be developed, including hardware and software; (B) system requirements; (C) how the proposed capability satisfies a capability identified by the commanders of the combatant commands on a prioritized capabilities list; (D) key knowledge points that must be achieved to permit continuation of the program and to inform production and deployment decisions; and (E) how the Missile Defense Agency plans to improve the capability over time. (3) A cost estimate for the program element, including— (A) a life cycle cost estimate; H. R. 6523—35 (B) program acquisition unit costs for the program element;	MDA to provide BMDS Accountability Report to the Congressional Defense Committees.

Missile Defense Agency Congressional Reporting Requirements		
	(C) average procurement unit costs and program acquisition costs for the program element; and (D) an identification when the program joint cost analysis requirements description document is scheduled to be approved. (4) A test baseline summarizing the comprehensive test program for the program element outlined in the integrated master test plan. (c) ANNUAL REPORTS ON ACQUISITION BASELINES.— (1) ANNUAL REPORTS REQUIRED.—Not later than February 15, 2011, and annually thereafter, the Director of the Missile Defense Agency shall submit to the congressional defense committees a report on the acquisition baselines required by subsection (a). The first such report shall set forth the acquisition baselines, and each later report shall identify the significant changes or variances, if any, in any such baseline from any earlier report under this subsection. (2) FORM.—Each report under this subsection shall be submitted in unclassified form, but may include a classified annex. (d) ANNUAL REPORTS ON MISSILE DEFENSE EXECUTIVE BOARD ACTIVITIES.—The Director shall include in each report under subsection (c) a description of the activities of the Missile Defense Executive Board during the preceding fiscal year, including the following: (1) A list of each meeting of the Board during the preceding fiscal year. (2) The agenda and issues considered at each such meeting. (3) A description of any decisions or recommendations made by the Board at each such meeting.	
S. Rept. 111-295 of the Senate Appropriations Subcommittee on Defense on the FY11 Defense Appropriations Bill (S. 3800) p. 178.	Justification Materials.—The Committee has raised concerns annually over the quality of the justification materials provided to Congress from the Missile Defense Agency [MDA]. While the Congress received three volumes of fiscal year 2011 justification material, totaling 2,188 pages, from MDA, it finds the quality lacking. First, the books are excessively redundant. The entire MDA budget request, by program element, is	Reduced redundancy by stating the general information upfront and not repeating it throughout each exhibit. Reduced page count by combining FY10 project descriptions in FY11-16 projects and also by including, in the Other

Missile Defense Agency Congressional Reporting Requirements		
	repeated every few pages. The Committee believes the entire budget request should be printed at the beginning of each volume and that the ''Other Program Funding Summary'' exhibit should be limited to only those funding amounts included in other program elements that directly relate to the underlying program element. Second, the presentation of information makes it difficult to track annual funding changes. In the exhibit titled ''Accomplishments/Planned Program,'' some of the programs have information on the prior fiscal years together, but information on the budget request year is found elsewhere and with different descriptions. Information on other program elements is interspersed throughout the budget justification, making it nearly impossible to examine equivalent activities over a 3-year fiscal period. Third, the schedules provided do not present adequate detail. Each schedule should display clear timelines for design and development, integration and test, pre-production activities, and production and fielding. The schedules should also indicate the month and year for key events such as acquisition milestones, other decisions and contract awards. Finally, the budget does not clearly indicate the quantities of missiles that will be procured in each fiscal year along with their expected delivery dates. This information is basic to understanding the budget and schedule of implementation for MDA programs. Since the justification materials have not improved after several years of congressional direction, the Committee directs MDA to include the budget exhibits identified in paragraphs (1) and (2) in the Department of Defense Financial Management Regulation with the congressional justification materials. For procurement programs requesting more than $20,000,000 in any fiscal year, submit the P–1, Procurement Program; P–5, Cost Analysis; P–5a, Procurement History and Planning; P–21, Production Schedule; and P–40, Budget Item Justification. For research, development, test and evaluation projects requesting more than $10,000,000 in any fiscal year, provide the R–1, RDT&E Program; R–2, RDT&E Budget Item Justification; R–3, RDT&E Project Cost Analysis; and R–4, RDT&E Program Schedule Profile. The Committee expects this format to be used in the submission of the fiscal year 2012 President's Budget request to Congress. In addition to the changes directed for the justification materials, the Committee also is not receiving adequate detailed information from MDA on requests for information in a timely manner or on changes to	Program Funding Summary Table, only those PEs with which the subject PE is interdependent. Increased scrutiny of text for clarity and concision. Revised the R4 schedule to include a more detailed version with timelines and milestones as appropriate. RDT&E exhibits include R-1, R2, R2A, R3, R4, and R4A exhibits. Procurement exhibits include P-1, P-5, P5a, P21, and P40 exhibits. Complied with OUSD(C) efforts to standardize budget exhibits.

Missile Defense Agency Congressional Reporting Requirements		
	programs during the year of execution. This information is critical to informing the Congress on MDA's annual budget request, and the Committee urges MDA to find a more transparent and efficient means of delivering information to the congressional defense committees.	
Report of the House Committee on Armed Services on the FY10 Defense Appropriations Act (H.R. 3326), p. 296.	MISSILE DEFENSE AGENCY REPORTING REQUIREMENTS AND JUSTIFICATION MATERIALS The budget justification provided by the Missile Defense Agency (MDA) continues to be insufficient to conduct proper oversight of MDA's programs. However, the Committee commends the Agency for establishing the two new procurement lines that were created in Public Law 110—369 and anticipates additional adjustments to budget documentation to include an operation and maintenance account in fiscal year 2011 and beyond. MDA programs have historically changed significantly from the time the budget is submitted to the time funding is appropriated, making it extremely difficult to understand what is actually in the budget on an annual basis. The justification materials must provide more detailed schedules, quantities, and break-outs of funding for each activity. MDA is directed to report according to the existing acquisition laws to improve accountability and transparency of the programs.	**Procurement lines 33 (THAAD), 34 (Aegis BMD), and 35 (BMDS AN/TPY-2 Radars)**
H. Rpt. 110-279, the House Appropriations Committee Report to accompany the FY 2008 Department of Defense Appropriations Act (H.R. 3222), p. 382	The Committee directs MDA to develop a system-wide plan to report according to the spirit of existing acquisition laws to improve accountability and transparency of its program. MDA is directed to report all elements that are effectively in System Development and Demonstration or production corresponding baselines, the results of independent cost estimates performed by the Cost Analysis Improvement Group, unit costs, and unit cost growth. This direction should not be construed as requiring full compliance with DoD Regulation 5000.2. In addition, while developing and fielding the BMDS outside DoD's normal acquisition cycle, MDA should address operational testing by including operational test objectives in developmental tests. The Committee directs that this plan be delivered to the congressional defense committees with the submission of the fiscal year 2009 budget and updated semiannually.	**Fiscal Year 2012 Budget Justification** MDA to provide BMDS Accountability Report to Congressional Defense Committees. This report fully satisfies the requirement.
Sec 223(a). Ballistic Missile Defense Programs: Procurement; National Defense Authorization Act for Fiscal Year 2004 (H.R. 1588, H. Rpt. 108-	*BUDGET JUSTIFICATION MATERIALS-In the budget justification materials submitted to Congress in support of the Department of Defense budget for any fiscal year (as submitted with the budget of the President under section 1105(a) of title 31), the Secretary of Defense shall specify,*	**Fiscal Year 2012 Budget Justification** MDA to provide BMDS Accountability Report to Congressional Defense

Missile Defense Agency Congressional Reporting Requirements		
354, pp. 30-31)	*for each ballistic missile defense system element for which the Missile Defense Agency is engaged in planning for production and initial fielding, the following information: (1) The production rate capabilities of the production facilities planned to be used for production of that element. (2) The potential date of availability of that element for initial fielding. (3) The estimated date on which the administration of the acquisition of that element is to be transferred from the Director of the Missile Defense Agency to the Secretary of a military department.*	Committees. This report satisfies the requirement.
Sec 223(a). Ballistic Missile Defense Programs: Procurement; National Defense Authorization Act for Fiscal Year 2004 (H.R. 1588, H. Rpt. 108-354, pp. 30-31)	*FUTURE-YEARS DEFENSE PROGRAM-The Secretary of Defense shall include in the future-years defense program submitted to Congress each year under section 221 of this title an estimate of the amount necessary for procurement for each ballistic missile defense system element, together with a discussion of the underlying factors and reasoning justifying the estimate.*	**MDA Procurement** lines 33 (THAAD), 34 (Aegis BMD), and 35 (BMDS AN/TPY-2 Radars)
BMDS BUDGET JUSTIFICATION MATERIAL; H.Rpt.107 298, the House Appropriations Committee Report to accompany H.R.3338, the Department of Defense Appropriations Bill, 2002 Pg 252	The Committee is concerned about the level of information provided in this year's budget justification material. In addition to the material currently provided, the Committee directs the Department to submit the following information as part of its future budget requests. For each program element and project: the funding appropriated in the previous year and the expected requirement for the next six years, by year. For special interest projects and new starts: a detailed schedule (including contract awards, decision points, test events and hardware/software deliveries) at least through the stage of testing the prototype whose performance will form the basis for deciding whether or not to begin developing the system as a major defense acquisition program. For those programs that are already major defense acquisition programs: a detailed schedule (including contract awards, decision points, test events and hardware/software deliveries), the number of systems to be acquired, the expected performance, the unit cost, and the cost to completion for the program. In addition, the Department should present an overall timeline for its future architecture highlighting when each system in that architecture will go into production as well as a comparable threat timeline indicating which threat systems are expected to be deployed and in what quantities.	**Fiscal Year 2012 Budget Justification** **MDA Exhibit R-2 for each Program Element** MDA to provide BMDS Accountability Report to the Congressional Defense Committees.

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Defense-Wide
FY 2012 President's Budget
Exhibit P-1 FY 2012 President's Budget
Total Obligational Authority
(Dollars in Thousands)

08 Feb 2011

Appropriation	FY 2010 (Base & OCO)	FY 2011 Base Request with CR Adj*	FY 2011 OCO Request with CR Adj*	FY 2011 Total Request with CR Adj*
Procurement, Defense-Wide	835,710	952,950		952,950
Total Defense-Wide	835,710	952,950		952,950

P-1P: FY 2012 President's Budget (Published Official Position With FY 2011 CR Adjustments), as of February 8, 2011 at 14:02:52
* Reflects the FY 2011 President's Budget with an undistributed adjustment to match the Annualized Continuing Resolution funding level by appropriation.

Defense-Wide
FY 2012 President's Budget
Exhibit P-1 FY 2012 President's Budget
Total Obligational Authority
(Dollars in Thousands)

08 Feb 2011

Appropriation	FY 2011 Annualized CR Base**	FY 2011 Annualized CR OCO**	FY 2011 Annualized CR Total**
Procurement, Defense-Wide	901,182		901,182
Total Defense-Wide	901,182		901,182

P-1P: FY 2012 President's Budget (Published Official Position With FY 2011 CR Adjustments), as of February 8, 2011 at 14:02:52
** Adjusts each budget line included in the FY 2011 President's Budget request proportionally to match the Annualized Continuing Resolution funding level for each appropriation. Quantities - TBD

Defense-Wide
FY 2012 President's Budget
Exhibit P-1 FY 2012 President's Budget
Total Obligational Authority
(Dollars in Thousands)

08 Feb 2011

Appropriation	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Procurement, Defense-Wide	1,778,738		1,778,738
Total Defense-Wide	1,778,738		1,778,738

P-1P: FY 2012 President's Budget (Published Official Position With FY 2011 CR Adjustments), as of February 8, 2011 at 14:02:52

Defense-Wide
FY 2012 President's Budget
Exhibit P-1 FY 2012 President's Budget
Total Obligational Authority
(Dollars in Thousands)

08 Feb 2011

Appropriation: 0300D Procurement, Defense-Wide

Line No	Item Nomenclature	Ident Code	FY 2010 (Base & OCO) Quantity	FY 2010 (Base & OCO) Cost	FY 2011 Base Request with CR Adj* Quantity	FY 2011 Base Request with CR Adj* Cost	FY 2011 OCO Request with CR Adj* Quantity	FY 2011 OCO Request with CR Adj* Cost	FY 2011 Total Request with CR Adj* Quantity	FY 2011 Total Request with CR Adj* Cost	Sec
	Budget Activity 01: Major equipment										
	Major Equipment, Missile Defense Agency										
31	THAAD Procurement	B	26	419,004	67	858,870			67	858,870	U
32	AEGIS BMD Procurement	A	6	225,625	8	94,080			8	94,080	U
33	THAAD	B									U
34	Aegis BMD	B									U
35	BMDS AN/TPY-2 Radars	B	1	191,081							U
	Total Major equipment			835,710		952,950				952,950	
	Total Procurement, Defense-Wide			835,710		952,950				952,950	

P-1P: FY 2012 President's Budget (Published Official Position With FY 2011 CR Adjustments), as of February 8, 2011 at 14:02:52
* Reflects the FY 2011 President's Budget with an undistributed adjustment to match the Annualized Continuing Resolution funding level by appropriation.

Defense-Wide
FY 2012 President's Budget
Exhibit P-1 FY 2012 President's Budget
Total Obligational Authority
(Dollars in Thousands)

08 Feb 2011

Appropriation: 0300D Procurement, Defense-Wide

Line No	Item Nomenclature	Ident Code	FY 2011 Annualized CR Base** Quantity	FY 2011 Annualized CR Base** Cost	FY 2011 Annualized CR OCO** Quantity	FY 2011 Annualized CR OCO** Cost	FY 2011 Annualized CR Total** Quantity	FY 2011 Annualized CR Total** Cost	Sec
	Budget Activity 01: Major equipment								
	Major Equipment, Missile Defense Agency								
31	THAAD Procurement	B		812,213				812,213	U
32	AEGIS BMD Procurement	A		88,969				88,969	U
33	THAAD	B							U
34	Aegis BMD	B							U
35	BMDS AN/TPY-2 Radars	B							U
	Total Major equipment			901,182				901,182	
	Total Procurement, Defense-Wide			901,182				901,182	

P-1P: FY 2012 President's Budget (Published Official Position With FY 2011 CR Adjustments), as of February 8, 2011 at 14:02:52
** Adjusts each budget line included in the FY 2011 President's Budget request proportionally to match the Annualized Continuing Resolution funding level for each appropriation. Quantities - TBD

Defense-Wide
FY 2012 President's Budget
Exhibit P-1 FY 2012 President's Budget
Total Obligational Authority
(Dollars in Thousands)

08 Feb 2011

Appropriation: 0300D Procurement, Defense-Wide

Line No	Item Nomenclature	Ident Code	FY 2012 Base Quantity	FY 2012 Base Cost	FY 2012 OCO Quantity	FY 2012 OCO Cost	FY 2012 Total Quantity	FY 2012 Total Cost	Sec
Budget Activity 01: Major equipment									
	Major Equipment, Missile Defense Agency								
31	THAAD Procurement	B							U
32	AEGIS BMD Procurement	A							U
33	THAAD	B	68	833,150			68	833,150	U
34	Aegis BMD	B	46	565,393			46	565,393	U
35	BMDS AN/TPY-2 Radars	B	2	380,195			2	380,195	U
Total Major equipment				1,778,738				1,778,738	
Total Procurement, Defense-Wide				1,778,738				1,778,738	

P-1P: FY 2012 President's Budget (Published Official Position With FY 2011 CR Adjustments), as of February 8, 2011 at 14:02:52

Missile Defense Agency

Fiscal Year (FY) 2012 Budget Estimates

February 2011

Procurement, Defense-Wide

Missile Defense Agency

PROCUREMENT, DEFENSE-WIDE

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31	**Terminal High Altitude Area Defense (THAAD)**
	Narrative: Program Overview, Purpose & Scope of Work, Justification of Funds
	Major Equipment Budget Item Justification (P-40)
	Major Equipment Cost Analysis (P-5)
	Major Equipment Procurement History and Planning (P-5a)
	Major Equipment Production Schedule (P-21)
32	**Aegis BMD**
	Narrative: Program Overview, Purpose & Scope of Work, Justification of Funds
	Major Equipment Budget Item Justification (P-40)
	Major Equipment Cost Analysis (P-5)
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	Major Equipment Production Schedule (P-21)
33	**BMDS AN/TPY-2 Radars**
	Narrative: Program Overview, Purpose & Scope of Work, Justification of Funds
	Major Equipment Budget Item Justification (P-40)
	Major Equipment Cost Analysis (P-5)
	Major Equipment Procurement History and Planning (P-5a)
	Major Equipment Production Schedule (P-21)

Missile Defense Agency

THAAD Procurement

Missile Defense Agency

($ in Millions)

FY 2010 Estimate:	419.004
FY 2011 Estimate:	858.870
FY 2012 Estimate:	833.150

Program Overview

The Terminal High Altitude Area Defense (THAAD) is an element of the Terminal Defense Segment (TDS) of the Ballistic Missile Defense System (BMDS). The THAAD element provides the THAAD Interceptor Engage on Army Navy/Transportable Radar Surveillance - Model 2 (AN/TPY-2)(THAAD Mode) engagement sequence of the BMDS. THAAD enhances the TDS by deepening, complementing, and extending the BMDS battlespace and capability to engage ballistic targets in the late mid-course and terminal phases of their trajectory. THAAD will also be a surveillance sensor, providing sensor data to cue other elements of the BMDS. THAAD, in conjunction with the fielded PATRIOT System, provides the TDS and supports the MDA objective of enhancing the BMDS capability. Five major components (Interceptors, Launchers, AN/TPY-2 Radar, THAAD Fire Control and Communication (TFCC), and Peculiar Support Equipment) will be integrated into the THAAD element and the BMDS.

Purpose and Scope of Work

The Terminal High Altitude Area Defense (THAAD) procurement contract provides an additional 7 Batteries. The first two batteries were funded with the RDT&E appropriation (PE 0603881C), and included a total of 50 interceptors, six launchers, and two TFCCs consisting of 2 Tactical Station Groups (TSGs) each. Current Battery definition includes a basic load of 48 interceptors, 6 launchers, and 2 TSGs each. Radars are budgeted separately. Total procurement of THAAD hardware (including RDT&E funded tactical assets) includes 477 interceptors (total interceptor procurement objective is independent of batteries), 18 TSGs, 60 launchers (9 Batteries, with 6 launchers each, plus an additional 6 launchers), and peculiar support equipment. Additionally, 1 TSG is procured for the Institutional Training Base. Given different production lead times, hardware components will be procured to optimize deliveries. Also, the THAAD procurement contract provides for the purchase and assembly of the components for 13 Range Safety Instrumentation Safety Kits (RSIS). This includes the assessment and performance of all necessary redesigns to address obsolescence issues and perform any required qualification of the redesigned electronics and ordnance assemblies. Additionally, New Equipment Training (NET) is provided to THAAD Soldiers in Batteries three through nine. The Soldiers are taught both technical and operational tasks to enable them to effectively deploy, operate, and maintain the system.

The Terminal High Altitude Area Defense (THAAD) procurement program provides for Government project office manpower to manage the breadth of programmatic activities required to acquire and deliver THAAD Batteries to the U.S. Army. THAAD government and support contractor salaries, travel, training, and supplies are provided for within this scope of effort.

Justification of Funds

FY 2010: Procurement for Lot Buys of Interceptors (26) and Ground Equipment (3 Launchers, and 2 Tactical Station Groups)
FY 2011: Procurement for Lot Buys of Interceptors (67) and Ground Equipment (15 Launchers and 4 Tactical Station Groups)
FY 2012: Procurement for Lot Buys of Interceptors (68) and Ground Equipment (6 Launchers and 1 Tactical Station Group)

Exhibit P-40, Budget Item Justification									Date: February 2011		
Appropriation (Treasury) Code/CC/BA/BSA/Item Control Number: 0300D - Procurement, Defense-wide/BA-01/BSA-17						**P-1 Line Item Nomenclature:** Terminal High Altitude Area Defense (THAAD)					
Program Element for Code B Items:						**Other Related Program Elements:**					
	ID Code	**Prior Years**	**FY 2010**	**FY 2011**	**FY 2012**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**To Complete**	**Total Program**
Proc Qty			26	67	68	68	66	65	67		427
Gross Cost ($M)		103.0	419.0	858.9	833.2	728.6	921.8	955.5	745.4	0.0	5,565.3
Less PY Adv Proc ($M)											
Plus CY Adv Proc ($M)											
Net Proc (=P-1) ($M)		103.0	419.0	858.9	833.2	728.6	921.8	955.5	745.4	0.0	5,565.3
Initial Spares ($M)											
Total Proc Cost ($M)		103.0	419.0	858.9	833.2	728.6	921.8	955.5	745.4	0.0	5,565.3
Flyaway Unit Cost ($M)		N/A	10.7	9.8	9.5	9.3	8.8	8.4	9.0	0.0	9.3
Wpn Sys Proc U/C ($M)		N/A	16.1	12.8	12.3	10.7	14.0	14.7	11.1	0.0	13.0

Description

Procurement of THAAD Hardware as follows:

	FY10	FY 11	FY12	FY13	FY14	FY15	FY16	Total
Interceptors	26	67	68	68	66	65	67	427
Launchers	3	15	6	0	12	18	0	54
TSGs	2	4	1	0	4	4	0	15
PSE Suites	1	2	0	0	2	2	0	7

Justification

Funding shown above supports the procurement of 427 THAAD Interceptors, 54 launchers, 15 Tactical Station Groups, 30 A-2 Hemitt Transpoters and all associated peculiar support equipment to include the Mobile Spt Truck,Generator set,spares transport shelter and the Battery logistics Operation Center. RDT&E funded tactical hardware (initial two THAAD batteries) are not included in the costs above. Interceptor Flyaway Unit Cost increase in FY 2016 is due to obsolescene mitigation costs planned for FY 2016.

"Proc Qty" above represents interceptors only, but the net procurement cost includes the costs of all hardware. FY 2011, FY 2014, and FY 2015 funding includes procurement of significant numbers of ground components, which affects the Weapon System Unit Cost. Training devices are RDT&E funded, and thus not included in any of the costs shown above.

Exhibit P-5 Cost Analysis	Weapon System: Terminal High Altitude Area Defense (THAAD)	Date: February 2011
Appropriation (Treasury) Code/CC/BA/BSA/Item Control Number: 0300D - Procurement, Defense-wide/BA-01/BSA-17	D Code:	P-1 Line Item Nomenclature: Terminal High Altitude Area Defense (THAAD)

WBS Cost Elements	Prior Years Cost	Prior Years Cost	FY 2010 Cost	FY 2010 Cost	FY 2011 Cost	FY 2011 Total Cost	FY 2012 Unit Cost	FY 2012 Cost	FY 2013 Cost	FY 2013 Cost
THAAD Interceptor Qty	N/A	-	26		67		68		68	
THAAD Interceptor	N/A	88.602	10.695	287.900	9.792	584.498	9.501	646.060	9.333	634.670
THAAD Launcher Qty			3		15		6			
THAAD Launcher		-	9.000	27.000	9.100	136.500	9.133	54.800	-	-
THAAD Fire Control & Communication Tactical Station Group Qty			2		4		1			
THAAD Fire Control & Communication Tactical Station Group		-	10.217	20.433	10.142	40.567	9.900	9.900	-	-
TSG Obsolescence Mitigation								4.000	N/A	
Peculiar Support Equipment & System Integration	N/A	14.373	N/A	83.671	N/A	97.305	N/A	61.490	N/A	46.791
A-2 HEMTT Transporter End of Life Buy							0.600	18.000		
RSIS Kits								3.900		3.900
New Equipment Training										7.500
Program Office Support								35.000		35.700
Total		102.975		419.004		858.870		833.150		728.561

Exhibit P-5 Cost Analysis (Page 2)		Weapon System Terminal High Altitude Area Defense (THAAD)				Date: February 2011		
WBS Cost Elements	**FY 2014 Unit Cost**	**FY 2014 Total Cost**	**FY 2015 Unit Cost**	**FY 2015 Total Cost**	**FY 2016 Unit Cost**	**FY 2016 Total Cost**		
THAAD Interceptor Qty	66		65		67			
THAAD Interceptor	8.776	579.220	8.443	548.770	8.973	601.174		
THAAD Launcher Qty	12		18					
THAAD Launcher	8.942	107.300	8.639	155.500	N/A	-		
THAAD Fire Control & Communication Tactical Station Group Qty	4		4					
THAAD Fire Control & Communication Tactical Station Group	14.475	57.900	14.150	56.600	N/A	-		
Peculiar Support Equipment & System Integration	N/A	132.361	N/A	146.144	N/A	94.856		
RSIS Kits		1.100						
New Equipment Training		7.500		11.400		11.600		
Program Office Support		36.400		37.100		37.800		
Total		**921.781**		**955.514**		**745.430**		

Exhibit P-5a, Procurement History and Planning (Page 1)	Weapon System: Terminal High Altitude Area Defense (THAAD)	Date: February 2011

Appropriation (Treasury) Code/CC/BA/BSA/ItemControl Number:

0300D - Procurement, Defense-wide/BA-01/BSA-17

P-1 Line Item Nomenclature:

Terminal High Altitude Area Defense (THAAD)

WBS COST ELEMENTS	Qty	Unit Cost	Location of PCO	RFP Issue Date	Contract Method & Type	Contractor & Location	Award Date	Date of First Delivery	Tech Data Available Now?	Date Revisions Available
FY 2010										
THAAD Interceptor	26	10.695	MDA, Hsv, AL	1QFY10	SS/FPIF	LM, Sunnyvale, CA	4QFY10	4QFY12	Yes	
THAAD Launcher	3	9.000	MDA, Hsv, AL	1QFY10	SS/FFP	LM, Sunnyvale, CA	2QFY11	3QFY12	Yes	
THAAD Fire Control & Communication Tactical Station Group	2	10.217	MDA, Hsv, AL	1QFY10	SS/FFP	LM, Sunnyvale, CA	2QFY11	1QFY13	Yes	
Peculiar Support Equipment & System Integration	N/A	N/A	MDA, Hsv, AL	1QFY10	SS/FFP	LM, Sunnyvale, CA	2QFY11	N/A	Yes	
FY 2011										
THAAD Interceptor - Lot 2	22	10.526	MDA, Hsv, AL	1QFY10	SS/FPIF	LM, Sunnyvale, CA	2QFY11	4QFY13	Yes	
THAAD Interceptor - Lot 3	45	9.433	MDA, Hsv, AL	2QFY11	SS/FPIF	LM, Sunnyvale, CA	3QFY11	1QFY14	Yes	
THAAD Launcher - Lot 2	9	9.100	MDA, Hsv, AL	1QFY10	SS/FFP	LM, Sunnyvale, CA	2QFY11	4QFY12	Yes	
THAAD Launcher - Lot 3	6	9.100	MDA, Hsv, AL	2QFY11	SS/FFP	LM, Sunnyvale, CA	3QFY11	3QFY13	Yes	
THAAD Fire Control & Communication Tactical Station Group	4	10.142	MDA, Hsv, AL	1QFY10	SS/FFP	LM, Sunnyvale, CA	2QFY11	2QFY13	Yes	
Peculiar Support Equipment & System Integration	N/A	N/A	MDA, Hsv, AL	1QFY10	SS/FFP	LM, Sunnyvale, CA	2QFY11	N/A	Yes	
FY 2012										
THAAD Interceptor	68	9.501	MDA, Hsv, AL	3QFY11	SS/FFP	LM, Sunnyvale, CA	2QFY12	4QFY14	Yes	
THAAD Launcher	6	9.133	MDA, Hsv, AL	3QFY11	SS/FFP	LM, Sunnyvale, CA	2QFY12	1QFY14	Yes	
Peculiar Support Equipment & System Integration	N/A	N/A	MDA, Hsv, AL	3QFY11	SS/FFP	LM, Sunnyvale, CA	2QFY12	N/A	Yes	
THAAD Fire Control & Communication Tactical Station Group	1	9.900	MDA, Hsv, AL	3QFY11	SS/FFP	LM, Sunnyvale, CA	2QFY12	2QFY14	Yes	
TSG Obsolescence Mitigation	N/A	N/A	MDA, Hsv, AL	3QFY11	SS/FFP	LM, Sunnyvale, CA	2QFY12	N/A	Yes	

Remarks:

FY 2011 will be the first year that we fully move to funded procurement purely with Procurement funding. Prior years RDTE funds were used .

Exhibit P-21, Production Schedule			Date: February 2011
Appropriation (Treasury) Code/CC/BA/BSA/Item Control No: 0300D - Procurement, Defense-wide/BA-01/BSA-17		Weapons System: THAAD	P-1 Line Item Nomenclature: Terminal High Altitude Area Defense (THAAD)

		PRODUCTION RATE			PROCUREMENT LEADTIMES					
ITEM	Manufacturer's Name and Location	MSR	ECON	MAX	ALT Prior to 1 Oct	ALT After 1 Oct	Initial Mfg PLT	Reorder Mfg PLT	Total	Unit of Measure
Battery Interceptors	LMSSC, Troy AL	1/Mo	4/Mo	6/Mo	0	7 Mo	24 Mo	24 Mo	31 Mo	E
Battery Fire Control/Communications (TSGs)	LM, Camden AR	2/3Mo	2/3 Mo	3/3 Mo	0	1 Mo	24 Mo	24 Mo	25 Mo	E
Battery Launchers	LM, Camden AR	1/Mo	1/Mo	6/3 Mo	0	1 Mo	18 Mo	18 Mo	19 Mo	E

						FISCAL YEAR 2010													FISCAL YEAR 2011									
									CALENDAR YEAR 2010											CALENDAR YEAR 2011									
ITEM	FY	SVC	QTY	DEL	BAL	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	BAL
Battery Interceptors	10		26	0	26															A										26
	11		67	0	67																	A								67
Battery Fire Control/Communications (TSGs)	10		2	0	2																	A								2
	11		4	0	4																	A								4
Battery Launchers	10		3	0	3																	A								3
	11		15	0	15																	A								15

						FISCAL YEAR 2012													FISCAL YEAR 2013									
									CALENDAR YEAR 2012											CALENDAR YEAR 2013									
ITEM	FY	SVC	QTY	DEL	BAL	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	BAL
Battery Interceptors*	10		26	0	26										1	1	1	1	2	2	3	3	3	3	3	3				0
	11		67	0	67																						4	4	5	54
	12		68	0	68				A																					68
	13		68	0	68																A									68
Battery Fire Control/Communications (TSGs)	10		2	0	2														1	1										0
	11		4	0	4																1	1								2
	12		1	0	1				A																					1
Battery Launchers	10		3	0	3							1	1	1																0
	11		15	0	15										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	12		6	0	6				A																					6

REMARKS: *Lead time for first delivery of FY 2010 funded interceptors & ground components are reduced due to long lead items procured in FY 2009. Build plan for ground components optimizes delivery dates for battery integration. Lead times for ground components support battery integration schedules. Lead times shown above are the nominal required for component integration, nominal lead times have been assessed at 18 months for launchers and 24 months for TSGs. All ground components are produced in the same facility so that manufacturing synergy can mitigate production gaps.

Exhibit P-21, Production Schedule																																		
																																Date: February 2011			
Appropriation (Treasury) Code/CC/BA/BSA/Item Control No: 0300D - Procurement, Defense-wide/BA-01/BSA-17																															Weapons System: THAAD			
																															P-1 Line Item Nomenclature: Terminal High Altitude Area Defense (THAAD)			

ITEM	Manufacturer's Name and Location	PRODUCTION RATE MSR	ECON	MAX	PROCUREMENT LEADTIMES ALT Prior to 1 Oct	ALT After 1 Oct	Initial Mfg PLT	Reorder Mfg PLT	Total	Unit of Measure
Battery Interceptors	LMSSC, Troy AL	1/Mo	4/Mo	6/Mo	0	7 Mo	24 Mo	24 Mo	31 Mo	E
Battery Fire Control/Communications (TSGs)	LM, Camden AR	2/3Mo	2/3 Mo	3/3 Mo	0	1 Mo	24 Mo	24 Mo	25 Mo	E
Battery Launchers	LM, Camden AR	1/Mo	1/Mo	6/3 Mo	0	1 Mo	18 Mo	18 Mo	19 Mo	E

						FISCAL YEAR 2014															FISCAL YEAR 2015									
									CALENDAR YEAR 2014													CALENDAR YEAR 2015								
ITEM	FY	SVC	QTY	DEL	BAL	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	BAL
Battery Interceptors	11		67	13	54	6	6	6	6	6	6	6	6	6																0
	12		68	0	68										6	6	6	6	6	6	6	6	5	5	5	5				0
	13		68	0	68																						5	5	5	53
	14		66	0	66				A																					66
	15		65	0	65																A									65
Battery Fire Control/Communications (TSGs)	11		4	2	2		1	1																						0
	12		1	0	1				1																					0
	14		4	0	4				A																					4
	15		4	0	4																A									4
Battery Launchers	12		6	0	6	1	1	1	1	1	1																			0
	14		12	0	12				A																		1	1	1	9
	15		18	0	18																A									18

						FISCAL YEAR 2016															FISCAL YEAR 2017									
									CALENDAR YEAR 2016													CALENDAR YEAR 2017								
ITEM	FY	SVC	QTY	DEL	BAL	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	BAL
Battery Interceptors	13		68	15	53	5	6	6	6	6	6	6	6	6																0
	14		66	0	66										6	6	5	6	6	5	6	6	5	5	5	5				0
	15		65	0	65																						6	6	6	47
	16		67	0	67				A																					67
Battery Fire Control/Communications (TSGs)	14		4	0	4					1	1		1	1																0
	15		4	0	4																	1	1		1	1				0
Battery Launchers	14		12	3	9	1	1	1	1	1	1	1	1	1																0
	15		18	0	18										1	1	1	2	2	2	2	2	2	1	1	1				0

REMARKS: Build plan for ground components optimizes delivery dates for battery integration. Lead times for ground components vary by year, depending on integration schedules.

Exhibit P-21, Production Schedule																																		
Date: February 2011																																		
Appropriation (Treasury) Code/CC/BA/BSA/Item Control No: 0300D - Procurement, Defense-wide/BA-01/BSA-17									**Weapons System:** THAAD																					**P-1 Line Item Nomenclature:** Terminal High Altitude Area Defense (THAAD)						
						PRODUCTION RATE										**PROCUREMENT LEADTIMES**																		
ITEM	**Manufacturer's Name and Location**					**MSR**			**ECON**			**MAX**				**ALT Prior to 1 Oct**			**ALT After 1 Oct**			**Initial Mfg PLT**			**Reorder Mfg PLT**			**Total**			**Unit of Measure**			
Battery Interceptors	**LMSSC, Troy AL**					1/Mo			4/Mo			6/Mo				0			7 Mo			24 Mo			24 Mo			31 Mo			E		
						FISCAL YEAR 2018																														
									CALENDAR YEAR 2018																												
ITEM	**FY**	**SVC**	**QTY**	**DEL**	**BAL**	**OCT**	**NOV**	**DEC**	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**BAL**					
Battery Interceptors	**15**		65	18	47	6	6	5	5	5	5	5	5	5																0					
	16		67	0	67										6	6	6	6	6	6	6	5	5	5	5	5				0				

Missile Defense Agency

Aegis BMD Procurement

Missile Defense Agency

($ in Millions)

FY 2010 Estimate:	225.625
FY 2011 Estimate:	94.080
FY 2012 Estimate:	565.393

Program Overview

The Aegis Ballistic Missile Defense (Aegis BMD) mission is to deliver an enduring, operationally effective and supportable Ballistic Missile Defense capability 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 capitalizes upon and evolves from 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 Missiles (SRBM), Medium-Range Ballistic Missiles (MRBM), and Intermediate-Range Ballistic Missiles (IRBM) in the midcourse phase of flight. In support of Homeland Defense, Aegis BMD provides a Long Range Surveillance and Track (LRS&T) capability to the BMDS. Upgrades to both the Aegis BMD Weapon System and the SM-3 configuration enable Aegis BMD provide effective, supportable defensive capability against longer range, more complex threats and an enduring Aegis Ashore defensive capability.

Purpose and Scope of Work

Standard Missile-3 was developed for Aegis Ballistic Missile Defense (BMD) as part of the Missile Defense Agency's Ballistic Missile Defense System (BMDS). The Aegis BMD system integrates SM-3 with the Aegis Weapon System (AWS) aboard U.S. Navy cruisers to provide an umbrella of protection against short to intermediate-range ballistic missile threats. SM-3 is compatible with the Mark (MK) 41 Vertical Launching System (VLS) deployed on many U.S. Navy and international surface combatants. The SM-3 is primarily used and tested by the United States Navy and also operated by the Japan Maritime Self-Defense Force. The SM-3 Block IA provides increased capability, over SM-3 Block I, to engage short-to intermediate-range ballistic missiles. The SM-3 Block IA incorporates rocket motor upgrades and computer program modifications to improve sensor performance, missile guidance and control, and lower cost. It also includes producibility and maintainability features required to qualify the missile as a tactical fleet asset. The SM-3 Block IB will incorporate a two-color, all reflective infrared seeker, enabling longer range acquisition and increased threat discrimination. A Throttleable Divert Altitude Control System (TDACS) is also in development to provide a more flexible and lower cost alternative to the Solid Divert Altitude System (SDACS). The SM-3 Block IIA incorporates 21-inch 2nd and 3rd stage rocket motors, providing a significant increase in engagement capability and larger defended areas. The Block IIA missile will also include a larger, more capable kinetic warhead to counter future ballistic missile threats.

Justification of Funds

FY 2010: 42 SM-3 Blk IA's utilizing RDT&E and Procurement funding

FY 2011: Full funding for eight (8) SM-3 Blk IB's for delivery in FY 2013

FY 2012: Full funding for 46 SM-3 Blk IB's for delivery in FY 2014

Exhibit P-40, Budget Item Justification									Date: February 2011		
Appropriation (Treasury) Code/CC/BA/BSA/Item Control Number: 0300D - Procurement, Defense-wide/BA-01/BSA-17						**P-1 Line Item Nomenclature:** Aegis BMD					
Program Element for Code B Items:						**Other Related Program Elements:** 0603892C					
	ID Code	**Prior Years**	**FY 2010**	**FY 2011**	**FY 2012**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**To Complete**	**Total Program**
Proc Qty		*	*	8	46	62	73	82	83		354
Gross Cost ($M)		101.932	225.625	94.080	565.393	675.126	737.440	1,018.966	1,065.442		4,484.004
Less PY Adv Proc ($M)			0.000	0.000	0.000	0.000	0.000	0.000	0.000		
Plus CY Adv Proc ($M)			0.000	0.000	0.000	0.000	0.000	0.000	0.000		
Net Proc (=P-1) ($M)		101.932	225.625	94.080	565.393	675.126	737.440	1,018.966	1,065.442		4,484.004
Initial Spares ($M)											
Total Proc Cost ($M)		101.932	225.625	94.080	565.393	675.126	737.440	1,018.966	1,065.442		4,484.004
Flyaway Unit Cost ($M)			9.600	11.760	12.291	10.889	10.102	12.426	12.837		12.667
Wpn Sys Proc U/C ($M)											

Note: Increase in Unit Cost in FY 2016 is due to the buy of 15 SM-3 Blk IIA.

Description

The SM-3 Block IA provides increased capability, over the SM-2 Block IV and SM-3 Block I, to engage short-to intermediate-range ballistic missiles. The SM-3 Block IA incorporates rocket motor upgrades and computer program modifications to improve sensor performance, missile guidance and control, and lower cost. It also includes producibility and maintainability features required to qualify the missile as a tactical fleet asset.

The SM-3 Block IB will incorporate a two-color, all reflective infrared seeker, enabling longer range acquisition and increased threat discrimination. A Throttleable Divert Altitude Control System (TDACS) is will provide a more flexible and lower cost alternative to the Solid Divert Altitude Control System (SDACS). Initial production of the SM-3 Blk IB is planned in FY 2011 with larger rate production in FY 2012.

Justification

* FY 2010: Prior - A total of 42 SM-3 Blk IA's appropriated in FY 2008, 2009 and 2010. The SM-3 Blk IA's were transitioned from RDT&E to Procurement, Defense-Wide in FY 2009 utilizing funding from both appropriations. For further depiction see table on P-5.

FY 2011: Full funding for eight (8) SM-3 Blk IB's for delivery in FY 2013

FY 2012: Full funding for 46 SM-3 Blk IB's for delivery in FY 2014

Exhibit P-5 Cost Analysis		Weapon System: Aegis BMD						Date: February 2011		
Appropriation (Treasury) Code/CC/BA/BSA/Item Control Number: 0300D - Procurement, Defense-wide/BA-01/BSA-17			D Code:		P-1 Line Item Nomenclature: Aegis BMD					
	Prior Year	FY 2010		FY 2011		FY 2012		FY 2013	
WBS Cost Elements	Total Cost	Unit Cost	Total Cost	Unit Cost	Total Cost	Unit Cost	Total Cost	Unit Cost	Total Cost
Quantity	*	*		8		46		62	
SM-3 Blk IA Missile Hardware									
SM-3 BLK 1A Guided Missile Round	101.932	9.433	225.625						
SM-3 Blk IB Missile Hardware									
SM-3 Blk IB Guided Missile Round				11.760	94.080	12.291	565.393	10.889	675.126
Total	101.932		225.625		94.080		565.393		675.126

Note: SM-3 Blk IAs were initially funded with RDT&E, in FY 2009 the acquisition process realigned the IA's to be completed in the Procurement, D-W appropriation. This exhibit only Procurement, D-W. This exhibit reflects the Procurement funding. Manufacturing engineering support for the Blk IA and IB and production spares, and missile surveillance program for SM - 3 Blk IB's is funded under the RDT&E appropriation. (See project MD09 PE 0603892C)

*** SM-3 Blk IA Missile Breakout**			
CLIN 3 Procured 24 missiles as follows:	FY 2008	61.518	RDT&E
	FY 2009	57.032	Procurement
	FY 2010	107.844	Procurement
	Total	226.394	
	Unit Cost	9.433	
CLIN 4 Procured 12 missiles in FY 2009 and	FY 2009	44.900	Procurement
6 additional missiles added by congress ($57.6M) in	FY 2010	117.781	Procurement
FY 2010 as follows:	Total	162.680	
	Unit Cost	9.038	
Average Unit Cost of the IA Missile		9.264	

Exhibit P-5 Cost Analysis	Weapon System: Aegis BMD					Date: February 2011		
Appropriation (Treasury) Code/CC/BA/BSA/Item Control Number: 0300D - Procurement, Defense-wide/BA-01/BSA-17	D Code:		P-1 Line Item Nomenclature: Aegis BMD					
WBS Cost Elements	FY 2014		FY 2015		FY 2016		Complete Costs	Total Cost
	Unit Cost	Total Cost	Unit Cost	Total Cost	Unit Cost	Total Cost		
Quantity	**73**		**82**		**68/15**			
SM-3 Blk IA Missile Hardware								
SM-3 BLK IA Guided Missile Round							327.557	327.557
Canisters - Funded in RDT&E								
SM-3 Blk IB Missile Hardware								
SM-3 BLK IB Guided Missile Round	10.102	737.440	12.426	1,018.967	9.723	661.140	3,752.146	3,752.146
SM-3 Blk IIA Missile Hardware								
SM-3 BLK IIA Guided Missile Round					24.292	364.381	364.381	364.381
Total		**737.440**		**1,018.967**		**1,025.521**	**4,444.084**	**4,444.084**

Exhibit P-5a, Procurement History and Planning (Page 1)					Weapon System: Aegis BMD			Date: February 2011		
Appropriation (Treasury) Code/CC/BA/BSA/Item Control Number: 0300D - Procurement, Defense-wide/BA-01/BSA-17					P-1 Line Item Nomenclature: Aegis BMD					
WBS COST ELEMENTS	**Qty**	**Unit Cost**	**Location of PCO**	**RFP Issue Date**	**Contract Method & Type**	**Contractor & Location**	**Award Date**	**Date of First Delivery**	**Data Available Now?**	**Revisions Available**
FY 2010										
SM-3 Blk 1A*	42	9.433	Dahlgren, Va	Jul-06	CPIF	Raytheon, Tuscon AZ	May-07	Jul-10	Yes	
FY 2011										
SM-3 Blk 1B	8	11.760	Dahlgren, Va	Mar-11	CPIF	Raytheon, Tuscon AZ	Aug-11	Jul-13	Yes	
FY 2012										
SM-3 Blk 1B	46	12.291	Dahlgren, Va	Mar-11	CPIF	Raytheon, Tucson AZ	Oct-11	Oct-13	Yes	
Remarks: * FY 2010: Prior - A total of 42 SM-3 Blk IA's appropriated in FY 2008, 2009 and 2010. The SM-3 Blk IA's were transitioned from RDT&E to Procurement, Defense-Wide in FY 2009 utilizing funding from both appropriations. For further depiction see table on P-5, page 1.										

Exhibit P-21, Production Schedule			Date: February 2011
Appropriation (Treasury) Code/CC/BA/BSA/Item Control No: 0300D - Procurement, Defense-wide/BA-01/BSA-17		**Weapons System:** Aegis BMD	**P-1 Line Item Nomenclature:** Aegis BMD

ITEM	Manufacturer's Name & Location	PRODUCTION RATE MSR	PRODUCTION RATE ECON	PRODUCTION RATE MAX	PROCUREMENT LEADTIMES ALT Prior to 1 Oct	PROCUREMENT LEADTIMES ALT After 1 Oct	PROCUREMENT LEADTIMES Initial Mfg PLT	PROCUREMENT LEADTIMES Reorder Mfg PLT	Total	Unit of Measure
SM-3 Block IA Missiles	**Raytheon, Tucson AZ**	1/Mo	2/Mo	8/Mo	9 Mo	0 Mo	30 Mo	30 Mo	30 Mo	E
SM-3 Block IB Missiles	**Raytheon, Tucson AZ**	1/Mo	4/Mo	8/Mo	9 Mo	0 Mo	24 Mo	24 Mo	24 Mo	E
SM-3 Block IIA Missiles	**Raytheon, Tucson AZ**	1/Mo	2/Mo	2/Mo	9 Mo	0 Mo	24 Mo	24 Mo	24 Mo	E

ITEM	FY	SVC	QTY	DEL	BAL	FISCAL YEAR 2010 / CALENDAR YEAR 2010 OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	FISCAL YEAR 2011 / CALENDAR YEAR 2011 OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	BAL
SM-3 Blk IA Missiles (A = May 2007)	10		**42**	**0**	**42**			3	3	1	2				2	4	2	7						2	2	2	2	2	2	0
SM-3 Blk IB Missiles	11		**8**	**0**	**8**																							A		8
SM-3 Blk IB Missiles	12		**46**	**0**	**46**																									46
SM-3 Blk IB Missiles	13		**62**	**0**	**62**																									62
SM-3 Blk IB Missiles	14		**73**	**0**	**73**																									73
SM-3 Blk IB Missiles	15		**82**	**0**	**82**																									82
SM-3 Blk IB Missiles	16		**68**	**0**	**68**																									68
SM-3 Blk IIA Missiles	16		**15**	**0**	**15**																									15

ITEM	FY	SVC	QTY	DEL	BAL	FISCAL YEAR 2012 / CALENDAR YEAR 2012 OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	FISCAL YEAR 2013 / CALENDAR YEAR 2013 OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	BAL
SM-3 Blk IA Missiles	10		**42**	**36**	**42**	2	2	2																						0
SM-3 Blk IB Missiles	11		**8**	**0**	**8**																						2	3	3	0
SM-3 Blk IB Missiles	12		**46**	**0**	**46**	A																								46
SM-3 Blk IB Missiles	13		**62**	**0**	**62**													A												62
SM-3 Blk IB Missiles	14		**73**	**0**	**73**																									73
SM-3 Blk IB Missiles	15		**82**	**0**	**82**																									82
SM-3 Blk IB Missiles	16		**68**	**0**	**68**																									68
SM-3 Blk IIA Missiles	16		**15**	**0**	**15**																									15

REMARKS: Production gap between SM-3 Blk IA and IB is being filled with the manufacturing of RDT&E SM-3 Blk IB Test Missiles (Jan 2012 - Jun 2013).

NOTE: Maximum production rate is based on 2 shifts, 8 hours per day, 5 days per week.

Exhibit P-21, Production Schedule			Date: February 2011
Appropriation (Treasury) Code/CC/BA/BSA/Item Control No: 0300D - Procurement, Defense-wide/BA-01/BSA-17		**Weapons System:** Aegis BMD	**P-1 Line Item Nomenclature:** Aegis BMD

ITEM	Manufacturer's Name and Location	PRODUCTION RATE MSR	ECON	MAX	PROCUREMENT LEADTIMES ALT Prior to Oct 1	ALT After 1-Oct	Initial Mfg PLT	Reorder Mfg PLT	Total	Unit of Measure
SM-3 Block IA Missiles	**Raytheon, Tucson AZ**	1/Mo	2/Mo	8/Mo	9 Mo	0 Mo	30 Mo	30 Mo	30 Mo	E
SM-3 Block IB Missiles	**Raytheon, Tucson AZ**	1/Mo	4/Mo	8/Mo	9 Mo	0 Mo	24 Mo	24 Mo	24 Mo	E
SM-3 Block IIA Missiles	**Raytheon, Tucson AZ**	1/Mo	2/Mo	2/Mo	9 Mo	0 Mo	24 Mo	24 Mo	24 Mo	E

						FISCAL YEAR 2014												FISCAL YEAR 2015											
									CALENDAR YEAR 2014															CALENDAR YEAR 2015								
ITEM	**FY**	**SVC**	**QTY**	**DEL**	**BAL**	**OCT**	**NOV**	**DEC**	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**BAL**
SM-3 Blk IA Missiles	10		**42**	**42**	**0**																								0
SM-3 Blk IB Missiles	11		**8**	**8**	**0**																								0
SM-3 Blk IB Missiles	12		**46**	**0**	**46**	3	4	4	3	4	4	4	4	4	4	4	4												0
SM-3 Blk IB Missiles	13		**62**	**0**	**62**													5	5	5	5	5	5	5	5	5	5	6	6	0
SM-3 Blk IB Missiles	14		**73**	**0**	**73**	A																							73
SM-3 Blk IB Missiles	15		**82**	**0**	**82**													A											82
SM-3 Blk IB Missiles	16		**68**	**0**	**68**																								68
SM-3 Blk IIA Missiles	16		**15**	**0**	**15**																								15

						FISCAL YEAR 2016												FISCAL YEAR 2017											
									CALENDAR YEAR 2016															CALENDAR YEAR 2017								
ITEM	**FY**	**SVC**	**QTY**	**DEL**	**BAL**	**OCT**	**NOV**	**DEC**	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**BAL**
SM-3 Blk IA Missiles	10		**42**	**42**	**0**																								0
SM-3 Blk IB Missiles	11		**8**	**8**	**0**																								0
SM-3 Blk IB Missiles	12		**46**	**46**	**0**																								0
SM-3 Blk IB Missiles	13		**62**	**62**	**0**																								0
SM-3 Blk IB Missiles	14		**73**	**0**	**73**	6	6	6	6	6	6	6	6	6	6	6	7												0
SM-3 Blk IB Missiles	15		**82**	**0**	**82**													6	6	6	6	7	7	7	7	8	7	7	8	0
SM-3 Blk IB Missiles	16		**68**	**0**	**68**	A																							68
SM-3 Blk IIA Missiles	16		**15**	**0**	**15**	A																							15

REMARKS: Production rate of 6 per month is based on 1 shift, 8 hrs day, 5 days a week; a 2nd shift would be required for a surge capability above 6 per month.

NOTE: Maximum production rate is based on 2 shifts, 8 hours per day, 5 days per week.

Exhibit P-21, Production Schedule			Date: February 2011
Appropriation (Treasury) Code/CC/BA/BSA/Item Control No: 0300D - Procurement, Defense-wide/BA-01/BSA-17		**Weapons System:** Aegis BMD	**P-1 Line Item Nomenclature:** Aegis BMD

ITEM	Manufacturer's Name and Location	PRODUCTION RATE MSR	PRODUCTION RATE ECON	PRODUCTION RATE MAX	PROCUREMENT LEADTIMES ALT Prior to Oct 1	ALT After 1-Oct	Initial Mfg PLT	Reorder Mfg PLT	Total	Unit of Measure
SM-3 Block IA Missiles	**Raytheon, Tucson AZ**	1/Mo	2/Mo	8/Mo	9 Mo	0 Mo	30 Mo	30 Mo	30 Mo	E
SM-3 Block IB Missiles	**Raytheon, Tucson AZ**	1/Mo	4/Mo	8/Mo	9 Mo	0 Mo	24 Mo	24 Mo	24 Mo	E
SM-3 Block IIA Missiles	**Raytheon, Tucson AZ**	1/Mo	2/Mo	2/Mo	9 Mo	0 Mo	24 Mo	24 Mo	24 Mo	E

						FISCAL YEAR 2018												FISCAL YEAR 2019										
									CALENDAR YEAR 2018													CALENDAR YEAR 2018								
ITEM	**FY**	**SVC**	**QTY**	**DEL**	**BAL**	**OCT**	**NOV**	**DEC**	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**BAL**
SM-3 Blk IA Missiles	10		**42**	**42**	**0**																								0
SM-3 Blk IB Missiles	11		**8**	**8**	**0**																								0
SM-3 Blk IB Missiles	12		**46**	**46**	**0**																								0
SM-3 Blk IB Missiles	13		**62**	**62**	**0**																								0
SM-3 Blk IB Missiles	14		**73**	**73**	**0**																								0
SM-3 Blk IB Missiles	15		**82**	**82**	**0**																								0
SM-3 Blk IB Missiles	16		**68**	**0**	**68**	5	5	5	5	6	6	6	6	6	6	6	6												0
SM-3 Blk IIA Missiles	16		**15**	**0**	**15**														1	1	1	1	1	1	1	1	1	2	2

						FISCAL YEAR 2020												FISCAL YEAR 2021										
									CALENDAR YEAR 2020													CALENDAR YEAR 2021								
ITEM	**FY**	**SVC**	**QTY**	**DEL**	**BAL**	**OCT**	**NOV**	**DEC**	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**BAL**
SM-3 Blk IA Missiles	10		**42**	**42**	**0**																								0
SM-3 Blk IB Missiles	11		**8**	**8**	**0**																								0
SM-3 Blk IB Missiles	12		**46**	**46**	**0**																								0
SM-3 Blk IB Missiles	13		**62**	**62**	**0**																								0
SM-3 Blk IB Missiles	14		**73**	**73**	**0**																								0
SM-3 Blk IB Missiles	15		**82**	**82**	**0**																								0
SM-3 Blk IB Missiles	16		**68**	**68**	**0**																								0
SM-3 Blk IIA Missiles	16		**15**	**13**	**2**	2																							0

REMARKS:

NOTE: Maximum production rate is based on 2 shifts, 8 hours per day, 5 days per week.

Missile Defense Agency

BMDS AN/TPY-2 Radars Procurement

Missile Defense Agency

	($ in Millions)
FY 2010 Estimate:	191.081
FY 2011 Estimate:	N/A
FY 2012 Estimate:	380.195

Program Overview

The Ballistic Missile Defense System (BMDS) layered network of sensors includes Army Navy/Transportable Radar Surveillance - Model 2 (AN/TPY-2) Radars, that can be used as a BMDS Forward-based X-Band Radar or a Terminal High Altitude Area Defense (THAAD). These radars are transportable, adding flexibility to respond to geographical changes in threat. In a forward-based role, the AN/TPY-2 provides target detection and tracking during the boost phase, reducing uncertainty in target discrimination and reaction time, and increasing the probability of a successful BMDS engagement. In terminal mode, the AN/TPY-2 provides target acquisition, tracking, and discrimination for fire control of the THAAD Battery.

Purpose and Scope of Work

Eleven additional AN/TPY-2 Radars are needed to complete THAAD Battery procurements and support Combatant Commanders (COCOM) emergent requirements for BMDS Forward-Based Radars. Each AN/TPY-2 radar can be configured for THAAD or forward-based mode, and can be switched between modes in eight (8) hours. The Radar System includes the radar, an Antenna Equipment Unit (AEU), an Electronics Equipment Unit (EEU), a Cooling Equipment Unit (CEU), and two Prime Power Units (PPUs).

Justification of Funds

FY 2010: Procurement of one AN/TPY-2 radar
FY 2011: No Procurement (Skip Year)
FY 2012: Procurement of two AN/TPY-2 radars

Exhibit P-40, Budget Item Justification									Date: February 2011		
Appropriation (Treasury) Code/CC/BA/BSA/Item Control Number: 0300D - Procurement, Defense-wide/BA-01/BSA-17						**P-1 Line Item Nomenclature:** BMDS AN/TPY-2 Radars					
Program Element for Code B Items:						**Other Related Program Elements: PE 0603884C**					
	ID Code	**Prior Years**	**FY 2010**	**FY 2011**	**FY 2012**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**To Complete**	**Total Program**
Proc Qty			1		2	2	2	2	2		11
Gross Cost ($M)			191.081		380.195	365.559	354.175	380.715	380.250		2,051.975
Less PY Adv Proc ($M)											
Plus CY Adv Proc ($M)											
Net Proc (=P-1) ($M)			191.081		380.195	365.559	354.175	380.715	380.250		2,051.975
Initial Spares ($M)							22.669				22.669
Total Proc Cost ($M)			191.081		380.195	365.559	376.844	380.715	380.250		2,074.644
Flyaway Unit Cost ($M)			191.081		190.098	182.780	188.422	190.358	190.125		
Wpn Sys Proc U/C ($M)			191.081		190.098	182.780	188.422	190.358	190.125		

Description

Procurement funding procures eleven AN/TPY-2 Radars required to complete THAAD Battery procurements and support COCOM emergent requirements for BMDS Forward-Based Radars.

Note: FY 2010 resources provided through a FY 2010 Above Threshold Reprogramming (ATR).

Justification

FY 2010: Procurement of one AN/TPY-2

FY 2011: No procurement (Skip Year)

FY 2012: Procurement of two AN/TYP-2 radars

Exhibit P-5 Cost Analysis			Weapon System: BMDS AN/TPY-2 Radars						Date: February 2011	
Appropriation (Treasury) Code/CC/BA/BSA/Item Control Number: 0300D - Procurement, Defense-wide/BA-01/BSA-17				D Code:		P-1 Line Item Nomenclature: BMDS AN/TPY-2 Radars				
WBS Cost Elements	Prior Years Unit Cost	Prior Years Total Cost	FY 2010 Unit Cost	FY 2010 Total Cost	FY 2011 Unit Cost	FY 2011 Total Cost	FY 2012 Unit Cost	FY 2012 Total Cost	FY 2013 Unit Cost	FY 2013 Cost
System Quantity			1				2		2	
AN/TPY-2 Radar System										
Antenna Equipment Unit (AEU)			144.285	144.285			144.091	288.181	137.930	275.859
Cooling Equipment Unit (CEU)			7.800	7.800			7.668	15.336	7.475	14.950
Electronic Equipment Unit (EEU)			23.398	23.398			23.003	46.006	22.425	44.850
Primary Power Units (PPU 2 ea radar system)			15.598	15.598			15.336	30.672	14.950	29.900
Total				191.081				380.195		365.559

Exhibit P-5 Cost Analysis (Page 2)		Weapon System: BMDS AN/TPY-2 Radars				Date: February 2011		
WBS Cost Elements	**FY 2014 Unit Cost**	**FY 2014 Total Cost**	**FY 2015 Unit Cost**	**FY 2015 Total Cost**	**FY 2016 Unit Cost**	**FY 2016 Total Cost**		
System Quantity	2		2		2			
AN/TPY-2 Radar System								
Antenna Equipment Unit (AEU)	134.033	268.066	147.386	294.771	147.153	294.306		
Cooling Equipment Unit (CEU)	7.286	14.572	7.162	14.324	7.162	14.324		
Electronic Equipment Unit (EEU)	21.729	43.458	21.486	42.972	21.486	42.972		
Primary Power Units (PPU 2 per radar system)	14.488	28.974	14.324	28.648	14.324	28.648		
Spares								
Cooling Equipment Unit (Spare 1)	7.286	7.286						
Prime Power Unit (Spares 2 ea)	7.244	14.488						
Total		**376.844**		**380.715**		**380.250**		

Exhibit P-5a, Procurement History and Planning (Page 1)					Weapon System: BMDS AN/TPY-2 Radars		Date:	February 2011	
Appropriation (Treasury) Code/CC/BA/BSA/ItemControl Number: 0300D - Procurement, Defense-wide/BA-01/BSA-17					P-1 Line Item Nomenclature: BMDS AN/TPY-2 Radars				
WBS COST ELEMENTS	**Qty**	**Unit Cost**	**Location of PCO**	**RFP Issue Date**	**Contract Method & Type**	**Contractor & Location**	**Award Date**	**Date of First Delivery**	**Tech Data Available Now?**	**Date Revisions Available**
FY 2010										
AN/TPY-2 Radar -	**1**		MDA, HSV, AL	3QFY10	SS/FPI	Raytheon: Woburn, MA	4QFY10	2QFY13	Y	
Antenna Equipment Unit (AEU)		144.285	MDA, HSV, AL						Y	
Cooling Equipment Unit (CEU)		7.800	MDA, HSV, AL						Y	
Electronic Equipment Unit (EEU)		23.398	MDA, HSV, AL						Y	
Primary Power Units (PPU 2 ea radar system)		15.598	MDA, HSV, AL						Y	
Total Cost:		**191.081**								
FY 2011										
(Procurement Skip Year)										
FY 2012										
AN/TPY-2 Radar	**2**		MDA, HSV, AL	3QFY11	SS/FFP	Raytheon: Woburn, MA	1QFY12	3QFY14	Y	
Antenna Equipment Unit (AEU)		144.091	MDA, HSV, AL						Y	
Cooling Equipment Unit (CEU)		7.668	MDA, HSV, AL						Y	
Electronic Equipment Unit (EEU)		23.003	MDA, HSV, AL						Y	
Primary Power Units (PPU 2 ea radar system)		15.336	MDA, HSV, AL						Y	
Total Cost:		**190.098**								

Remarks:

Exhibit P-21, Production Schedule			Date: February 2011
Appropriation (Treasury) Code/CC/BA/BSA/Item Control No: 0300D - Procurement, Defense-wide/BA-01/BSA-17		**Weapons System:** BMDS AN/TPY-2 Radars	**P-1 Line Item Nomenclature:** BMDS AN/TPY-2 Radars

		PRODUCTION RATE			PROCUREMENT LEADTIMES					
ITEM	**Manufacturer's Name & Location**	**MSR**	**ECON (1-8-5)**	**MAX**	**ALT Prior to 1 Oct**	**ALT After 1 Oct**	**Initial Mfg PLT**	**Reorder Mfg PLT**	**Total**	**Unit of Measure**
AN/TPY-2 Radars	**Raytheon / MA**	1/yr	1/yr	4/yr	4 Mo	2 Mo	30 Mo		36 Mo	E

						FISCAL YEAR 2010												FISCAL YEAR 2011										
									CALENDAR YEAR 2010													CALENDAR YEAR 2011								
ITEM	**FY**	**SVC**	**QTY**	**DEL**	**BAL**	**OCT**	**NOV**	**DEC**	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**BAL**
AN/TPY-2 Radar #8	**2010**	**D**	**1**	**0**	**1**												A												1

						FISCAL YEAR 2012												FISCAL YEAR 2013										
									CALENDAR YEAR 2012													CALENDAR YEAR 2013								
ITEM	**FY**	**SVC**	**QTY**	**DEL**	**BAL**	**OCT**	**NOV**	**DEC**	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**BAL**
AN/TPY-2 Radar #8	**2010**	**D**	**1**	**0**	**1**																		1			.				0
AN/TPY-2 Radars #9, 10	**2012**	**D**	**2**	**0**	**2**			A																						2
AN/TPY-2 Radars #11, 12	**2013**	**D**	**2**	**0**	**2**															A										2

Note: Maximum production rate is based on 3 shifts, 8 hours per day, 7 days per week.

Exhibit P-21, Production Schedule			Date: February 2011
Appropriation (Treasury) Code/CC/BA/BSA/Item Control No: 0300D - Procurement, Defense-wide/BA-01/BSA-17	Weapons System: BMDS BMDS AN/TPY-2 Radars	P-1 Line Item Nomenclature: BMDS AN/TPY-2 Radars	

		PRODUCTION RATE			PROCUREMENT LEADTIMES					
ITEM	Manufacturer's Name and Location	MSR (1-8-5)	ECON (1-8-5)	MAX (3-8-7)	ALT Prior to Oct 1	ALT After 1-Oct	Initial Mfg PLT	Reorder Mfg PLT	Total	Unit of Measure
AN/TPY-2 Radars	Raytheon; Woburn, MA	1/yr	1/yr	4/yr	4 Mo	2 Mo	30 Mo		36 Mo	E

						FISCAL YEAR 2014												FISCAL YEAR 2015										
									CALENDAR YEAR 2014															CALENDAR YEAR 2015					
ITEM	FY	SVC	QTY	DEL	BAL	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	BAL
AN/TPY-2 Radar #9, 10	2012	D	2	0	2									2																0
AN/TPY-2 Radars #11, 12	2013	D	2	0	2																					2				0
AN/TPY-2 Radars #13, 14	2014	D	2	0	2			A																						2
AN/TPY-2 Radars #15, 16	2015	D	2	0	2															A										2

						FISCAL YEAR 2016												FISCAL YEAR 2017										
									CALENDAR YEAR 2016															CALENDAR YEAR 2017					
ITEM	FY	SVC	QTY	DEL	BAL	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	BAL
AN/TPY-2 Radars #13, 14	2014	D	2	0	2									2																0
AN/TPY-2 Radar #15, 16	2015	D	2	0	2																					2				0
AN/TPY-2 Radars 17, 18	2016	D	2	0	2			A																						2

Note: Maximum production rate is based on 3 shifts, 8 hours per day, 7 days per week.

Fiscal Year (FY) 2012 Budget Estimates

Missile Defense Agency (MDA)

February 2011

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MISSILE DEFENSE AGENCY
Operation and Maintenance
Fiscal Year (FY) 2012 Budget Estimates

Appropriation Summary	FY 2010 Actual	Price Change	Program Change	FY 2011 Estimate	Price Change	Program Change	FY 2012 Estimate
O&M, Defense-Wide	$0	$0	$0	$0	$0	$202.8	$202.8

PBA-19 Exhibit, Introductory Statement (PBA-19, Appropriation Highlights)

MISSILE DEFENSE AGENCY
Operation and Maintenance
Fiscal Year (FY) 2012 Budget Estimates

	FY 2010 Actual	FY 2011 Estimate	FY 2012 Estimate
2. Operational Support	**0**	**0**	**202,758**
Operational Support	0	0	202,758
Total Operation and Maintenance, Defense-Wide	**0**	**0**	**202,758**

MISSILE DEFENSE AGENCY
Operation and Maintenance
Fiscal Year (FY) 2012 Budget Estimates

	FY 2010 Actual	FY 2011 Estimate	FY 2012 Estimate
2. Operational Support	**0**	**0**	**202,758**
Operational Support	0	0	202,758
Total Operation and Maintenance, Defense-Wide	**0**	**0**	**202,758**

MISSILE DEFENSE AGENCY
Operation and Maintenance
Fiscal Year (FY) 2012 Budget Estimates

		FY 2010 Program	Price Growth Percent	Price Growth	Program Growth	FY 2011 Program	Price Growth Percent	Price Growth	Program Growth	FY 2012 Program
	Other Purchases									
922	Eqt Maint Contract	0	1.40%	0	0	0	1.50%	0	136,368	136,368
989	Other Services	0	1.40%	0	0	0	1.50%	0	66,390	66,390
999	**Total Other Purchases**	**0**		**0**	**0**	**0**		**0**	**202,758**	**202,758**
	GRAND TOTAL	**0**		**0**	**0**	**0**		**0**	**202,758**	**202,758**

MISSILE DEFENSE AGENCY
Operation and Maintenance
Fiscal Year (FY) 2012 Budget Estimates

		FY 2010 Program	Price Growth Percent	Price Growth	Program Growth	FY 2011 Program	Price Growth Percent	Price Growth	Program Growth	FY 2012 Program
	Other Purchases									
922	Eqt Maint Contract	0	1.40%	0	0	0	1.50%	0	136,368	136,368
989	Other Services	0	1.40%	0	0	0	1.50%	0	66,390	66,390
999	**Total Other Purchases**	**0**		**0**	**0**	**0**		**0**	**202,758**	**202,758**
	GRAND TOTAL	**0**		**0**	**0**	**0**		**0**	**202,758**	**202,758**

MISSILE DEFENSE AGENCY
Operation and Maintenance
Fiscal Year (FY) 2012 Budget Estimates

FY 2010	FY 2011	FY 2012	Change FY 2011/2012

PB-31R Exhibit, Personnel Summary

MISSILE DEFENSE AGENCY
Operation and Maintenance
Fiscal Year (FY) 2012 Budget Estimates

	TOTAL
FY 2011 President's Budget Request (Amended, if applicable)	
1. Congressional Adjustments	
a. Distributed Adjustments	
b. Undistributed Adjustments	
c. Adjustments to Meet Congressional Intent	
d. General Provisions	
FY 2011 Appropriated Amount	
2. War-Related and Disaster Supplemental Appropriations	
a. OCO Supplemental Funding	
3. Fact-of-Life Changes	
a. Functional Transfers	
1) Transfers In	
2) Transfers Out	
b. Technical Adjustments	
1) Increases	
2) Decreases	
c. Emergent Requirements	
1) Program Increases	
a) One-Time Costs	
b) Program Growth	
2) Program Reductions	

PB-31D Exhibit, Summary of Funding Increases and Decreases

	TOTAL
a) One-Time Costs	
b) Program Decreases	
FY 2011 Baseline Funding	
4. Reprogrammings (Requiring 1415 Actions)	
a. Increases	
b. Decreases	
Revised FY 2011 Estimate	
5. Less: Item 2, War-Related and Disaster Supplemental Appropriations and Item 4, Reprogrammings	
FY 2011 Normalized Current Estimate	
6. Price Change	
7. Functional Transfers	
a. Transfers In	
1) Transfer in from RDT&E Funding	202,758
b. Transfers Out	
8. Program Increases	
a. Annualization of New FY 2011 Program	
b. One-Time FY 2012 Increases	
c. Program Growth in FY 2012	
9. Program Decreases	
a. Annualization of FY 2011 Program Decreases	
b. One-Time FY 2011 Increases	

PB-31D Exhibit, Summary of Funding Increases and Decreases

	TOTAL
c. Program Decreases in FY 2012	
FY 2012 Budget Request	**202,758**

MISSILE DEFENSE AGENCY
Operation and Maintenance, Defense-Wide
Fiscal Year (FY) 2012 Budget Estimates

Operation and Maintenance, Defense-Wide Summary ($ in thousands)
Budget Activity (BA) 1: Operating Forces
Subactivity Group 11A

	FY 2010 Actuals	Price Change	Program Change	FY 2011 Estimate	Price Change	Program Change	FY 2012 Estimate
MDA	0	0	0	0	0	202,758	202,758

I. Description of Operations Financed:

A. Terminal High Altitude Area Defense (THAAD). THAAD is an element of the Terminal Defense Segment (TDS) of the Ballistic Missile Defense System (BMDS). The THAAD element is composed of five major components (Interceptors, Launchers, Army Navy/Transportable Radar Surveillance - Model 2 (AN/TPY-2) (THAAD Mode), THAAD Fire Control and Communications (TFCC), and Peculiar Support Equipment) which are integrated into the THAAD element and BMDS. The THAAD element provides the THAAD Interceptor Engage on AN/TPY-2 engagement sequence of the BMDS. THAAD enhances the TDS by deepening, complementing, and extending the BMDS battlespace and capability to engage ballistic targets in the late mid-course and terminal phases of their trajectory. THAAD will also be a surveillance sensor, providing sensor data to cue other elements of the BMDS. THAAD, in conjunction with the fielded PATRIOT System, provides the TDS and supports the MDA objective of enhancing the BMDS capability. In FY 2011, THAAD batteries transfer to the Army, which will fund non-BMDS sustainment such as base operations support. THAAD O&M funds a wide range of support including field and sustainment level maintenance for all THAAD deployed equipment, spares, repair parts, and maintenance capability at the location of the deployed THAAD batteries, The contractor transportation, packaging and handling of Line Replaceable Units (LRUs) is also funded for spares and repair parts. THAAD O&M also funds subject matter experts (SME) engineering support for the THAAD

peculiar equipment and THAAD radar.

B. Ballistic Missile Defense System (BMDS) Radars. This funding provides for the Software Sustainment unique to the Missile Defense mission of Upgraded Early Warning Radars and the Cobra Dane radar. FY12 funding also provides for the daily operations and sustainment of seven AN/TPY-2 radars: four forward-based radars (OCONUS), two THAAD battery radars (1 US, 1 OCONUS), and one test asset radar (PMRF/Wake Island).

II. Force Structure Summary:

A. Terminal High Altitude Area Defense (THAAD). Army force structure for THAAD is currently set at nine batteries with three launchers operated by ninety-nine soldiers and documented on Modified Table of Organization and Equipment (MTOE) number 44693G000. The battery is organized to conduct 120-day deployments (forty-five days of entry operations (radar is continuously active) and seventy-five days of 17-hour/day combat operations (radar is in a standby mode seven hours a day). The latter operational tempo can be increased with appropriate attachments and support. The battery requires support from the Army for communications, security, common supplies, and common services. THAAD peculiar supplies are routed through a contracted logistics supply and specialized maintenance chain that is not provided by the theater. This specialized non-theater chain ends in a twelve-person contractor support team that deploys with the THAAD Battery and brings its own complement of equipment. The contractor team is documented on an Army Table of Distribution and Allowances (TDA) to facilitate movement into a war zone with the battery. Interceptors are not considered part of battery force structure and are allocated by commanders in accordance with the mission and threat. Batteries will receive an additional three launchers (total of six), upgraded Army battlefield communications, and reduction to manning to ninety-five soldiers in the next several years. Batteries will be doctrinally assigned to the theater Army Air and Missile

Defense Command. Engagements will be coordinated through the theater Air Operations Center. With the provision of specialized communications and radar software, the battery will be able to communicate directly with the Ballistic Missile Defense System Command and Control, Battle Management, and Communications (C2BMC) system making it capable of performing surveillance and tracking missions in addition to its normal active defense engagement mission.

B. Ballistic Missile Defense System (BMDS) Radars. This funding provides for the UEWR/Cobra Dane Radar Software Sustainment unique to the Missile Defense mission. The Air Force is responsible for the day to day operations and Maintenance of the UEWRs and Cobra Dane Radar. FY12 funding also provides for the daily operation and sustainment of seven AN/TPY-2 radars: four forward-based radars (OCONUS), two THAAD battery radars (1 US, 1 OCONUS), and one test asset radar (PMRF/Wake Island). These services are furnished through Centralized Contractor Logistics Support (CLS) contracts. The force structure and operational tempo are documented in the AN/TPY-2 CARD dated October 2010.

MISSILE DEFENSE AGENCY
Operation and Maintenance, Defense-Wide
Fiscal Year (FY) 2012 Budget Estimates

III. Financial Summary ($ in thousands)

		FY 2011					
			Congressional Action				
A. BA Subactivities	FY 2010 Actuals	Budget Request	Amount	Percent	Appropriated	Current Estimate	FY 2012 Estimate
2. Operational Support	**0**	**0**	**0**	**n/a**	**0**	**0**	**202,758**
Operational Support	0	0	0	n/a	0	0	202,758
Total	**0**	**0**	**0**	**n/a**	**0**	**0**	**202,758**

III. Financial Summary ($ in thousands)

B. Reconciliation Summary	Change FY 2011/FY 2011	Change FY 2011/FY 2012
Baseline Funding		
Congressional Adjustments (Distributed)		
Congressional Adjustments (Undistributed)		
Adjustments to Meet Congressional Intent		
Congressional Adjustments (General Provisions)		
Subtotal Appropriated Amount		
Fact-of-Life Changes (2011 to 2011 Only)		
Subtotal Baseline Funding		
Anticipated Supplemental		
Reprogrammings		
Price Changes		
Functional Transfers		202,758
Program Changes		
Current Estimate		**202,758**
Less: Wartime Supplemental		
Normalized Current Estimate		

III. Financial Summary ($ in thousands)

C. Reconciliation of Increases and Decreases	**Amount**	**Totals**
FY 2011 President's Budget Request (Amended, if applicable)		
1. Congressional Adjustments		
a. Distributed Adjustments		
b. Undistributed Adjustments		
c. Adjustments to Meet Congressional Intent		
d. General Provisions		
FY 2011 Appropriated Amount		
2. War-Related and Disaster Supplemental Appropriations		
a. OCO Supplemental Funding		
3. Fact-of-Life Changes		
a. Functional Transfers		
1) Transfers In		
2) Transfers Out		
b. Technical Adjustments		
1) Increases		
2) Decreases		
c. Emergent Requirements		
1) Program Increases		
a) One-Time Costs		
b) Program Growth		
2) Program Reductions		
a) One-Time Costs		
b) Program Decreases		
FY 2011 Baseline Funding		
4. Reprogrammings (Requiring 1415 Actions)		
a. Increases		
b. Decreases		

III. Financial Summary ($ in thousands)

C. Reconciliation of Increases and Decreases	**Amount**	**Totals**
Revised FY 2011 Estimate		
5. Less: Item 2, War-Related and Disaster Supplemental Appropriations and Item 4, Reprogrammings		
FY 2011 Normalized Current Estimate		
6. Price Change		
7. Functional Transfers		202,758
a. Transfers In		
1) Transfer in from RDT&E Funding	202,758	
b. Transfers Out		
8. Program Increases		
a. Annualization of New FY 2011 Program		
b. One-Time FY 2012 Increases		
c. Program Growth in FY 2012		
9. Program Decreases		
a. Annualization of FY 2011 Program Decreases		
b. One-Time FY 2011 Increases		
c. Program Decreases in FY 2012		
FY 2012 Budget Request		**202,758**

IV. Performance Criteria and Evaluation Summary:

A. Terminal High Altitude Area Defense (THAAD). Performance objectives are defined in the contract as the following: the contractor will receive minimal fee by maintaining all THAAD peculiar equipment at a 70% operation rate, and a maximum fee by maintaining all THAAD peculiar equipment at a 95% operational rate with 90% as the lowest acceptable rate. Operational rate is based on the current number of pieces of THAAD equipment and not the operational readiness rate reported to the Department of the Army by the deployed THAAD units. The THAAD sustainment estimate is based on the current THAAD production/deployment schedule with two batteries deployed OCONUS in support of OCONUS deployment in a peacetime OPTEMPO. All other THAAD batteries are stationed at Fort Bliss in a peace time OPTEMPO.

Tactical Unit MTOE Systems	QTY	FY10*	QTY	FY11*	QTY	FY12
Combat Supporting Pacing Teams						
THAAD Battery 1	1	*	1	*	1	25,411
THAAD Battery 2	1	*	1	*	1	25,411
Ground OPTEMPO Measures						
Number of Vehicles	100		100		100	
Average miles per vehicle budgeted	5,000		5,000		5,000	
Average operational hours budgeted	2,900		2,900		2,900	

B. Ballistic Missile Defense System (BMDS) Radars. Upgraded Early Warning Radars (UEWR) and Cobra Dane operations and sustainment are managed by Air Force Space Command and the Air Force Technical Applications Center, respectively. Their contract vehicles have specific incentives to maintain specified operational performance values. The UEWR/Cobra Dane operations and sustainment funds are for MDA developed software support/deficiencies to maintain/enhance the Missile Defense mission for these radars.

For AN/TPY-2 radars, the contractor's performance in operations and sustainment will be measured by the radars' demonstrated operational availability Ao, defined as:

$$Ao = \frac{\text{Total Time} - \text{Non Mission Capable Time}}{\text{Total Time}}$$

"Total time" is defined as 24 hours per day times the number of days in the period of performance of the task order. Performance measurement does not include contractually-defined conditions that are outside the control of the Contractor and are exceptions to Ao downtime. For AN/TPY-2 radars, performance incentives are calculated as follows:

Target Ao = 90%	
Ao > 90%	100% of Performance Incentive Pool
Ao ≥70%, <90%	Actual Ao % achieved times pool amount
Ao < 70%	Performance Fee = 0%

V. Personnel Summary	FY 2010	FY 2011	FY 2012	Change FY 2010/ FY 2011	Change FY 2011/ FY 2012

VI. OP 32 Line Items as Applicable (Dollars in thousands):

		Change			Change		
	FY 2010	FY 2010/FY 2011		FY 2011	FY 2011/FY 2012		FY 2012
OP 32 Line	**Actuals**	**Price**	**Program**	**Estimate**	**Price**	**Program**	**Estimate**
922 Eqt Maint Contract	0	0	0	0	0	136,368	136,368
989 Other Services	0	0	0	0	0	66,390	66,390
999 Total Other Purchases	**0**	**0**	**0**	**0**	**0**	**202,758**	**202,758**
Total	**0**	**0**	**0**	**0**	**0**	**202,758**	**202,758**

Missile Defense Agency
FY 2012 Military Construction, Defense-Wide
($ in Thousands)

State/Installation/Project	Authorization Request	Approp. Request	New/ Current Mission	Page No.
Alabama				
Redstone Arsenal				
Von Braun Complex, Phase IV	58,800	58,800	C	159
Total	**58,800**	**58,800**		

1. COMPONENT	FY 2012 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
MDA		Feb 2011

3. INSTALLATION AND LOCATION	4. COMMAND	5. AREA CONSTR. COST INDEX
Redstone Arsenal, Alabama	Missile Defense Agency	0.83

6. PERSONNEL	PERMANENT			STUDENTS			SUPPORTED			
STRENGTH:	OFFICER	ENLISTED	CIVILIAN	OFFICER	ENLISTED	CIVILIAN	OFFICER	ENLISTED	CIVILIAN	TOTAL
N/A: Tenant of U.S. Army										

7. INVENTORY DATA ($000)

A. TOTAL ACREAGE	.....	N/A
B. INVENTORY TOTAL AS OF	.....	N/A
C. AUTHORIZATION NOT YET IN INVENTORY	.....	0
D. AUTHORIZATION REQUESTED IN THE FY2012	.....	58,800
E. AUTHORIZATION REQUESTED IN THE FY2013	.....	0
F. PLANNED IN NEXT THREE PROGRAM YEARS	.....	0
G. REMAINING DEFICIENCY	.....	0
H. GRAND TOTAL.	.....	58,800

8. PROJECTS REQUESTED IN THE FY2005 PROGRAM:

CATEGORY CODE	PROJECT TITLE	SCOPE	COST ($000)	DESIGN STATUS START	DESIGN STATUS COMPLETE
610-50	Von Braun Complex Phase IV	20,903 SM	58,800	AUG 10	JAN 13

9. FUTURE PROJECTS:

CATEGORY CODE	PROJECT TITLE	SCOPE	COST ($000)

10. MISSION OR MAJOR FUNCTIONS: The mission of the Missile Defense Agency is to develop and field an integrated, layered Ballistic Missile Defense System (BMDS) to defend the United States, our deployed forces, allies, and friends against all ranges of enemy ballistic missiles in all phases of flight.

11. OUTSTANDING POLLUTION AND SAFETY DEFICIENCIES:

A. Air Pollution:	N/A
B. Water pollution:	N/A
C. Occupational safety and health (OSH):	N/A

1. COMPONENT	FY 2012 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
MDA		Feb 2011

3. INSTALLATION AND LOCATION	4. PROJECT TITLE
Redstone Arsenal, Alabama	Von Braun Complex Phase IV

5. PROGRAM ELEMENT	6. CATEGORY CODE	7. PROJECT NUMBER	8. PROJECT COST ($000)
0603890C	610 50	MDA 633	58,800

9. COST ESTIMATES

ITEM	U/M	QUANTITY	UNIT COST	COST $(000)
PRIMARY FACILITIES				**$40,311**
Administrative & Support Facility	m2 (SF)	20,903 (225,000)	1,929 179	(40,311)
SUPPORTING FACILITIES				**$10,742**
Electric Service	LS			(1,933)
Emergency Generators	LS			(968)
Water, Sewer, Gas, Storm Sewer	LS			(968)
Mechanical Systems	LS			(1,074)
Paving, walks, curbs/gutters	LS			(1,289)
Site Improvement/Demo	LS			(2,041)
Information Systems	LS			(1,826)
Antiterrorism/Force Protection	LS			(645)
ESTIMATED CONTRACT COST				**$51,053**
Contingency (5.00%)				2,553
SUBTOTAL				53,606
SIOH (5.70%)				3,056
DESIGN/BUILD DESIGN COST (4.00%)				2,144
TOTAL REQUEST				58,805
ROUNDED REQUEST				$58,800
INSTALLED EQUIPMENT-OTHER APPROP				$28,300

10. DESCRIPTION OF PROPOSED CONSTRUCTION: Constructs administrative space on Redstone Arsenal for the Missile Defense Agency (MDA). The project consists of a multi-story reinforced concrete and structural steel building on concrete footings, pre-casted wall panels, and build-up roofs. Required functional areas include administrative space, computer operations, sensitive compartmentalized information facilities, special access areas, meeting rooms, access control, break rooms and storage areas. The facility will be an addition to the existing Von Braun Missile Defense campus on Redstone Arsenal. Also includes mechanical system, electrical-driven chillers, fire pumps, electrical supply and distribution, and standby generators for mission critical loads. Supporting facilities include water, domestic and storm sewers, upgrade of electrical substation, gas and electric services; fire protection and alarms systems; connectivity to telecommunications network and distributed service; parking; sidewalks; street lighting; landscaping; and site improvements. Access for handicapped will be provided. Antiterrorism force protection measures include building standoff distances, structural preventive collapse, laminated glass, lighting, bollards, control gates and berms. Provide comprehensive interior design. LEED Silver certification is a goal for the constructed facility. Air-conditioning is estimated at 1,500 tons.

11. REQUIRED: MDA 131,416 m2 ADEQUATE: 99,775 m2 SUBSTANDARD: 0 m2

PROJECT: Expand the Von Braun Complex by approximately 850 personnel to support up to 4,844 personnel assigned to MDA. The end position is to house approximately 90% of MDA's Huntsville based workforce in government owned workspace. (Current Mission)

1. COMPONENT	FY 2012 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
MDA		Feb 2011

3. INSTALLATION AND LOCATION

Redstone Arsenal, Alabama

4. PROJECT TITLE	5. PROJECT NUMBER
Von Braun Complex Phase IV	MDA 633

11. (Cont.):

REQUIREMENT: This project provides additional administrative space on Redstone Arsenal, AL., to facilitate MDA to move personnel out of leased space into government facilities to reduce cost and consolidate operations. Project constructs facilities meeting antiterrorism/force protection standards prescribed in UFC 04-010-01 and in line with the Department of Defense (DoD) objective of reducing its presence in more vulnerable off post facilities. In addition, MDA goal is to reduce operating expenses by housing most of its workforce in government owned facilities.

CURRENT SITUATION: MDA is constructing more than 3100 spaces on Redstone Arsenal to accommodate BRAC relocation and absorb some of the existing offsite workforce, however a post BRAC MDA Huntsville population of 5382, still leaves more than 1,000 personnel in non-government leased facilities in Huntsville, AL resulting in higher costs and inefficiencies in day to day operations.

IMPACT IF NOT PROVIDED: MDA personnel will continue to be located in widely separated facilities with minimal antiterrorism/force protection features. Additionally, the organizations will continue to occupy leased space that is more expensive and difficult to support. The House Armed Services Committee approved extension of the major MDA leases in Huntsville through FY15, but directed that MDA demonstrate a plan to end the leases. Consolidation of the MDA workforce on Redstone through this project will satisfy this requirement.

ADDITIONAL INFORMATION: Cost estimates are based on previous design-build projects and parametric estimates. An environmental assessment for similar actions at the installation was completed in December 2006. This project has been coordinated with the installation physical security plan and includes all physical security measures. An economic analysis has been prepared and utilized in evaluating this project. This project is the most cost-effective method to satisfy the requirement and meets the congressional intent of minimizing MDA leased space. Sustainable principles will be integrated into the design, development and construction of the project in accordance with Executive Order 13123 and other applicable laws and executive orders.

12. SUPPLEMENTAL DATA (Design Build Construction):

A. Estimated Design Date	
(1) Status:	
(a) Date Design Started	Aug 10
(b) Percent Complete As Of January 2011	5%
(c) Date 35% Design Complete	Sep 12
(d) Date Design Complete	Jan 13
(e) Parametric Cost Estimating Used To Develop Cost	Yes
(f) Type Of Design Contract	Design-Build
(2) Basis:	
(a) Standard Or Definitive Design	No
(b) Where Design Was Most Recently Used	N/A
(3) Total Cost (c) = (a) + (b) or (d) + (e)	
(a) Production Of Plans And Specifications	1428
(b) All Other Design Costs	431
(c) Total Design Costs	1859
(d) Contract	1481
(e) In-House	378

1. COMPONENT	FY 2012 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
MDA		Feb 2011

3. INSTALLATION AND LOCATION

Redstone Arsenal, Alabama

4. PROJECT TITLE	5. PROJECT NUMBER
Von Braun Complex Phase IV	MDA 633

12. SUPPLEMENTAL DATA (Cont.):

(4) Contract Award	Mar 12
(5) Construction Start	May 12
(6) Construction Completion	Apr 14
(7) LEED Rating (at design)	Silver

B. Equipment associated with this project which will be provided from other appropriations:

Equipment Nomenclature	Procuring Appropriation	Fiscal Year Appropriated or Requested	Cost ($000)
Facility Equipment	RDT&E	2013/14	11,200
Security Equipment	RDT&E	2013/14	1,600
Information Technology	RDT&E	2013/14	15,500
			28,300

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Missile Defense Agency
Fiscal Year (FY) 2012 Budget Estimates

ACRONYMS AND ABBREVIATIONS

A	
A&AS	Advisory and Assistance Services
AAMDC	Army Air Missile Defense Command
ABIR	Airborne Infrared Radar
ABL	Airborne Laser
ABS	American Bureau of Shipping
ACD	Adversary Capability Document
ACD&P	Component Development and Prototypes
ACL	Achievable Capabilities List
ADP	Arrow Deployability Program; Automated Data Processing; Adversary Delta Package
AEP	Analysis Execution Plans
AFB	Air Force Base
AFS	Avionics Flight Software
ALTBMD	Active Layered Theater Ballistic Missile Defense
AMPP	Arrow Missile Production Program
ANMC	Anniston Munitions Center
AN/TPY	Army Navy/Trasportable Radar Surveillance
AOC	Air Operations Center
AOR	Area of Responsibility
APL	Applied Physics Laboratory
ARAV	Aegis Readiness Assessment Vehicles
ARO	All Reflective Optics
ASIP	Arrow System Improvement Program; Application Specific Integrated Circuit
ASP	Advanced Signal Processor
AST	Airborne Surveillance Test Bed; Arrow System Test
ATD	Advanced Technology Development
AT&L	Acquisition, Technology and Logistics
AWS	Arrow Weapon System; AEGIS Weapon System
B	
BCA	Business Case Analysis; BMDS Capability Assessment
BC/FC	Beam Control/Fire Control
BCSC-T	BMDS Communication System Complex Transportable
BM	Battle Management; Ballistic Missile
BMD	Ballistic Missile Defense
BMDS	Ballistic Missile Defense System
BNOSC	BMDS Network Operations and Security Center
BOA	BMDS Overhead Non-imaging Infrared (ONIR) Architecture
BQT	Block Qualification Testing
BRAC	Base Realignment and Closure
BSC	Battery Support Center
BSO	BMDS Safety Officers
BSP	BMD Signal Processor
BVT	Booster Verification Test
BWO	BMDS Watch Officers

ACRONYMS AND ABBREVIATIONS

C	
C2BMC	Command and Control, Battle Management, and Communications
CCC	C2BMC Control Center
CCAR	Comprehensive Cost and Requirement System
CCM	Counter Counter-Measures
CCMWG	Common Cost Methodology Working Group
CD	Concept Descriptions; Cobra Dane
CDR	Critical Design Review
CDU	Cobra Dane Upgrade
CE	Capability Enhanced
CEC	Critical Engagement Conditions
CEM	Carrier Electronics Module
C/FFP	Cost Fixed Firm Price
CICA	Competition and Contracting Act
CLE	Command and Launch Equipment
CLS	Contractor Logistics Support
CMART	Consolidated Missile Asset Reused for Targets
CMOC	Cheyenne Mountain Operations Center
CMP	Common Message Processor
CNIP	C2BMC Network Interface Processor
COCOM	Combatant Commander
COCOM C2	Combatant Command-Command and Control
COIL	Chemical Oxygen-Iodine Laser
COMSEC	Communication Security
CONOPS	Concept of Operations
CONUS	Continental United States
COOP	Calibrated Orbiting Objects Program (COOP)
COTS	Commercial Off-The-Shelf
CPAF	Cost Plus Award Fee
CPIF	Cost-Plus-Incentive-Fee
CPFF	Cost Plus Fixed Fee
CR	Capability Release
CSS	Contracor Support Services
CTEIP	Central Test and Evaluation Investment Program
CTTO	Concurrent Test, Training and Operations
CTV	Control Test Vehicle
CY	Calendar Year
D	
DAA	Defense Appropriations Act
DACS	Divert and Attitude Control System
DCMA	Defense Contract Management Agency
DFAS	Defense Finance and Accounting Service
DIACAP	DoD Information Assurance Certification and Accreditation Process
DISA	Defense Information Systems Agency
DISN	Defense Information Systems Network
DMETS	Distributed, Multi-Echelon Training System
DoD	Department of Defense
DOT&E	Director, Operational Test and Evaluation
DREN	Defense Research Engineering Network
DSA	Digital Simulations Architecture

ACRONYMS AND ABBREVIATIONS

DSWS	David's Sling Weapon System
DT/OT	Development Test/Operational Test
DVT	Development Verification Test
DW	Defense Wide
E	
E-LRALT	Enhanced Long Range Air Launch Target
EA	Executing Agent
EADSIM	Extended Air Defense Simulation
ECI	European Communications Interface
ECS	Element Capability Specification
EDM	Engineering Development Model
EDP	Evolutionary Development Program
EHF	Extremally High Frequency
EI	Early Intercept
EIS	European Interceptor Site
EKV	Exoatmospheric Kill Vehicle
EMDR	Executive Mission Data Review
EME	Empirical Measurement Events
EMR	European Midcourse Radar
EO/IR	Electro-Optical/Infrared
EoR	Engage on Remote
EQLB	Executive Quick Look Briefing
ESI	External System Interface; Enterprise Software Initiative
ESL	External Sensors Lab
ET	Embedded Test
EUCOM	European Command
EW SPT	Early Warning Special Product Team
EWR	Early Warning Radar
EWS	Enterprise Work Stations
F	
FDE	Force Developers Evaluation
FFP	Firm Fixed Price
FFRDC	Federally Funded Research and Development Center
FPA	Focal Plane Array
FMA	Foreign Material Acquisition; Foreign Military Asset
FMS	Foreign Military Sales
FT	Flight Test
FTF	Flexibility Target Family
FTG	Flight Test GMD
FTM	Flight Test Mission
FY	Fiscal Year
FYDP	Future Years Defense Program
G	
GBI	Ground Based Interceptor
GBR-P	Ground Based Radar Prototype
GCN	Global Command Network; GMD Communications Network
GEM	Global Engagement Manager; Guidance Enhancement Missiles (PATRIOT)
GFC / C	GMD Fire Control and Communications
GFI	Government Furnish Information

ACRONYMS AND ABBREVIATIONS

GGT	Government Ground Test
GIG	Global Information Grid
GM	Ground-based Midcourse
GMD	Ground-based Midcourse Defense
GN&C	Guidance Navigation and Control
GS	Ground Systems
GTD	Ground Test Distributed
GTI	Ground Test Integrated
GTX	Ground Test (Element to Element)
H	
HACNE	High Availability Comm Node Equipment
HAENS	High Altitude Exoatmospheric Nuclear Survivability
HALO	High Altitude Observatory
HBCN	High Mobility Multipurpose Wheeled Vehicle (HMMWV) Based Communication Node
HEL	High Energy Laser
HEMP	High Altitude Electromagnetic Pulse
HIL	Human-in-the-Loop; Hardware-in-the-Loop
HWIL	Hardware-in-the-Loop
HMMWV	High Mobility Multipurpose Wheeled Vehicle
I	
IA	Information Assurance
IAI	Israel Aircraft Industries
IAM	Information Assurance Manager
IAMD	Integrated Air and Missile Defense
ICBM	Intercontinental Ballistic Missile
ICD	Interface Control Document
ICOFT	Institutional Conduct of Fire Trainer
ICSS	Interim Contractor Support System
IDF	Israel's Defense Forces
IDT	In-Flight Interceptor Communications System Data Terminal
IETM	Integrated Electronic Technical Manual
IFICS	In-Flight Interceptor Communications System
ILS	Integrated Logistics Support
IM	Insensitive Munitions
IM/FHC	Insensitive Munitions / Final Hazard Classification
IMoD	Israeli Ministry of Defense
IMP	Integrated Master Plan
IMTP	Integrated Master Test Plan
IPT	Integrated Product Team
IR	Infrared
IRBM	Intermediate Range Ballistic Missile
IRST	Infrared Search and Track
IRT	Independent Review Team
ISA&I	Israeli System Architecture and Integration
ISC	Intelligence Support Cell (MDA)
ISSE	Information System Security Engineering
ISSRB	Ignition System Safety Review Board
ISTS	Integrated Simulation and Tactical Software
IT	Integrated Test; Information Technology
ITB	Israeli Test Bed

ACRONYMS AND ABBREVIATIONS

ITP	Interceptor Technology Program
J	
JAT	Joint Analysis Teams
JDA	Japan Defense Agency
JEWL	Joint Early Warning Laboratory
JFCC-IMD	Joint Functional Component Command - Integrated Missile Defense
JHU	John Hopkins University
JNIC	Joint National Integration Center, Schriever AFB, CO
JRD	Joint National Integration Center Research and Development
JTF-GNO	Joint Task Force-Global Network Operations
JITC	Joint Interoperability Test Certification
JTIDS	Joint Tactical Information Data System
JTOC	JNIC Target Operations Center
K	
KE	Kinetic Energy
KMR	Kwajalein Missile Range
KMRSS	Kwajalein Mobile Range Safety System
KTF	Kauai Test Facility
KM	Kilometers
KV	Kill Vehicle
L	
LAN	Local Area Network
LCT	Laser Communications Terminal
LDC	Limited Defensive Capabiltiy
LGG	Light Gas Gun
LORA	Level of Repair Analysis
LOT	Launch on TADIL
LFT&E	Live Fire Test and Evaluation
LMI	Logistics Management Information
LMSSC	Lockheed Martin Space Systems Company
LRALT	Long Range Air Launched Target
LRBM	Long Range Ballistic Missile
LRS&T	Long Range Surveillance and Tracking
LSE	Launch Support Equipment
LTP	Laser Technology Program
LTPO	Lower Tier Program Office
LUT	Limited User Testing
M	
M&S	Modeling and Simulation; Materials and Structure
MAP	MDA Assurance Plan
MARC	MDA Assurance Representative
MARTI	Missile Alternative Range Target Instrument
MASINT	Measures and Signals Intelligence
MCS	Management Control System
MD	Missile Defense
MDA	Missile Defense Agency
MDEB	Missile Defense Executive Board
MDIOC	Missile Defense Integrated Operations Center

ACRONYMS AND ABBREVIATIONS

MDR	Mission Data Review
MDSE	Missile Defense System Exerciser
MDSEC	Missile Defence Space Experimentation Center
MEB	Missile Equipment Building; Mechanical Electrical Building
MER	Manpower Estimate Report
MET	Modernization Enterprise Terminal
MiDAESS	Missile Defense Agency Engineering and Support Services
MILCON	Military Construction
MIL-STD	Military Standards
MIP	Master Integration Plan
MIPS	Missile Defense Planning System
MIPR	Military Interdepartmental Purchase Request
MIS	MDSEC Interchange System
MIT	Miniature Interceptor Technology; Massachusetts Institute of Technology
MIT/LL	Massachusetts Institute of Technology, Lincoln Laboratory, Lexington, MA
MLP	Mobile Launch Platform
MMIC	Multi-Mission Integration Cell; Microwave Monolithic Integrated Circuits
MOA	Memorandum of Agreement
MOC	Missile Defense Agency Operations Center
MOST	Multiple Target Tracking Optical Sensor Array Technology
MOU	Memorandum of Understanding
MPAT	Producibility and Manufacturing Technology
MRBM	Medium Range Ballistic Missile
MRL	Multiple Rocket Launcher; Mission Requirements Letter
MRP	Missile Round Pallet
MRRB	Materiel Release Review Board
MRSS	Mobile Range Safety System
MRT	Medium Range Target
MTEPP	Master Test and Evaluation Program Plan
MTT	Missile Transport Trailer
N	
NATO	North Atlantic Treaty Organization
NAVSEA	Naval Sea Systems Command
NCA	National Command Authority
NCES	Net-Centric Enterprise Services
NCR	National Capital Region
NFIRE	Near Field Infrared Experiment
NGST	Northrop Grumman Space Technology
NORAD	North American Aerospace Defense Command
NORTHCOM	Northern Command
NIPRNET	Non-Secure Internet Protocol Router Network
NMCC	National Military Command Center
NRL	Naval Research Laboratory, Washington, DC
NTD	Near-Term Discrimination
O	
O&M	Operations and Maintenance
OCONUS	Outside of CONUS
ODA	Optical Data Analysis
ODI	Offensive/defensive Intergration

ACRONYMS AND ABBREVIATIONS

OGA	Other Government Agency
OIS	Orbital Insertion Stage
ONIR	Overhead Non-Imaging Infra-Red
OPIR	Overhead Persistent Infrared
OPLAN	Operations Plan
OPSCAP	Operations Capabilities
OSC	Operations Support Center
OSS	Off-Shore Support
OTA	Operational Test Agency
OTHR	Over The Horizon Radar
OVA	Operational Viability Assessment
P	
PA	Project Arrangement
PAA	Phased Adaptive Approach
PAM	Planning Allocation Matrix
PACOM	U.S. Pacific Command
PAC-3	Patriot Advanced Capability-3
PB	President's Budget
PBL	Performance Based Logistics
PDR	Preliminary Design Review
PDS	Post Deployment Software
PDSS	Post Deployment Software Support
PE	Program Element
PFR	Post Flight Reconstruction
PIDS	Prime Item Development Specification
PMAP	Process Mission Assurance Plan
PMRF	Pacific Missile Range Facility, Barking Sands, Kauai, HI
PMT	Pre-Mission Test
PPU	Prime Power Unit
PROCAP	Protection Capability
PRST	Pacific Range Support Team
PSN	Parallel Staging Area
PTE	Plant Estimates
PTSS	Precision Space Tracking Sensor
PTV	Propulsion Test Vehicle
PY	Prior Year
Q	
QLB	Quick Look Briefing
QSMA	Qualtiy Safety and Mission Assurance
R	
RAM	Reliability, Availability and Maintainability
RCS	Radar Cross Section
RDEC	Research, Development, and Engineering Center
RDSIS	Radar Digital Signal Injection System
RDT&E	Research, Development, Test, and Evaluation
RF	Radio Frequency
RFA	Requests for Analysis
RFI	Requests for Information
RFP	Request for Proposal

ACRONYMS AND ABBREVIATIONS

RFSG	Radio Frequency Scene Generator
RRF	Risk Reduction Flight
RST	Radar System Technology
RTO	Responsible Test Organization
RTOS	Real Time Operating System
RTS	Ronald Reagan Test Site, Kwajalein, Marshall Islands
RSA	Redstone Arsenal
RV	Reentry Vehicle
S	
SATCOM	Satellite Communications
SBIR	Small Business Innovative Research
SBIRS	Space Based Infrared System
SBX	Sea Based Test X-Band Radar
SCD	SM-3 Cooperative Development
SCR	System Capability Review
SDACS	Solid Divert Attitude Control System
SDR	System Design Review; Software Design Review
SEAR	System Engineering Assessment Report
SEBO	Systems Engineering Behavioral Objectives
SETA	Scientific Engineering and Technical Assistance
SIPRNET	Secret Internet Protocol Router Network
SIM	Simulation
SM	Standard Missile
SM-3	Standard Missile 3
SMDC	Space and Missile Defense Command, U.S. Army
SME	Subject Matter Expert
SNL	Sandia National Lab
SOLD	Simulation-Over-Live Driver
SPFR	System Post Flight Reconstruction
SRALT	Short Range Air Launch Target
SRBM	Short Range Ballistic Missile Defense
SRBMD	Short Range Ballistic Missile Defense
SRR	System Requirements Review; Software Readiness Review
SS	Sole Source, Summary Screens
SSF	Single Stimulation Framework
STARS	Strategic Target System
STRATCOM	US Strategic Command
STS	Stockpile to Target Sequence
STSS	Satellite Tracking and Surveillance System
STTR	Small Business Technology Transfer
T	
TADIL-J	Tactical Digital Information Link Joint
TC	Targets and Countermeasures
TDACS	Throttleable Divert and Attitude Controls System
TDP	Truth Data Package; Threat Data Packages
TDRD	Truth Data Requirements Document
TDS	Terminal Defense Segment
TEC	Test Execution Control
TEDAC	Test & Evaluation Data Analysis Capability
TEMP	Test and Evaluation Master Plan

ACRONYMS AND ABBREVIATIONS

TES	Theater Event System
TFCC	THAAD Fire Control and Communications
THAAD	Terminal High Altitude Area Defense
TMW	Theater Missile Warning
TOG	Technical Objectives and Goals
TOO	Test of Opportunity; Target of Opportunity
TSG	Tactical Support Groups
TTS	Transportable Telemetry Systems
T&E	Test and Evaluation
U	
UARC	University Affiliated Research Centers
UDS	Universal Documentation Status
UEWR	Upgraded Early Warning Radar
UHF	Ultra High Frequency
UID	Unique Identification
UK	United Kingdom
USFJ	United States Forces Japan
USFK	United States Forces Korea
USMTF	United States Message Text Format
USNORTHCOM	United States Northern Command
USPACOM	United States Pacific Command
USSTRATCOM	United States Strategic Command
V	
V&V	Verification and Validation
VAFB	Vandenberg Air Force Base, CA
VLS	Vertical Launching System
VV&A	Verification, Validation and Accreditation
W	
WASP	Wide-body Airborne Sensor Platform
WMD	Weapons of Mass Destruction
WSC	Wargames Support Center
WSEIT	Weapon Sys Engr & Integ Team
WSMR	White Sands Missile Range, White Sands, NM
X	
XBR	X-Band Radar
X-Lab	Experimental Laboratory
XML	Extensible Markup Language
XTR	X-band Transportable Radar

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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*				R-1 ITEM NOMENCLATURE PE 0603175C: *Ballistic Missile Defense Technology*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	164.670	132.220	75.003	-	75.003	103.844	111.712	164.378	170.851	Continuing	Continuing
WX25: *Advanced Technology Development*	162.088	-	-	-	-	-	-	-	-	0.000	162.088
MD25: *Advanced Technology*	-	127.236	72.331	-	72.331	100.060	107.404	158.384	164.631	Continuing	Continuing
ZX40: *Program-Wide Support*	2.582	-	-	-	-	-	-	-	-	0.000	2.582
MD40: *Program Wide Support*	-	4.984	2.672	-	2.672	3.784	4.308	5.994	6.220	Continuing	Continuing

Note

Beginning in FY 2012, funding for High Performance Interceptor ($91.341 million) moves from Advanced Technology (MD25) to SM-3 Block IIB Program Element 0603902C.

Beginning in FY 2012, funding for the Enterprise Sensors Laboratory ($17.500 million) moves from BMD Sensors Program Element 0603884C to the BMD Technology Program Element 0603175C.

A. Mission Description and Budget Item Justification

The Advanced Technology Development effort develops technology to address emerging threats. Enhanced Command, Control, Battle Management and Communication improves the ability of BMDS to counter raids and integrates early intercept experiments. High Performance Interceptor matures technology to reduce interceptor costs, improve reliability, and increase speed, which will enable earlier intercepts. This program element also invests in next generation technology by conducting research with universities, University Affiliated Research Centers (UARC), Federally Funded Research and Development Centers (FFRDC), small businesses and industry at all levels to address the threats we expect to face in the future.

The Agency`s Advanced Technology portfolio focuses on developing and demonstrating technology that address potential gaps in the BMDS identified by the warfighter in the Prioritized Capabilities List. Contributions to Combatant Commanders` Priorities Capabilities List include:

- Evaluate airborne and space based sensor data for applicability to the future BMDS
- Integrate and fuse sensor data for greater track accuracy
- Classify, identify, characterize, and discriminate items of interest
- Direct/control all battle management, command, and control operations in connection with response to a threat
- Engage and re-engage a threat

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	**R-1 ITEM NOMENCLATURE** PE 0603175C: *Ballistic Missile Defense Technology*

Three goals for Advanced Technology are:

- Pursue cost and operationally effective capabilities to explore and develop technologies for use against future threats
- Develop and demonstrate the maturity of the components of future BMDS architectures, in next and future generations, by conducting experiments to enable thorough assessment
- Leverage technology investments of other DoD organizations, industry, other government agencies and international partners

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	189.229	132.220	236.875	-	236.875
Current President's Budget	164.670	132.220	75.003	-	75.003
Total Adjustments	-24.559	-	-161.872	-	-161.872
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	8.809	-			
• SBIR/STTR Transfer	-0.814	-			
• Other Adjustment Detail	-32.554	-	-161.872	-	-161.872

Change Summary Explanation

The FY12 $161.872 million dollar decrease in this program element is the result of the move of High Performance Interceptor content and associated funding to the Standard Missile-3 Block IIB PE 0603902C.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603175C: *Ballistic Missile Defense Technology*	PROJECT WX25: *Advanced Technology Development*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
WX25: *Advanced Technology Development*	162.088	-	-	-	-	-	-	-	-	0.000	162.088

A. Mission Description and Budget Item Justification

Project WX25 has been transferred to Project MD25.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Title: See FY 2010 Accomplishments in Project MD25	162.088	-	-
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	162.088	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603175C: *Ballistic Missile Defense Technology*	PROJECT MD25: *Advanced Technology*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD25: *Advanced Technology*	-	127.236	72.331	-	72.331	100.060	107.404	158.384	164.631	Continuing	Continuing

A. Mission Description and Budget Item Justification

-High Performance Interceptor

-Beginning in FY 2012, this work transfers to the SM-3 Block IIB Program Element
-Enhanced Command, Control, Battle Management and Communication

-Develop airborne and space sensor tasking, cueing and data management capability in a net-centric modular architecture to handle larger raids
-Develop interfaces and conduct experiments to integrate the Airborne Infrared and the Precision Tracking Space System into the BMDS
-Develop and deliver to C2BMC advanced track algorithms and the capability to cue and reverse-cue satellite, airborne and terrestrial sensors via the Enterprise Sensors Laboratory
-Advanced Research

-Develop designs for assessing integrated hardware and software performance in representative BMDS threat scenarios
-Develop new early intercept capabilities by leveraging industry and universities research
-Develop large Focal Plane Arrays with signal-to-noise ten times higher than current Mercury Cadmium Telluride Focal Plane Arrays, and improve fabrication yield rates to greater than 40 percent
-Small Business Innovation Research Program Support

-Develop synergistic structures with multiple functions (e.g. fuel tanks or batteries that function as a load-bearing kill vehicle structure and/or protect against hostile environment) or structures/materials with embedded components (e.g. electrical, optical, power, cabling, propulsion, sub-structures, isolation, etc) for a next generation interceptor kill vehicle
-Create a sensor with sufficient field of regard, resolution and speed to support jitter suppression and image stabilization capable of sustained 10 kilohertz operations to support high speed control loops and sensitivity in the 800-1100 nanometer wavelength band

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Title: High Performance Interceptor Components	-	40.790	-
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY 2010 accomplishments is reported in prior year budget project WX25 ($21,891).			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
-Conducted high performance liquid upper stage component design verification testing to support engineering unit breadboard testing -Verified divert thruster performance for a prototype liquid divert and attitude control system -Verified attitude control system for a prototype liquid divert and attitude control system -Verified propellant tank performance for a prototype liquid divert and attitude control system -Verified pressurization system performance for a liquid divert and attitude control system. ***FY 2011 Plans:*** In FY 2011, we will implement the detailed program plan developed during FY 2010 for high performance interceptor component development. We plan near term technology demonstrations for lightweight divert and attitude control systems and axial control stages. -Prove integrated upper stage propulsion performance of a breadboard unit in a static fire test to demonstrate the integration of the pressurization system with a common bulkhead tank and multiple axial thrusters -Validate upper stage thruster performance in a static firing test at sea level to demonstrate an axial thruster performance to improve thrust level by 15 percent over breadboard thruster performance and to demonstrate a light weight thruster using ceramic matrix composite thrust chambers, reducing inert mass by 20 percent. ***FY 2012 Plans:*** Plans for FY 2012 are captured in SM-3 Blk IIB Program Element 0603902C.			
Title: Enhanced Command, Control, Battle Management and Communication ***Description:*** See Description Below ***FY 2010 Accomplishments:*** Funding for these FY2010 accomplishments is reported in prior budget year project WX25 ($59,459). -Initiated development of an Integrated Sensor Manager that integrates Airborne and Space sensors for experiments to determine impacts of these systems on raid handling -Established Enhanced Command, Control, Battle Management and Communications (EC2BMC) Investigation - awarded contracts to universities to explore Command and Control architectures -Defined functional allocation to integrate Precision Tracking Space System (PTSS) into the BMDS ***FY 2011 Plans:*** -Demonstrate experimental net-centric, service oriented architecture for both sensor resource and battle management	-	51.800	49.453

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603175C: *Ballistic Missile Defense Technology*	PROJECT MD25: *Advanced Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
-Demonstrate multi-sensor (Airborne Infrared and space sensors) signal processing capabilities to provide Command and Control, Battle Management and Communications (C2BMC) and sensor data (position, velocity, and discrimination of sufficient accuracy and low enough latency to complete ballistic missile engagements) in realistic test environments -Collect C2BMC and sensor data for the basis for BMD System Engineering technical trade studies between sensors and guided interceptors to allocate functions and performance requirements ***FY 2012 Plans:*** -Develop upgraded multi-sensor (Airborne Infrared and space sensors) tasking and signal processing capabilities to demonstrate ability to produce three-dimensional tracks with sufficient quality (position, velocity, error volumes, and latency) to complete ballistic missile engage-on-remote in realistic test environments -Conduct integrated experiments with C2BMC, Airborne Infrared (ABIR) and Space Tracking and Surveillance System (STSS) to prove Aegis Launch-On-Remote with STSS and ABIR -Develop interfaces with Precision Tracking Space System (PTSS) ground segment and the rest of the BMDS via the Enterprise Sensors Laboratory (ESL) -Investigate advanced algorithms and Command, Control, Communication, Computers, Intelligence, Surveillance and Reconnaissance net-centric modular architectures for increased raid capability -Develop advanced techniques for STSS data fusion, ABIR cueing, and Hit/Kill Assessment -Develop and deliver algorithms to C2BMC that incorporates the improved ballistic cue for mid-course sensors			
Title: Advanced Research ***Description:*** See Description Below ***FY 2010 Accomplishments:*** Funding for these FY2010 accomplishments is reported in prior year budget project WX25 ($58,881). -Continued contributions in Focal Plane Array research for large field of view infrared search and track systems -Continued development of Strained Layered Super-lattice (SLS) program for high-performance infrared focal plane arrays for SM-3 Blk IIB and Airborne Infrared (ABIR) -SLS signal to noise ratio is predicted 10 times higher than Mercury Cadmium Telluride (MCT) at the same cutoff wavelength and operating temperature -SLS is predicted to operate at 30K higher temperature which will significantly reduce the system size, weight, and power consumption; yield of SLS is expected to be greater than 40 percent, and cost much less than MCT -Continued to develop two-color 512x512 MCT focal plane arrays for SM3-Block IIA and follow-on interceptors	-	20.510	16.561

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
-Demonstrated breakthrough in MCT wafer cutoff wavelength uniformity which will significantly improve the yield -Built two integrated dewar cooler assemblies (IDCA) and will deliver for lab and flight test -Updated the design of read-out integrated circuits (ROICs) to reduce overall noise -Conducted preliminary Precision Tracking Space System analyses and trade studies leading to a System Concept and Review in 2010 -Continued development of diode pumped alkali laser technology to enable future light weight, compact, high power directed energy concepts -Continued development of cryogenically cooled diode pumped solid state laser technology for advanced track illuminator and high energy laser applications to hedge against future threats -Continued development of fiber laser beam combining technologies -Awarded three Advanced Research contracts to domestic universities for system engineering and sensor management capabilities -Completed Scalable Panels for Efficient Affordable Radar Spiral 2 radio frequency panels to improve detection range, increase number of tracking beams, and develop improved waveforms			
FY 2011 Plans: -Next Generation Radar -Build and test next generation radar components -Electro-optical infrared passive sensors -Continue two-color Mercury Cadmium Telluride long wavelength 512X512 Focal Plane Array (FPA) yield improvement and integrated dewar cooler assembly delivery for testing Demonstrate 1k x 1k Strained Layer Super-lattice (SLS) long wavelength cutoff FPAs for Precision Tracking Space System; demonstrate high yield and low cost of SLS FPAs -Demonstrate two-color SLS FPA concept and FPAs -Algorithms and Software -Algorithm development for net-centric operations and adaptive communication systems -Innovation -Receive and coordinate the technical review of White Papers generated from the Advanced Technology Broad Agency Announcements			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
-Manage new and existing awards to promulgate breakthrough technology into the BMDS ***FY 2012 Plans:*** -Continue development and improvement of Strained Layer Super-Lattice (SLS) infrared material -Test and validate FPA deliverables -Award Advanced Research contracts to domestic universities for innovative early intercept investigations -Conduct Advanced Technology Innovation BAA solicitation for identifying potentially breakthrough research on missile defense related technology			
Title: Small Business Innovation Research Program Support ***Description:*** See Description Below ***FY 2010 Accomplishments:*** Funding for these FY 2010 accomplishments is reported in prior year budget project WX25 ($9,290). -Executed the FY10 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) investment strategy including eight Research Areas, 40 SBIR topics, 9 STTR topics, and associated budgets -Awarded 127 Phase I SBIR contracts and 25 Phase 1 STTR contracts leading to 109 follow-on prototype development efforts -Directed Energy -Interceptor Technology -Radar Technology -Space Technology -Command, Control, Battle Management Communications -Modeling and Simulation -Manufacturing, Producibility, and Field Sustainability -Innovative Concepts and Special Focus Projects -Awarded 93 Phase II SBIR contracts and 16 Phase II STTR contracts intended to transition: -GATR Technologies - Deployable Satellite Communications Terminal; used following Hurricanes Katrina and Ike, in Afghanistan, South Africa, South America, and Korea -Vanguard Composites Group - Composite Flange; successfully transition to GMD silos -TREX Enterprises Corporation - Diurnal Star Tracker; schedule to be integrated into Aegis BMD	-	1.290	6.317

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
-Spectral Sciences and Physical Science - Low-thrust Plume Signature Modeling; incorporated into MDA`s modeling and simulation code -Augmented eight promising Phase II programs to advance their Technology Readiness Level and aid transition/ commercialization -Conducted Phase II Transition invitation and assessments with additional augmentations pending -Generated and received approval for FY11 SBIR/STTR investment strategy including eight Research Areas, 35 SBIR topics, four STTR topics, and associated budgets -Conducted Outreach activities to mentor small business and foster best practices to increase the likelihood of successful technologies being transitioned into the BMDS -Conducted Technology Applications Reviews and Business Focus Workshops to assist MDA-funded technology developers find and enter technology transfer opportunities beyond MDA applications ***FY 2011 Plans:*** Partial funding for these FY 2011 accomplishments is reported in budget project MD25 Advanced Research ($5,000) -Conduct Technology Applications Reviews to assist MDA-funded technology developers find and enter technology transfer opportunities beyond MDA applications -Conduct Business Focus Workshops with MDA SBIR Phase I companies to help develop a successful business model for their technology early in the development cycle -Publish the MDA Technology Applications annual report, The Spirit of Innovation, and a report on biomedical and life science technology transfer from MDA technology on the web -Administer, update, and expand MDA`s dedicated web site for technology transfer -Continue to manage and continually update the Technology Applications program`s internal data handling and tracking system to manage all aspects of the Technology Applications program including historical data -Develop research topics and solicitation for BMDS capabilities to hedge against future threat uncertainties -Execute MDA SBIR/STTR solicitation ***FY 2012 Plans:*** -Execute the FY12 Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR) MDA requirements-driven investment strategy including eight research areas, approximately 40 SBIR topics, five STTR topics, and associated budgets -Award approximately 160 Phase I SBIR and 20 Phase I STTR contracts leading to 90 follow-on prototype development efforts -Award approximately 80 Phase II SBIR and 10 Phase II STTR contracts intended to transition to C2BMC, interceptor and space systems			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
-Augment promising Phase II programs to advance TRLs and aid transition/commercialization -Conduct Phase II Transition invitation and assessments with additional augmentations pending -Generate and receive approval for FY13 SBIR/STTR investment strategy including eight Research Areas, SBIR topics, STTR topics, and associated budgets -Conduct outreach activities to mentor small business and foster best practices to increase the likelihood of successful technologies being transitioned into the BMDS -Conduct Technology Applications Reviews and Business Focus Workshops to assist MDA-funded technology developers find and enter technology transfer opportunities beyond MDA applications			
Title: Advanced Communications Technology ***Description:*** See Description Below ***FY 2010 Accomplishments:*** Funding for the FY 2010 accomplishments is reported in prior year budget project WX25 ($12,567). FY 2010 accomplishments are captured in BMD C2BMC Program Element 0603896C. ***FY 2011 Plans:*** -Commence/continue activities to enable the integration of advanced C2BMC capabilities into BMDS subsystems -Demonstrate and evaluate advanced C2BMC capabilities in live-flight test events -Continue to evolve war fighter concept of operations (CONOPS) to insert new subsystems and capabilities into the BMDS in the areas of boost phase tracking and classification, sensor resource management, weapons resource management addressing countermeasures, post-intercept debris information flow, and communication with allies and friendly nations in support of Phased Adaptive Approach capabilities -Develop and demonstrate next generation sensor netting and sensor resource management techniques -Conduct sensor netting experiments associated with tracking, integrated discrimination, sensor resource tasking, and Communications/bandwidth constraints -Develop and demonstrate advanced battle management (BM) and integrated fire control capabilities -Conduct architecture assessments of BM functions federated within C2BMC and various allied/coalition partners and friendly nations	-	12.846	-

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	**R-1 ITEM NOMENCLATURE** PE 0603175C: *Ballistic Missile Defense Technology*	**PROJECT** MD25: *Advanced Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
-Integrate the CONOPS information for advanced and emerging BMDS capabilities (such as Early Intercept and Space Tracking and Surveillance System (STSS)) into battle management constructs ***FY 2012 Plans:*** FY 2012 Plans are captured in BMD C2BMC Program Element 0603896C ($11,561)			
Accomplishments/Planned Programs Subtotals	-	127.236	72.331

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603884C: *Ballistic Missile Defense Sensors*	544.352	454.859	222.374		222.374	357.271	336.514	318.321	348.944	Continuing	Continuing
• 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	148.506	112.678	96.353		96.353	53.577	47.592	32.289	34.308	Continuing	Continuing
• 0603896C: *BMD C2BMC*	327.074	342.625	364.103		364.103	330.337	353.081	338.835	304.217	Continuing	Continuing
• 0603901C: *DIRECTED ENERGY RESEARCH*	0.000	98.688	96.329		96.329	91.953	93.134	92.304	95.003	Continuing	Continuing
• 0603902C: *STANDARD MISSILE-3 BLOCK IIB (SM-3 IIB)*	0.000	0.000	123.456		123.456	433.106	384.647	401.141	394.803	Continuing	Continuing
• 0604884C: *AIRBORNE INFRARED (ABIR)*	0.000	111.671	46.877		46.877	49.948	49.173	33.035	34.249	Continuing	Continuing

D. Acquisition Strategy

The acquisition strategy to conduct this technology development effort consists of partnering with Federally Funded Research and Development Centers and University Affiliated Research Centers. MDA will also award contracts to industry and universities via the Advanced Technology Innovation Broad Agency Announcement and competitive procurements.

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603175C: *Ballistic Missile Defense Technology*	PROJECT ZX40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
ZX40: *Program-Wide Support*	2.582	-	-	-	-	-	-	-	-	0.000	2.582

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11

A. Mission Description and Budget Item Justification

Project ZX40 has been transferred project MD40.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	2.582	-	-
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	2.582	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603175C: *Ballistic Missile Defense Technology*	PROJECT MD40: *Program Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD40: *Program Wide Support*	-	4.984	2.672	-	2.672	3.784	4.308	5.994	6.220	Continuing	Continuing

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). Includes Government Civilians, Advisory and Assistance Services, and Federally Funded Research and Development Contracts (FFRDC) providing integrity and oversight of the BMDS as well as supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2 after FY 2011), such as physical and technical security, legal services, travel and agency training, office and equipment leases, rents and utilities, data and unified communications support, supplies and maintenance, and similar operating expenses. Also includes legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.
In keeping with congressional intent, PWS is allocated among the PEs on a pro-rata basis and therefore fluctuates by year based on the total MDA budget and the individual PE`s budget amount.

Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($2,275).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	-	4.984	2.672
Description: See Description Below			
FY 2010 Accomplishments: Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($2,275).			
FY 2011 Plans: See Paragraph A, Mission Description and budget item justification			
FY 2012 Plans: See Paragraph A, Mission Description and budget item justification			
Accomplishments/Planned Programs Subtotals	-	4.984	2.672

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	**R-1 ITEM NOMENCLATURE** PE 0603175C: *Ballistic Missile Defense Technology*	**PROJECT** MD40: *Program Wide Support*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603274C: *SPECIAL PROGRAMS - MDA TECHNOLOGY*

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	-	-	61.458	-	61.458	37.866	41.007	43.940	46.434	Continuing	Continuing
MD81: *Special Programs - MDA Technology*	-	-	61.458	-	61.458	37.866	41.007	43.940	46.434	Continuing	Continuing

Note

NA

A. Mission Description and Budget Item Justification

NA

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	61.458	-	61.458
Total Adjustments	-	-	61.458	-	61.458
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment Detail	-	-	61.458	-	61.458

Change Summary Explanation

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603274C: *SPECIAL PROGRAMS - MDA TECHNOLOGY*	PROJECT MD81: *Special Programs - MDA Technology*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD81: *Special Programs - MDA Technology*	-	-	61.458	-	61.458	37.866	41.007	43.940	46.434	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Title: Special Programs	-	-	61.458
Description: See Description Below			
FY 2010 Accomplishments: NA			
FY 2012 Plans: NA			
Accomplishments/Planned Programs Subtotals	-	-	61.458

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*				R-1 ITEM NOMENCLATURE PE 0603901C: *DIRECTED ENERGY RESEARCH*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	-	98.688	96.329	-	96.329	91.953	93.134	92.304	95.003	Continuing	Continuing
MD69: *Directed Energy Research*	-	95.398	92.643	-	92.643	88.390	89.325	88.764	91.371	Continuing	Continuing
MD40: *Program-Wide Support*	-	3.290	3.686	-	3.686	3.563	3.809	3.540	3.632	Continuing	Continuing

Note

In FY11 the Boost Defense program transitioned from a weapon system development program to a science and technology program; therefore the associated funding transferred to the Directed Energy Research program element, 0603901C in FY11.

A. Mission Description and Budget Item Justification

The Missile Defense Agency (MDA) will conduct research into the transmission and control of directed energy through and above the atmosphere. The research will include investigation of multiple high energy laser technologies, characterization of the atmosphere as it relates to directed energy propagation, improving beam control, and improving modeling and simulation. A main objective of the program is to anchor beam propagation models for both the Air Force and Missile Defense applications as well as testing the operation and lethality of lasers in the atmosphere. The agency will work with the Director of Defense Research and Engineering and High Energy Laser Joint Technology Office in a systems engineering based strategy for the research, development, test and evaluation of high energy laser technologies.

In FY 2011, the agency will pursue additional directed energy technologies for testing and use against projected threats while continuing to seek opportunities to integrate concepts into the aircraft laser test platform for experimentation. An advanced missile defense technology development program is part of the MDA strategy to develop emerging and maturing technologies.

The Directed Energy Research contributions to the Combatant Commanders Prioritized Capabilities List include:

- Engage and re-engage a threat to include simple and advanced air and cruise missiles, Short Range Ballistic Missiles (SRBM), Medium Range Ballistic Missiles (MRBM), Intermediate Range Ballistic Missiles (IRBM) and Intercontinental Ballistic Missiles (ICBM)

The primary goals of the Directed Energy Research Program are to: perform lethality demonstrations using additional target types, improve acquisition, tracking and pointing; collect data from boundary-layer turbulence; develop advanced adaptive optics; control and mitigate contamination; compensate for thermal blooming; and explore and develop Diode Pumped Alkali Laser System (DPALS). DPALS technology offers a path forward to high efficiency, electrically-driven, compact, light-weight High Energy Lasers (HEL); advanced technologies that address future threats. The successful completion of DPALS would open the door to a game-changing laser technology that promises to greatly enhance the utility of high power lasers for missions of interest to MDA and DoD. MDA plans to measure DPALS progress using Knowledge Points (KP).

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	**R-1 ITEM NOMENCLATURE** PE 0603901C: *DIRECTED ENERGY RESEARCH*

- KP1 is a low power continuous operation DPALS that MDA plans to demonstrate in the second quarter of FY 2011
- KP2 is a medium power continuous operation DPALS that MDA plans to demonstrate in the second quarter of FY 2011

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	-	98.688	101.371	-	101.371
Current President's Budget	-	98.688	96.329	-	96.329
Total Adjustments	-	-	-5.042	-	-5.042
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment Detail	-	-	-5.042	-	-5.042

Change Summary Explanation

The FY 2012 $5.042 million dollar decrease is the result of MDA programmatic changes.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603901C: *DIRECTED ENERGY RESEARCH*	PROJECT MD69: *Directed Energy Research*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD69: *Directed Energy Research*	-	95.398	92.643	-	92.643	88.390	89.325	88.764	91.371	Continuing	Continuing

A. Mission Description and Budget Item Justification

Following the planned Airborne Laser Test Bed (ALTB) testing in FY 2010, the Director of Defense Research and Engineering determined the ALTB aircraft is cost effective as a science and technology test bed for high power laser research and development. The agency will maintain the ALTB aircraft as a test bed for flight and ground tests to characterize lethality, high energy laser beam propagation, anchor system models for both Air Force and Missile Defense applications and a Diode Pumped Alkali Laser System (DPALS) and other directed energy tests. MDA will also test the operation and lethality of lasers in the atmosphere. The Airborne Laser Test Bed (ALTB) aircraft has two laser mounts and optical beam paths on the aircraft. The Chemical Oxygen Iodine Laser (COIL) occupies one mount while the Surrogate High Energy Laser (sHEL) occupies the other. The sHEL bench can be replaced with other high efficiency, electrically-pumped laser systems; advanced technologies that the program is currently investigating. MDA will place new laser systems, such as DPALS, on the mount formerly used for the sHEL.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Title: Directed Energy Research	-	95.398	92.643
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY2010 accomplishments are reported in prior year budget project WX19, Airborne Laser Capability Development, in Program Element 0603883C, Boost Defense Segment ($167,608) -Completed ALTB Technology Demonstrator lethal demonstration - This demonstrated ALTB capability to negate a threat representative boosting ballistic missile (completed Feb 10) -Conducted additional lethal demonstration events through 4th Quarter of FY 2010 to further evaluate geometries and ranges of the current ALTB configuration, followed by system characterization, support, and development activities -Closed out technology demonstrator development contract (closeout of contractual requirements) -Completed engagement against a Low Power Missile Alternative Range Target Instrument (MARTI) - validated and characterized Low Power (using the Surrogate High Energy laser) ALTB performance against boosting targets -Demonstrated High Energy Laser (HEL) performance Internal/External on the Aircraft in Flight - demonstrated functionality of the optical system with the HEL on the aircraft in flight -Completed engagement against a High Power Missile Alternative Range Target Instrument (MARTI) - validated and characterized High Power (using High Energy Laser) ALTB performance against boosting targets Maintained ALTB chemical operations and initiated post lethal demonstration ground test program to further characterize performance:			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603901C: *DIRECTED ENERGY RESEARCH*	PROJECT MD69: *Directed Energy Research*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
-Completed High Energy Laser power tuning/optimization testing, for increases in High Energy Laser power to provide a longer range kill capability -Completed wavefront analysis to provide a longer range kill capability -Completed Beam Control/Fire Control adjustments to improve jitter and pointing accuracy in order to engage ballistic missiles at greater range Conducted sustainment activities to maintain ALTB: -Sustained the ALTB (Laser, Beam Control/Fire Control, and Battle Management subsystems) -Provided Quality Safety and Mission Assurance (QSMA) operations to ensure compliance with requirements for design, test, manufacturing, quality, safety and reliability -Continued implementation of ALTB program security requirements -Published Adversary Data Package Addenda reflecting intelligence assessment updates -Produced and updated threat data to support demonstration of ALTB capability to destroy a boosting missile flight -Explored beam propagation to anchor models and simulations for both Air Force and Missile Defense applications Industrial Base: -Continued development of advanced optics, coatings, and substrates to enable higher power/increased reliability laser operations -Maintained optics testing capabilities while testing new optics, materials, and coatings to maintain ready spares/aircraft availability -Continued improvements to bulkhead window production capability to enable higher power/longer and safer High Energy Laser (HEL) operations Combined Test Force: -Planned for and supported ALTB maintenance activities -Planned for and supported ground and flight test activities for the ALTB Characterization and Capability Demonstration phase: system characterization and adjunct missions -Evaluated the propagation and lethality of lasers in the atmosphere -Created and presented safety documents to the test wing safety review boards Lethality and Survivability:			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603901C: *DIRECTED ENERGY RESEARCH*	PROJECT MD69: *Directed Energy Research*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
-Continued intelligence, lethality data collection, assessments and evaluation Diagnostics/Instrumentation: -Ensured dedicated Airborne Diagnostic Target (ADT) was available for use during additional flight tests in FY 2010 ***FY 2011 Plans:*** -MDA will transition the Airborne Laser Test Bed (ALTB) aircraft to a national test platform for testing advanced directed energy technologies for missile defense -Working with Director of Defense Research and Engineering and the High Energy Laser Joint Technology Office, we will use the aircraft platform in flight and ground tests to characterize high-energy laser beam propagation -Characterize the effects of atmospheric propagation, boundary layer and jitter effects with varying engagement geometries -Field test data for model validation and verification -Test platform for integrated laser weapon system demonstrations -Anchor models for airborne directed energy assets -Investigate advanced technologies to increase efficiency of beam control -Investigate software algorithms for improvements to beam control and fire control -With the Joint Technology Office, apply directed energy technologies against current threats -Develop and experiment with diode-pumped gas lasers, fiber lasers, solid state and advanced high-power laser optics -Investigate lethality, counter-counter measures, beam propagation, modeling, laser beam combining, and additional innovative areas -Conduct analysis of alternatives to select out-year directed energy investments ***FY 2012 Plans:*** -MDA will continue to use the Airborne Laser Test Bed as a national test platform for testing advanced directed energy technologies for the Department of Defense (DoD) -Continue to use the aircraft in flight and ground tests to characterize laser beam propagation and effects -Continue to characterize the effects of atmospheric propagation, boundary layer and jitter effects for additional engagement scenarios -Collect field test data for model validation and verification			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603901C: *DIRECTED ENERGY RESEARCH*	PROJECT MD69: *Directed Energy Research*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
-Conduct experiments for integrated laser weapon system demonstration against additional DoD targets -Mature models for airborne directed energy assets -Continue investigating technologies to improve beam control capabilities -Implement software algorithms for improvements to beam control and fire control -Continue to explore and develop directed energy technologies for use against current and future threats. The program will continue developing Diode Pumped Alkali Lasers (DPALs) and demonstrate laser power scaling in a series of knowledge point demonstrations. -Conduct power scaling experiments with diode-pumped gas lasers, fiber and solid state lasers and advanced high-power laser optics -Complete knowledge point demonstration - characterize DPALs breadboard power and thermal systems -Continue investigating lethality, countermeasures, beam propagation, modeling, laser beam combining as well as investigate additional innovative areas -The successful completion of these knowledge point demonstrations would open the door to a new type of laser technology that promises to greatly enhance the utility of high power lasers for missions of interest to MDA and DoD			
Accomplishments/Planned Programs Subtotals	-	95.398	92.643

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603175C: *Ballistic Missile Defense Technology*	164.670	132.220	75.003		75.003	103.844	111.712	164.378	170.851	Continuing	Continuing
• 0603883C: *Ballistic Missile Defense Boost Defense Segment*	172.419	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	172.419
• 0603888C: *Ballistic Missile Defense Test and Targets*	737.863	1,113.425	1,071.039		1,071.039	898.680	790.906	787.113	878.215	Continuing	Continuing

D. Acquisition Strategy

MDA`s fiscal year FY 2012 budget submission reflects an emphasis on boost phase research and development. A main objective of the Airborne Laser Test Bed (ALTB) is to anchor beam propagation models for both Air Force and Missile Defense applications as well as testing the operation and lethality of lasers in the atmosphere. The acquisition strategy to conduct this technology development effort consists of three pillars. First, leverage the technical expertise of National Laboratories, Federally Funded Research and Development Centers and University Applied Research Centers. Second, continue to leverage relevant existing

contracts within limits of the Competition and Contracting Act (CICA) taking into account contractor past performance, scope, ceiling and period of performance. The existing Airborne Laser Test Bed (ALTB) prime contract will continue but with a focus on reducing the level of support required as a Science and Technology (S&T) test bed. The program will identify activities that will transition from the contractor in order to maximize efficiencies and ensure ALTB program affordability. This transition of functions supports the Air Force industrial base and other Air Force high energy laser programs. Third, for new technology initiatives, seek industry solutions via the Advanced Technology Broad Agency Announcement for competitive procurements.

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603901C: *DIRECTED ENERGY RESEARCH*	PROJECT MD40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	3.290	3.686	-	3.686	3.563	3.809	3.540	3.632	Continuing	Continuing

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). Includes Government Civilians, Advisory and Assistance Services, and Federally Funded Research and Development Contracts (FFRDC) providing integrity and oversight of the BMDS as well as supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2 after FY 2011), such as physical and technical security, legal services, travel and agency training, office and equipment leases, rents and utilities, data and unified communications support, supplies and maintenance, and similar operating expenses. Also includes legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.
In keeping with congressional intent, PWS is allocated among the PEs on a pro-rata basis and therefore fluctuates by year based on the total MDA budget and the individual PE`s budget amount.

The Budget project for this PE did not exist in Program Wide Support in FY2010.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	-	3.290	3.686
Description: See Description Below ***FY 2010 Accomplishments:*** The Budget Project for this PE did not exist in Program Wide Support in FY2010 ***FY 2011 Plans:*** See Paragraph A, Mission Description and budget item justification ***FY 2012 Plans:*** See Paragraph A, Mission Description and budget item justification			
Accomplishments/Planned Programs Subtotals	-	3.290	3.686

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	**R-1 ITEM NOMENCLATURE** PE 0603901C: *DIRECTED ENERGY RESEARCH*	**PROJECT** MD40: *Program-Wide Support*

E. Performance Metrics

NA

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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*				R-1 ITEM NOMENCLATURE PE 0603902C: *STANDARD MISSILE-3 BLOCK IIB (SM-3 IIB)*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	-	-	123.456	-	123.456	433.106	384.647	401.141	394.803	Continuing	Continuing
MD70: *Standard Missile-3 Block IIB (SM-3 IIB)*	-	-	118.876	-	118.876	416.857	369.406	386.241	380.173	Continuing	Continuing
MD40: *Program-Wide Support*	-	-	4.580	-	4.580	16.249	15.241	14.900	14.630	Continuing	Continuing

Note

The SM-3 Blk IIB program is a new Program Element beginning in FY 2012. FY 2010 and FY 2011 High Performance Interceptor and Propulsion Technology efforts were contained in PE 0603175C (FY 2010 $21.897 million and FY 2011 $40.790 million) and 0603890C (FY 2010 $2.287 million and FY 2011 $6.354 million).

A. Mission Description and Budget Item Justification

The Standard Missile SM-3 Block IIB is a significant element of the layered Intercontinental Ballistic Missile (ICBM) defense of our homeland by serving as the first tier of a two tier homeland defense system. Contributions to Combatant Commanders Prioritized Capabilities list include:

Engage a threat Intercontinental Ballistic Missile (ICBM)
Engage a threat Intermediate Range Ballistic Missile (IRBM)
Engage a threat Medium Range Ballistic Missile (MRBM)

The goals of the SM-3 Blk IIB program are:
1. Develop an operational, hit-to-kill missile to be fielded in the fiscal year 2020 time frame to counter first generation Intercontinental Ballistic Missiles (ICBM) targeted at the US homeland early in their flight profile and serve as a significant element of the layered defense of the U.S. Homeland. Matched against regional medium-range and intermediate range ballistic missiles, the SM-3 Blk IIB missile will defend a greater area than the SM-3 IIA. The SM-3 Blk IIB will be integrated into the Aegis BMD 5.1 Weapon System using Engage on Remote, leveraging the BMD distributed sensor architecture and Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance (C4ISR) network of 2020.

2. To reduce technical and programmatic risk, begin by developing and testing key component technologies to increase the speed of the missile and ensure flexible energy management to engage targeted ballistic missiles early in their trajectory. Our goal is to increase the Technology Readiness Level (TRL) of key components to a level of 5-6 by FY 2013.

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	**R-1 ITEM NOMENCLATURE** PE 0603902C: *STANDARD MISSILE-3 BLOCK IIB (SM-3 IIB)*

3. Competitively award three contracts with potential prime contractors to define missile concepts, assess technology risk, and complete system level trade studies in preparation for the Product Development Phase. From these three vendors, conduct a limited competition to select the Industry Team that will execute the Product Development contract that will begin in fiscal year 2013.

4. Establish the technical and programmatic foundation for developing and procuring the operational system.

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	-	-	123.456	-	123.456
Total Adjustments	-	-	123.456	-	123.456
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment Detail	-	-	123.456	-	123.456

Change Summary Explanation

The High Performance Interceptor funding and associated content from PE 0603175C was moved to this PE and combined with the Propulsion Technology content and funding from PE 0603890C to establish this Standard Missile-3 Block IIB (SM-3 Blk IIB) PE.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603902C: *STANDARD MISSILE-3 BLOCK IIB (SM-3 IIB)*	PROJECT MD70: *Standard Missile-3 Block IIB (SM-3 IIB)*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD70: *Standard Missile-3 Block IIB (SM-3 IIB)*	-	-	118.876	-	118.876	416.857	369.406	386.241	380.173	Continuing	Continuing

A. Mission Description and Budget Item Justification

During the Technology Development phase, MDA will execute a two-pronged strategy to reduce the technical risk and plan for the Product Development phase. The SM-3 Blk IIB will pursue component technology development with component vendors to mature key enabling technologies to a Technology Readiness Level (TRL) of 5-6 by the end of FY 2013. For example, investments in lighter weight structures and materials to reduce inert mass will increase missile velocity. Other opportunities include investments in advanced seeker technologies to increase kill vehicle acquisition range thus improving threat missile containment. In parallel, MDA will competitively award three concept development and program planning contracts to define and assess viable and affordable missile configurations, conduct trade studies, and define an executable development plan. In these contracts, we are assessing alternative missile architectures and technologies to define the trade space across cost, risk, and missile performance and to establish missile requirements that are feasible and affordable. The engineering trade space includes alternative configurations for booster to enable higher burnout velocities, larger diameter missiles and resulting modifications to the MK41 VLS launcher, rocket propellants, missile structures, control mechanisms, missile communication concepts to enable communication with multiple sensors over several frequencies, kinetic warhead seeker, and kinetic warhead divert and attitude control. Another key aspect of the trade studies and technology development is to analyze and define a larger canister and missile threat that is compatible with the current MK 41 launcher used on Aegis ships to ensure compatibility with Aegis Ashore and Afloat. This comprehensive strategy of technology investments to reduce risk, exploit technology opportunities, and engage industry early will provide the foundation for executable plans for the product development phase. The SM-3 Blk IIB program enters the Product Development Phase in FY 2013 after a limited competition among the three concept development contractors to support fielding in the 2020 time frame.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Title: SM-3 Block IIB	-	-	118.876
Description: See Description Below			
FY 2010 Accomplishments: The High Performance Interceptor funding and associated content from PE 0603175C was moved to this PE and combined with the Propulsion Technology content and funding from PE 0603890C to establish this Standard Missile-3 Block IIB (SM-3 Blk IIB) PE. FY 2010 High Performance Interceptor and Propulsion Technology efforts were contained in PE 0603175C (FY 2010 $21,897) and 0603890C (FY 2010 $2,287).			
FY 2011 Plans: FY 2011 High Performance Interceptor and Propulsion Technology efforts were contained in PE 0603175C (FY 2011 $40,790) and 0603890C (FY 2011 $6,354).			
FY 2012 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603902C: *STANDARD MISSILE-3 BLOCK IIB (SM-3 IIB)*	PROJECT MD70: *Standard Missile-3 Block IIB (SM-3 IIB)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
-Conduct divert and attitude control system component technology development and testing to reduce the risk associated with developing a high velocity, large divert missile that meets SM-3 Blk IIB performance goals. -Conduct missile electronics component design verification testing to reduce risk for meeting key performance standards such as increased seeker sensitivity and HAENS survivability. -Conduct lightweight structural component design verification testing to demonstrate the ability to produce and incorporate lightweight components into the SM-3 Blk IIB missile. -Continue interceptor system engineering trades to support product development to refine achievable performance within risk, cost and schedule goals. -Continue to develop missile digital models and simulations to support comprehensive missile and system trades and definition of SM-3 Blk IIB performance requirements. -Begin development of enlarged canister and launcher module for the MK 41 Vertical Launching System in support of integrating a larger diameter missile onto the Aegis BMD ship. -Complete development of RFP package and begin source selection for limited competition for Product Development Phase that will begin in early FY 2013.			
Accomplishments/Planned Programs Subtotals	-	-	118.876

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603175C: *Ballistic Missile Defense Technology*	164.670	132.220	75.003		75.003	103.844	111.712	164.378	170.851	Continuing	Continuing
• 0603892C: *BMD AEGIS*	1,418.992	1,467.278	960.267		960.267	957.992	1,001.510	970.607	1,033.710	Continuing	Continuing

D. Acquisition Strategy

MDA`s fiscal year 2012 budget submission reflects an emphasis on early intercept research and development. The acquisition strategy to conduct this technology development effort consists of three focus areas. First, leverage the technical expertise of Federally Funded Research and Development Centers, University Applied Research Centers, Universities and government laboratories. Second, continue to leverage relevant existing contracts within the limits of Competition and Contracting Act taking into account contractor past performance, scope, ceiling and period of performance. Third, for new technology risk reduction initiatives, seek industry solutions via the Advanced Technology Broad Agency Announcement and competitive procurements. MDA will also competitively award three concept definition and program planning contracts to missile integration contractors to define viable and affordable missile configurations, conduct interceptor level trades, anchor technology assessments, benchmark performance, identify risks and mitigation strategies, and define an executable product development program. One of the contractors will be selected via a limited competition to complete the Product Development beginning in FY 2013.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603902C: *STANDARD MISSILE-3 BLOCK IIB (SM-3 IIB)*	PROJECT MD70: *Standard Missile-3 Block IIB (SM-3 IIB)*

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603902C: *STANDARD MISSILE-3 BLOCK IIB (SM-3 IIB)*	PROJECT MD40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	-	4.580	-	4.580	16.249	15.241	14.900	14.630	Continuing	Continuing

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). Includes Government Civilians, Advisory and Assistance Services, and Federally Funded Research and Development Contracts (FFRDC) positions supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat and to maintain integrity and oversight of the BMDS. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2 after FY 2011), such as physical and technical security, legal services, travel and agency training, office and equipment leases, rents and utilities, data and unified communications support, supplies and maintenance, and similar operating expenses. Also includes legal settlements, and foreign currency fluctuations on a limited number of foreign contracts. In keeping with congressional intent, PWS is allocated among the PEs on a pro-rata basis and therefore fluctuates by year based on the total MDA budget and the individual PE`s budget amount.

The budget project in this PE did not exist in program wide support in FY2010.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	-	-	4.580
Description: See Description Below			
FY 2010 Accomplishments: The budget project in this PE did not exist in program wide support in FY2010.			
FY 2011 Plans: The budget project in this PE did not exist in program wide support in FY2011.			
FY 2012 Plans: See paragraph A, Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	-	4.580

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 3: *Advanced Technology Development (ATD)*	R-1 ITEM NOMENCLATURE PE 0603902C: *STANDARD MISSILE-3 BLOCK IIB (SM-3 IIB)*	PROJECT MD40: *Program-Wide Support*

E. Performance Metrics

NA

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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	690.054	436.482	290.452	-	290.452	318.745	309.894	340.969	320.638	Continuing	Continuing
BX07: *Terminal High Altitude Area Defense (THAAD) Block 2.0*	576.337	-	-	-	-	-	-	-	-	0.000	576.337
EX07: *Terminal High Altitude Area Defense (THAAD) Block 5.0*	17.129	-	-	-	-	-	-	-	-	0.000	17.129
XX07: *Terminal High Altitude Area Defense (THAAD) Sustainment*	36.937	-	-	-	-	-	-	-	-	0.000	36.937
MD07: *THAAD*	-	420.463	276.667	-	276.667	302.951	293.312	323.739	304.668	Continuing	Continuing
WX06: *Patriot Advanced Capability-3 (PAC-3)*	20.961	-	-	-	-	-	-	-	-	0.000	20.961
MD06: *Patriot Advanced Capability-3 (PAC-3)*	-	1.200	1.230	-	1.230	1.182	1.138	1.153	1.239	Continuing	Continuing
ZX40: *Program-Wide Support*	38.690	-	-	-	-	-	-	-	-	0.000	38.690
MD40: *Program-Wide Support*	-	14.819	12.555	-	12.555	14.612	15.444	16.077	14.731	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Missile Defense Agency is developing and fielding a range of land based terminal capabilities to counter Short Range Ballistic Missiles (SRBMs) to protect forces deployed abroad and allies. The land based SRBM defense capabilities of BMDS consist of the PATRIOT Advanced Capability-3 (PAC-3) and Terminal High Altitude Area Defense (THAAD). THAAD is also capable of countering Medium-Range Ballistic Missiles (MRBM) to protect deployed forces, critical assets on allied territory, and population centers. THAAD is a rapidly transportable capability that will enhance the ability of Combatant Commanders in intercepting SRBM and MRBM threats using hit-to-kill technologies. The THAAD missile is uniquely designed to intercept targets both inside and outside the Earth`s atmosphere.

The Terminal Defense Segment (TDS) Program Element (PE) funds the land based terminal-related element portions of Regional Defense Capabilities, Sustainment, and other Terminal-related mission area investment activities. The Ballistic Missile Defense System (BMDS) elements in terminal defense pursue development and selective upgrades of interceptor defense capabilities that engage short to medium-range ballistic missiles in the late mid-course and terminal phase of their trajectory. The elements have the capability to engage and negate ballistic missiles and asymmetric threats in both the late mid-course (outside the atmosphere) and terminal phases (inside the atmosphere) of their trajectory, adding significant capability to the BMDS as the threat missiles transition from the mid-course to terminal phase.

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*

Ballistic Missile Defense (BMD) Systems Engineering develops System Description and Document System Specifications that drive designing, building, integrating, and testing THAAD with BMDS components. The specifications and function flow down optimize performance and further ensure the assessment of the designed BMD System with ground and flight testing. Compliance of THAAD element to BMD System level requirements is monitored in a series of requirements and design reviews both at the system and element levels. Further, the Technical Baseline management process ensures and the Element Chief Engineers certify element compliance with allocated BMD System requirements.

MDA Element testing is based on an integrated, comprehensive, and phased test program. THAAD testing is reflected in this Program Element (PE). This PE also funds THAAD participation in the consolidated MDA-wide System Test Program and the resources for the planning, design, execution, and management of THAAD in BMD System testing in accordance with the BMDS Test Policy. This applies to all Flight, Integrated Ground, and Distributed Ground Tests and Post-test analysis and reconstructions listed in the Integrated Master Test Plan (IMTP). The THAAD investment in compliance with the IMTP across the three projects (BX07, EX07, MD07) is as follows ($M): FY 2011- $81.0; FY 2012- $79.6; FY 2013- $70.8; FY 2014- $59.2; FY 2015- $68.5; FY 2016- $68.0; TOTAL- $427.1.

The THAAD element integrates five major components (Interceptors, Launchers, Army Navy/Transportable Radar Surveillance - Type 2 (AN/TPY-2) Radars, THAAD Fire Control and Communication (TFCC), and THAAD-Peculiar Support Equipment) into the BMDS. The THAAD interceptor is a certified round that is propelled by a single-stage, solid-propellant rocket booster. The kill vehicle possesses a divert and attitude control system and an infrared seeker used in destroying its target through hit-to-kill technology. The THAAD Launcher consists of the U.S. Army M1120 Heavy Expanded Mobility Tactical Truck-Load Handling System variant that transports an integrated interceptor round pallet and supports and secures eight ready-to-launch interceptors. The AN/TPY-2 Radar is an X-Band, solid state, phased array radar capable of tracking multiple threats and multiple interceptors during engagements. The AN/TPY-2 Radar uses fence, volume, and cued search modes and provides surveillance, acquisition, track, discrimination, interceptor communications, and hit assessment data collection for the fire control. The AN/TPY-2 Radar hardware is a transportable system composed of the antenna equipment unit, electronics equipment unit, cooling equipment unit, and the prime power unit. The THAAD Fire Control and Communication (TFCC) is composed of the Tactical Operations Station, the Launch Control Station, and the Station Support Group. These three components together are called the Tactical Station Group (TSG). A THAAD Fire Control and Communication (TFCC) includes two TSGs. The TFCC provides the engagement planning, fire control, coordination, execution, and communications necessary to fulfill the THAAD mission in a coherent and fully integrated fashion. It is interoperable with C2BMC and external air and missile defense and intelligence systems and agencies that are integrated into the BMDS.

Research, Development, Test & Evaluation (RDT&E):

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*

The THAAD element contributes to the Ballistic Missile Defense System (BMDS) by providing a capability for THAAD Interceptor to engage with Army Navy/ Transportable Radar Surveillance-Type 2 (AN/TPY-2) (THAAD Mode). When integrated into the BMDS with the BMDS Command and Control/Battle Management and Communications (C2BMC), Aegis BMD and PATRIOT Systems, the rapidly deployable THAAD element improves the Ballistic Missile Defense Systems (BMDS) overall effectiveness by engaging threat ballistic missiles in the late mid-course and terminal phases of their trajectory.

Baseline Capability Development (BCD) (THAAD 1.0) (formerly Block 2.0) and Sustainment: THAAD incremental development began with the design and development of fundamental capability against short-to-medium-range Ballistic Missiles (BMs) and asymmetric threats inside and outside the atmosphere. This initial phase allows other BMDS Elements with Link 16 compatibility (Aegis BMD, PATRIOT) the capability to conduct engagement coordination with THAAD. THAAD development added and will test additional radar discrimination algorithms, added Common Data Link Interface Module (CDLIM) in fire control to facilitate communications within the BMDS, and provides engagement coordination with other BMDS elements. BCD is the foundation for the acquisition and delivery of two THAAD Batteries to support operational assessment and fielding of a BMDS capability useful to the combatant commanders. The delivery of Batteries #1 and #2 consists of a basic load of 48 Interceptors, 6 Launchers, two AN/TPY-2 (THAAD Mode) Radars (one funded in the Sensors Program) and two THAAD Fire Control and Communications (TFCCs), consisting of four Tactical Support Groups (TSGs). Delivery of THAAD units to the Warfighter provides flexibility to augment and support the BMDS in the Phased Adaptive Approach. THAAD transitioned to production utilizing the procurement appropriation in FY 2009. The FY 2009 procurement appropriation was for long lead materials and obsolescence mitigation. Battery hardware procurement will begin in 2010. These Batteries will be sustained utilizing Operations and Maintenance (O&M) appropriation starting in FY 2012.

Common threat engineering produces common and consistent adversary trajectory and signature data to enable Ballistic Missile Defense (BMD) System and sub-system concept and requirements, design, verification, and assessment. Common Threat data is contained in the Adversary Capability Document and Adversary Data Packages (ADP) and drives the Element design and BMDS ground tests, flight tests, digital simulations, and premission analysis activities. It is also invoked by the BMD System Description Document and BMD System Specification through the compliance threat allocations to BMDS Elements as a design driver..

The continuation of THAAD`s integration into BMDS provides data to support the Capability Development 4 (CD-04) decision and will be accomplished through THAAD`s Advanced Capability Development (ACD) Contract (formerly Block 5.0). ACD enables THAAD`s continuation in the integrated MDA Flight Test and Ground Test Campaigns, as reflected in the Integrated Master Test Plan, using both developmental test assets and equipment and soldiers from Army THAAD Batteries. The ACD Contract also continues the development of the THAAD capability into the future, addressing the Prioritized Capabilities List. This Acquisition Strategy continues the concept of a rapidly deployable configuration to support the Terminal Defense Segment (TDS) mission as well as supporting other BMDS elements` engagements by providing surveillance and tracking data. THAAD`s flight test campaign continues under the ACD Contract providing data from 4 additional flight tests and completes

its participation in MDA`s Ground Test 04 Campaign, data that will facilitate the CD-04 capability decision. Furthermore, it continues the development and testing of Build 2.0 capability in order to more fully integrate THAAD into the BMDS. The capabilities developed and delivered under THAAD Baseline Capability Development and Advanced Capability Development (ACD) support the Prioritized Capability List. Beginning in FY 2011, ACD activities are included in project MD07.

Modeling and Simulation (Ballistic Missile Defense System (BMDS) & Program):

The THAAD element supports the BMDS HWIL Modeling and Simulation Program by providing and integrating into the BMDS system-level HWIL single stimulation framework to support full-envelope BMDS ground test, flight test, and training events based upon Agency and warfighter needs.

THAAD`s Models and Simulations efforts are focused on Development, Verification, Validation and Accreditation (VV&A) Goals. Actions in support of this goal are conducted in parallel. Three major efforts are planned in support of Model and Simulation Development goals: (1) Continue efforts with the Integrated Simulation and Tactical Software (ISTS) model, ensuring that the Simulation is current and THAAD Flight Test Compliant and serves as a tool for risk reduction and prediction of THAAD flight testing; (2) Maintain Hardware-in-the-Loop facility keeping pace with both hardware and software changes to support the THAAD participation in the MDA Flight Test Program; (3) Continue hardware and software development for the Simulation-Over-Live Driver (SOLD). THAAD`s development work in support of its VV&A Goals are focused on data reduction and analysis from both the MDA BMDS Ground Test Campaign and Flight Testing to ensure that the models used remain anchored with actual system performance data.

THAAD will support System Pre-Flight predictions for each system level flight test using the test framework set up with the BMDS configuration for a particular flight test. This provides the confidence in flight test execution by predicting element performance and exercising element interfaces. This work is also used to prove out the construct of the flight test to ensure if the required data and data management plan will support System Post Flight Reconstruction objectives. System Post Flight Reconstruction (SPFR) will use a Hardware-in-the-Loop (HWIL) and/or a Digital Modeling and Simulation (M&S) Environment to replicate the day of flight for the Ballistic Missile Defense System (BMDS) configuration, modified to represent the actual environmental conditions and target dynamics observed in flight. The results of this testing are used to increase confidence in the models and simulations by anchoring the results with emphasis on the Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs) back to the real world event. System Post Flight Reconstruction (SPFR) is used for validation (anchoring) of models and simulations. The CECs/EMEs shape and focus flight and ground tests within Test Campaigns. The net effect of this rigorous M&S accreditation is the effective operationalization of BMDS RDT&E technical capabilities by the Warfighter. Credibly quantifying BMDS capabilities and limitations, and making informed capability acceptance and employment decisions in relation to Warfighter Operations Plans (OPLANs) and Concept Plans (CONPLANs) is the goal.

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*

There are 23 CECs and EMEs which equates to a total of 34 different CEC/EME Key Test Points (KTPs) for data collection. These KTPs are designed to support Verification, Validation and Accreditation (VV&A) of the THAAD Models and Simulations (M&S). The Integrated Master Test Plan (IMTP) contains the test schedule, test event descriptions, and the mapping of the CEC/EME data collects to the flight and ground test events. The THAAD data collection plan per IMTP 10.2 will provide a cumulative data collection summary.

The test plan will provide opportunities for multiple data collects of the Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs) Key Test Points (KTPs). These demonstrations will be used to build additional confidence in the Models and Simulations. THAAD testing goals are:

- Develop, test, field and sustain THAAD missile defense capabilities to defend the United States, forward deployed forces and Allies against short and medium range ballistic missiles
- Continue to incrementally improve and integrate THAAD capabilities into the Ballistic Missile System that are adaptive and responsive to intelligence based judgments of the threat
- Demonstrate and prove THAAD system performance in ground, flight, and operational testing to enable decisions on production, fielding, and materiel release
- Field a reliable, high quality, and fiscally sustainable THAAD weapon system - with responsive support to meet the needs of the Warfighter
- Integrate THAAD into the BMDS International Strategy and execute Foreign Military Sales of the THAAD weapon system
- Partner with our Industry team to implement and manage THAAD program with world class business practices and processes

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	715.732	436.482	250.275	-	250.275
Current President's Budget	690.054	436.482	290.452	-	290.452
Total Adjustments	-25.678	-	40.177	-	40.177
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-5.579	-			
• SBIR/STTR Transfer	-9.116	-			
• Other Adjustment Detail	-10.983	-	40.177	-	40.177

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*

Change Summary Explanation

The FY12 $40.177 million increase in this program element is the result of internal MDA adjustments and scope realignments offset by efficiency savings. This program has realized $44.267 million in efficiency savings.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	PROJECT BX07: *Terminal High Altitude Area Defense (THAAD) Block 2.0*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
BX07: *Terminal High Altitude Area Defense (THAAD) Block 2.0*	576.337	-	-	-	-	-	-	-	-	0.000	576.337
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project BX07 has been transferred to project MD07

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD07 for FY 2010 Accomplishments	576.337	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	576.337	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	PROJECT EX07: *Terminal High Altitude Area Defense (THAAD) Block 5.0*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
EX07: *Terminal High Altitude Area Defense (THAAD) Block 5.0*	17.129	-	-	-	-	-	-	-	-	0.000	17.129
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project EX07 has been transferred to project MD07.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD07 for FY2010 Accomplishments	17.129	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	17.129	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	PROJECT XX07: *Terminal High Altitude Area Defense (THAAD) Sustainment*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
XX07: *Terminal High Altitude Area Defense (THAAD) Sustainment*	36.937	-	-	-	-	-	-	-	-	0.000	36.937
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project XX07 has been transferred to project MD07.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD07 for FY 2010 Accomplishments	36.937	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: Project XX07 transferred to Project MD07. See Project MD07 for FY 2010 Accomplishments.			
Accomplishments/Planned Programs Subtotals	36.937	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	PROJECT MD07: *THAAD*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD07: *THAAD*	-	420.463	276.667	-	276.667	302.951	293.312	323.739	304.668	Continuing	Continuing
Quantity of RDT&E Articles	0	25	24		24	0	0	0	0		

A. Mission Description and Budget Item Justification

The Terminal High Altitude Area Defense (THAAD) is an element of the Terminal Defense Segment (TDS) of the Ballistic Missile Defense System (BMDS). The THAAD element provides a rapidly transportable capability for the THAAD Interceptor to engage ballistic missiles using the Army Navy/Transportable Radar Surveillance - Model 2 (AN/TPY-2) (THAAD Mode). THAAD enhances the TDS by expanding, complementing, and extending the BMDS battle-space and capability to engage ballistic targets in the late mid-course and terminal phases of their trajectory through the C2BMC actively managing the battle and subsequent engagements. The TPY-2 with THAAD will perform a sensor surveillance mission, providing sensor data to cue other elements of the BMDS. THAAD, in conjunction with the fielded PATRIOT System, provides the TDS and supports the objective of enhancing the BMDS capability. Five major components (Interceptors, Launchers, AN/TPY-2 (THAAD Mode) Radar, THAAD Fire Control and Communication (TFCC), and Peculiar Support Equipment) will be integrated into the THAAD element and the BMDS.

THAAD Baseline Capability Development (BCD) (THAAD 1.0) began with the design and development of fundamental capability against short to medium-range Ballistic Missiles and asymmetric threats inside and outside the atmosphere. This encompasses the following: (1) Test interceptor with inside and outside the atmosphere algorithms; (2) AN/TPY-2 (THAAD Mode) Radar with Initial Discrimination Capability; and (3) TFCC with tactical digital information link and defense design planner (which is an offline tool for defense and engagement planning). The initial phase of development laid the foundation for the capability of other BMDS Elements (Aegis BMD, Ground Missile Defense, PATRIOT) to continue to develop and test Build 2.0 capability in order to more fully integrate THAAD into the BMDS.

THAAD development will evolve through improvements to the AN/TPY-2 (THAAD Mode) Radar discrimination, salvo firing doctrine, and the ability to operate in a full spectrum of tactical interceptor environments and survivability. To facilitate tactical employment by soldiers, it also includes TFCC embedded training, automated defense planning, and extensive interoperability. THAAD development provides additional capability for other BMDS elements. BCD flight tests began in FY 2006 and complete in FY 2011. THAAD on multiple occasions demonstrated the ability to support BMDS on alert. The THAAD element will support coordinated engagements with the BMDS via the Ballistic Missile Defense System (BMDS) Command and Control/Battle Management and Communications (C2BMC). BCD culminates in demonstrated THAAD capabilities both inside and outside the atmosphere and supports Capability Delivery 04. BCD is the foundation for the acquisition and delivery of THAAD Batteries #1 and #2 to support operational assessment and fielding of a BMDS capability useful to the Combatant Commanders. The delivery of Batteries #1 and #2 consists of a basic load of 48 Interceptors, six Launchers, two AN/TPY-2 Radars (provided by the Sensors Directorate) and two TFCCs consisting of 4 Tactical Support Groups (TSGs) total.

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THAAD Advanced Capability Development (ACD) (formerly Block 5.0) continues the concept of a rapidly deployable configuration to support the Terminal Defense Segment (TDS) mission as well as supporting the strategic surveillance missions. AN/TPY-2 Radar development will be performed under the Sensors Program Element and integrated into the THAAD weapon system.

Operations & Sustainment Support of THAAD Batteries provides for logistical support to field, operate, maintain, repair and replenish the THAAD weapon system as it is fielded to the Army. Contractor Logistics Support (CLS) technicians are responsible for field and sustainment maintenance including the repair and supply chain management of the required spares and repair parts, as well as providing engineering support services and software maintenance support. The Operations & Sustainment Support associated with the Army Navy/Transportable Radar Surveillance - Model 2 (AN/TPY-2) Radars allocated to THAAD Batteries are provided for under the Sensors Program Element.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Weapon Sys Engr Integ & Test (WSEIT)	-	61.716	98.460
Articles:	0	0	24

Description: See Description Below

FY 2010 Accomplishments:
Funding for these FY 2010 accomplishments are reported in prior year budget projects BX07 ($57,149) and EX07 ($15,134)

Weapon System Engineering Integration & Test is responsible for all engineering efforts required to translate approved Ballistic Missile Defense System (BMDS) requirements into THAAD requirements, the implementation of those requirements into a THAAD design and capability, and the verification and validation of THAAD capability. Activities include coordination and requirements analysis, system integration, software engineering to include independent verification and validation, configuration management, integration of the THAAD components into the THAAD element, and BMDS integration of the THAAD element. THAAD WSEIT is responsible for risk management, system security, and information assurance. WSEIT emphasis remains the testing, verification and validation of the THAAD capability and to continue to develop limited peer-to-peer engagement coordination (TADIL-J communication and implementation of Joint Range Extension to execute regional defense missions). WSEITs accomplishments include:

-Provided support to the flight test program at Pacific Missile Range Facility (PMRF) including FTT-11 (THAAD Intercept Flight Test) (No Test) and FTT-14 (THAAD Intercept Flight Test)
-Conducted pre-flight testing for two flight test events FTT-11 and FTT-14 (THAAD Intercept Flight Tests) in the System Integration Laboratory (SIL) Hardware-in-the Loop (HWIL) facility

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continued System Analysis and mission planning in support of three flight test events: FTT-11, FTT-12, and FTT-14 (THAAD Intercept Flight Tests). -Continued to provide analysis in support of THAAD Government Ground Testing, and tracking and identification of alternatives for corrective actions test observations -Provided both planning and technical assistance to fielding of THAAD Battery #1 to the Army at Force Development Experimentation (FDE), Limited User Test (LUT) and THAAD participation in Juniper Cobra 2010 -Initiated Element Verification of THAAD capability to meet requirements from THAAD system specification -Continued integration and implementation of THAAD and its components in the BMDS through participation in MDA Ground Test Campaign and Combatant Commander (COCOM) war games, and exercises, and Performance Assessments -*Continued the development and integration of Simulation-Over-Live Driver (SOLD) into the flight test program and Ballistic Missile Defense System (BMDS) ground test campaign -Continued to support Insensitive Munitions/Final Hazard Classification (IM/FHC) design and testing -Demonstrated the THAAD Prototype Planner which is an offline tool for defense and engagement planning -Demonstrated THAAD communications with C2BMC and Aegis BMD over Extremely High Frequency (EHF) Satellite Communications (SATCOM) -Conducted engineering, integration, and coordination activities in support of development of suitability statements for THAAD Materiel Release -Initiated the planning for software requirements development and preliminary design reviews for the Post Deployment Software Support (PDSS) builds for each THAAD component -**Continued the development of the THAAD BMDS to include resolution process for correlation issues involving Link-16 Tracks, enhanced engagement coordination by adding J7.7 association message to our external interface -Conducted THAAD interoperability planning with joint and coalition planning systems demonstrated in Joint Project Optic Windmill (JPOW 10) -Developed designs for Launch on Link 16 based BMD System Track (formerly Launch on BMDS System Track) which is the ability to initiate an engagement from sensor data from BMDS sources outside of the THAAD Battery to launch THAAD Interceptors -Updated THAAD interface specifications and interface control documents for required BMDS changes -Initiated support planning for BMDS Flight Test events for THAAD interoperability, engagement coordination, and debris mitigation with other BMDS Elements to include PATRIOT, Aegis BMD, C2BMC and Space Tracking and Surveillance System (STSS) -Participated in Scenario Certification, Mission Planning, and Mission Readiness Reviews for BMDS test events -Initiated consolidation of Engineering Teams and databases for Requirements and Trouble Reports to include integration and test facilities			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Initiated the design, development, and integration of hardware and software to combine the capability of Simulation-Over-Live-Drive (SOLD), Concurrent Test, Training and Operation (CTTO), and Distributed Multi-Echelon System (DMeTs) into a CTTO capability -Continued to assess THAAD capability against BMDS allocated threat -Continued to evaluate incremental hardware/software build capabilities for BMDS Test Events * Simulation-Over-Live Driver (SOLD) is an enabling activity to demonstrate THAAD`s Multi-Target Engagement capability on FTT-11 and FTT-14 (THAAD Intercept Flight Tests). ** These enabling activities will allow delivery of the THAAD Launch on Link 16 based BMD System Track capability which is the ability to initiate an engagement from sensor data from BMDS sources outside of the THAAD Battery to launch THAAD Interceptors.			
FY 2011 Plans: -Continue pre-flight testing (trajectory, debris, nominal and tolerance scenario analyses) in the System Integration Laboratory (SIL) Hardware-in-the-Loop (HWIL) facility -Continue integration and implementation of THAAD and its components in the BMDS through participation in MDA Ground Test Campaign and Combatant Commander (COCOM) war games, and exercises, as well as Performance Assessments -Continue System Analysis and mission planning in support of two flight test events: FTT-12 and FTT-13 (THAAD Intercept Flight Tests). -Conduct analysis of Critical Engagement Conditions (CEC) and Empirical Measurement Events (EME) data collected during flight testing -Complete the re-accreditation of the Simulation-Over-Live-Driver (SOLD) to include upgraded hardware platforms and the Radio Frequency Scene Generator (RFSG) -Continue to support Insensitive Munitions/Final Hazard Classification (IM/FHC) testing to support transportation of Interceptor in a Single Missile Round Transport Container (SMRTC) -Attain Army Materiel Fielding Release -Continue THAAD interoperability planning with joint and coalition planning systems -Update THAAD battle management design for System Track processing which is the ability to use sensor data from BMDS sources outside of the THAAD Battery -**Develop designs for Launch on BMD Overhead Persistent Infra-Red (OPIR) Architecture (BOA), Remote Sensor, and Link 16 Based BMD System Track data for weapon system utilization -Update THAAD interface specifications and interface control documents for required BMDS changes			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continue support planning for BMDS Flight Test events for THAAD interoperability with other BMDS Elements -Continue to evaluate incremental hardware/software capabilities for BMDS Test Events -Continue participation in flight Scenario Certification, Mission Planning, and Mission Readiness Review BMDS test events -Continue consolidation Engineering Teams and databases for Requirements and Trouble Reports to include integration and test facilities -Design, develop, qualification test, release, field, and support incremental first annual release of Post Deployment Software Support (PDSS) builds and automated test tools for each THAAD component * New capability developed for FY 2011			
FY 2012 Plans: Plans include scope that was previously documented in THAAD element breakouts: System Engineering, THAAD Fire Control and Communication, Launcher, Interceptor, and Batteries #1 and #2. -Deliver 24 Interceptors for Batteries #1 and #2 that were purchased with FY 2007 through FY 2011 funds -Continue to support C2BMC in the integration of Extremely High Frequency (EHF) and Super High Frequency (SHF) communications capabilities into the THAAD weapon system -Continue in the design, development, qualification testing, release, field, and support incremental release of Post Deployment Software Support (PDSS) builds for each THAAD component -Continue the development of automated test tools for PDSS activities -Continue to provide real-time closed loop system and component testing utilizing THAAD hardware-in-the-loop (HWIL) facilities -Conduct analysis of Critical Engagement Conditions (CEC) and Empirical Measurement Events (EME) data collected during flight testing -Determine impacts to Joint data link standard MIL-STD-3011 by assessing interoperability capabilities of THAAD system, concept of operations, and developed Software (S/W) -Continue development of Netted Embedded Training to enable THAAD Battery participation in common training scenarios, near real time with other THAAD Batteries, lower tier units, other elements of the Ballistic Missile Defense System (BMDS) (through Distributed Multi-Echelon Training Systems) -Continue to develop, maintain, and integrate THAAD Integrated Simulation and Tactical Software (ISTS) into BMDS digital framework and conduct Verification, Validation and Accreditation (VV&A) for Simulation-Over-Live-Driver (SOLD), ISTS at the THAAD Evaluation Center (TEC) HWIL facility			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continue Models and Simulations (M&S) development to support Element and BMDS events including all Integrated Master Test Plan (IMTP) M&S related activities to include System Pre Mission Tests (SPMTs) and System Post Flight Reconstruction (SPFRs) -Update THAAD interface specifications and interface control documents for required BMDS changes -Conduct threat assessments of the BMDS Adversary Development Package (ADP) -Continue in the design, development, and integration of the THAAD planner interface with C2BMC planning initiatives -Continue THAAD interoperability planning with joint and coalition planning systems -Continue in the redesign, development, and requalification testing of the Optical Block and Flight Sequencing Assembly and complete Ignition System Safety Review Board (ISSRB) testing of optical block re-design -Implement Mandatory Information Assurance Updates and perform Information Assurance Vulnerability Assessments (IAVA) on all THAAD component software -Rehost, test, and qualify new Launcher Operating System to minimize Information Assurance vulnerabilities			
Title: THAAD Fire Control and Communication (TFCC) Tactical Station Groups (TSGs) ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** Funding for these FY 2010 accomplishments are reported in prior year budget projects BX07 ($24,151) -Delivered the Formal Release of TFCC Software Build 5.2 -Maintained TFCC Software build 5.2 featuring Solaris 10 and Information Assurance for the Foreign Exercise, Flight Test, and Fielding -Conducted Service Level (Army) Certification Test in support of Army Interoperability Certification Testing -Completed Government Ground Test including completion of Natural Environments Testing, E3, Altitude and Rail Impact Testing -Coordinated and verified implementation of software updates in preparation for Ballistic Missile Defense System (BMDS) tests (FTT-11, FTT-14, FTX-06, JFTM-3, GTX-04A, GTI-04B), exercises and fielding -Completed Army Interoperability Certification Testing, Joint Interoperability Certification Testing, and obtained an Interim Certificate to Operate (ICTO) -Ensured Compliance with Information Assurance (IA) requirements, and conducted Joint Interoperability Certification Testing, incorporated information assurance settings within tactical assets and implementing a 90 day cycle to mitigate future IA concerns -Prototyped design and began implementation of the Link 16 requirements for MIL-STD-6016D to maintain Joint Interoperability Test Command (JITC) Certification	- 0	27.634 0	- 0

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Conducted Fire Control Obsolescence Assessment to determine design changes required to address obsolete hardware and sustainability requirements for fielded TSGs and future Batteries -Completed baseline design update in identifying Tactical Support Group changes required for incorporating satellite communications and joint tactical interfaces for Battery 1 and 2 TSGs and future TSG production -Provided technical support to fielding of THAAD Battery #1 to the Army at Force Development Experimentation (FDE) and Limited User Test (LUT) and THAAD participation in Juniper Cobra 2010 -Began implementation of the Fire Control Obsolescence resolution for hardware, software and GFI (Common Message Processor (CMP), Common User Interface (CUI), Common Data Link Interface Module (CDLIM)) for future Batteries -Conducted and began implementation of Post Deployment Software Support (PDSS) Planning and Analysis to incorporate THAAD Fire Control and Communication (TFCC) soldier requested capabilities, approved Link-16 interface change proposals/ MIL-STD-6016D extracts, Software Change Requests, and improved Interoperability by mitigating track ID proliferation issue between THAAD and Aegis BMD into the first PDSS Engineering Build -Upgraded the TFCC development environments to Solaris 10 and TFCC SW Build 5.2 -Supported the Integrated Operational Capability Demonstration -Supported C2BMC in the integration of Extremely High Frequency (EHF) communications capabilities into the TFCC component by demonstrating proof of concept during FTT-14 (THAAD Intercept Flight Test), completing tactical design, conducting contract award, and procuring long lead hardware for prototype modification kits -Continued the design and implementation of BMDS requirements including Link 16 update requirements to support BMDS to include correlation, engagement coordination and planning -Supported Concurrent Test, Training and Operations (CTTO) software development and integration -*Supported concept development for Launch on Link 16 based BMD System Track and Sensor Management in support of the BMDS -Initiated THAAD Portable Planner development and integration via THAAD Defense Planner Prototype (TDP2) enhancement which is an offline tool for defense and engagement planning to support THAAD integration into Army and theater-level ballistic missile defense planning * This enabling activity will allow delivery of the THAAD Launch on Link 16 based BMD System Track capability, which is the ability to initiate an engagement from sensor data from BMDS sources outside of the THAAD Battery to launch THAAD Interceptors and is an addition of the BMDS Integrated Build D. ***FY 2011 Plans:***			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
The THAAD Fire Control and Communication (TFCC) is composed of two Tactical Station Groups (TSGs). Each TSG consists of a Tactical Operations Station, a Launch Control Station, and a Station Support Group. The TFCC serves as the interface with the Ballistic Missile Defense System (BMDS) and provides planning, control, coordination, execution, and communications necessary to fulfill the THAAD mission in a coherent and fully integrated fashion. It is interoperable with external air and missile defense and intelligence systems and agencies integrated into the BMDS. TFCC software changes, to include, improvement to Link 16 track correlation and engagement coordination with other BMDS elements; and external interface changes for integration of Command, and Control/Battle Management and Communications (C2BMC) Enhanced Communications are being incorporated. -Conducted TEMPEST Testing, using implemented hardware updates, to address known vulnerabilities identified in previous TEMPEST test events -Continued support of C2BMC in the integration of Extremely High Frequency (EHF) communications capabilities into the TFCC component by completing the prototype EHF modification kit and testing the new TSG EHF communication capabilities in support of Joint Interoperability Test Command (JITC) assessment/certification testing. TFCC will conduct EHF testing in January as part of the assessment -Supporting C2BMC in the integration of Extremely High Frequency (EHF) communications capabilities into the TFCC component -Deliver and install four EHF WIN_T Modification Kits for the A/2 and A/4 Tactical Station Groups Tactical Test Beds -Deliver and install four EHF WIN_T Modification Kits for the Tactical Test Beds -Initiate development of Netted Embedded Training (Netted ET) to enable THAAD Battery participation in common training scenarios, near real time with other THAAD Batteries, lower tier units, other elements of the Ballistic Missile Defense System (BMDS) (through Distributed Multi-Echelon Training System) -Support Flight Test program at Pacific Missile Range Facility (PMRF) -Continue implementation of Post Deployment Software Support (PDSS) Planning and Analysis to incorporate THAAD Fire Control and Communication (TFCC) Soldier requested capabilities, Software Change Requests, Information Assurance Updates, and improved Interoperability by mitigating track ID proliferation issue between THAAD and Aegis BMD via Link 16 upgrades into subsequent PDSS Builds ***FY 2012 Plans:*** Plans for this scope are now included in THAAD element breakouts: Weapon System Engineering Integration & Test and System Test			
Title: Launcher	-	15.174	-
Articles:	0	0	0
Description: See Description Below			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: Funding for these FY 2010 accomplishments are reported in prior year budget projects BX07 ($8,758) and EX07 ($1,725) -Provided engineering services and technical supported System Integration Laboratory (SIL) Hardware-in-the-Loop (HWIL) integration activities to include maintenance and updates for hardware and software -Provided engineering and technical support at Pacific Missile Range Facility (PMRF) for FTT-11 and FTT-14 (THAAD Intercept Flight Tests) -Completed Carrier Electronics Module (CEM) Qualification Testing -Completed Software Build 4.02.04 to support FTT-11 and FTT-14 (THAAD Intercept Flight Tests) -Completed support of Concurrent Missile/Launcher Electromagnetic Environmental Effect (E3) Government Ground Testing -Continued Obsolescence Redesign effort to determine resolution for obsolete Carrier Electronics Module (CEM) hardware including Single Board Computer, Hard Drives and Launcher Computer Control Unit sub-back plane -Completed support of Launcher Environmental Government Ground Testing -Provided mission support during contingency operations at PMRF -Provided technical support for Force Development Experimentation (FDE), Limited User Test (LUT), and Reliability demonstrations ***FY 2011 Plans:*** -Received delivery of the Department of Defense Form 250 (DD250) for Launcher Test Bed #5 on 15 December 2010 -Completed Condition of Assembly At Release and Transfer (CART) of Software Build 4.02.04B on 9 December 2010 -Provide engineering and technical support at Pacific Missile Range Facility (PMRF) for FTT-12 (THAAD Intercept Flight Test) -Provide engineering services and technical supported System Integration Laboratory (SIL) Hardware-in-the-Loop (HWIL) integration activities to include maintenance and updates for hardware and software -Support software development to support FTT-12 (THAAD Intercept Flight Test) ***FY 2012 Plans:*** Plans for this scope are now included in THAAD element breakouts: Weapon System Engineering Integration & Test and System Test.			
Title: System Test ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:***	- 0	63.322 0	99.299 0

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Funding for these FY 2010 accomplishments are reported in prior year budget projects BX07 ($92,821) System Test is responsible for developing and executing the THAAD Flight Test program, Live Fire Test and Evaluation (LFT&E) program, Government Ground Test (GGT) program, range facility preparations, data analysis and reporting. -Continued flight test planning and analysis, range interface, coordination with Operational Test Agencies (OTAs), flight test operations, post-flight test analysis and reporting, data distribution and data storage at Pacific Missile Range Facility (PMRF) -Continued flight test planning and analysis, range interface and facilities design, flight test operations concepts, post-flight test analysis and reporting, data distribution and data storage requirements, and Uniformed Documentation System (UDS) requirements for missions at Reagan Test Site (RTS). Directed to stop efforts in 3QFY10 -Provided test execution, data management, facilities operations, and post test analysis and reporting support in support of BMDS System Tests including FTT-11 (THAAD Intercept Flight Test), FTT-14 (THAAD Intercept Flight Test), JFTM-3, FTX-06, USFT-4, Government Ground Test -Defined and interpreted THAAD target requirements and assessed proposed target solutions for flight test program -Monitored targets design, development, delivery, and execution to support flight test program -*Collected and analyzed Critical Engagement Conditions (CEC) and Empirical Measurement Events (EME) data from flight testing -Provided data for Operational Assessment Report to support Materiel Release -Initiated support planning for BMDS Ground and Flight Test events for THAAD interoperability with other BMDS Elements -Completed Live Fire Test & Evaluation (LFT&E) Test Program and supported lethality assessments -Completed Light Gas Gun (LGG) Developmental Testing as a part of LFT&E and supported assessments -Completed Force Development Experiment (FDE) and Limited User Test (LUT) -Completed Electromagnetic Environmental Effects (E3) Interceptor and Launcher Test: Interceptor and Launcher Design Verification Test (DVT)/Government Ground Testing (GGT) including the Missile Round Pallet/Launcher (MRPL) Electromagnetic Radiation Operational (EMRO), MRPL Near Strike Lighting (NSL), and Missile Round Pallet (MRP) Direct Strike Lighting (DSL) testing -Supported completion of E3 THAAD Fire Control and Communication (TFCC) Test: Personnel Electrostatic Discharge (PESD) and EMRO testing at Redstone Test Center (RTC), Huntsville, AL and High Altitude Electromagnetic Pulse (HEMP) and NSL testing at White Sand Missile Range (WSMR), NM -Completed E3 Battery Support Center (BSC) Test: PESD at RTC, Huntsville, AL and HEMP and NSL testing at WSMR, NM -Completed E3 Radar Test: Radar testing at Pax River, Maryland.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Completed HEMP, EMRO, most of NSL, most of PESD, and started Electromagnetic Radiation Hazard (EMRH) Deployed testing. -Conducted System Level Natural Environments Tests with TFCC, Launcher, Radar, and BSC at Eglin Air Force Base, FL -Completed Interceptor drop testing and E3 Ground Testing -Completed TFCC, Launcher, Radar, and Battery Support Center (BSC) Mobility Performance and Automotive Safety Government Ground Testing (GGT) -Conducted Hot and Cold Full Spectrum Missile Safety Testing (MST) of two missile rounds at RTC, Huntsville, AL to support issuance of a safety confirmation statement for THAAD fielding -Continued Insensitive Munitions/Final Hazard Classification (IM/FHC) design and testing including completion of Armor Panel Bullet and Fragment Impact Testing and Fragment Impact Test on Fueled Kill Vehicles with Booster Mock-up Canister to support transportation of Interceptor in a Single Missile Round Container (SMRTC) -Continued Radar Prime Power Unit (PPU) Mobility testing at Aberdeen Test Center (ATC), Maryland. Completed all of the automotive performance and safety testing -Completed Dual PPU failover testing -Completed THAAD System Reliability Demonstration -Initiated planning of GGT Cold Region Demonstration -Completed Rail Impact testing of the TFCC Launch Control Station (LCS) / Tactical Operations Station (TOS) shelters, Cable Support Vehicle (CSV) and Family of Medium Tactical Vehicle (FMTV) M-1085-A1 5 Ton truck -Continued GGT data management, distribution, and archival/storage -Completed the design of transportable launch and test support equipment * CEC/EMEs are the conditions and events where data is obtained from flight and ground test in order to anchor models and simulations			
FY 2011 Plans: -Completed Hot Full Spectrum Missile Safety Testing (MST) of two missile rounds at RTC, Huntsville, AL to support issuance of a safety confirmation statement for THAAD fielding on 21 October 2010. Cold Full Spectrum MST to be completed 13 January 2011 -Participate in Ballistic Missile Defense System (BMDS) Flight Tests FTT-12 (THAAD Intercept Flight Test) -Define and interpret THAAD target requirements and assess proposed target solutions for flight test program -Provide data management, facilities operations, and post test analysis and reporting support for the BMDS System Test -Continue flight test planning and analysis, range interface, coordination with Operational Test Agencies (OTAs), flight test operations, post-flight test analysis and reporting, data distribution and data storage at Pacific Missile Range Facility (PMRF)			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	PROJECT MD07: *THAAD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Monitor targets design, development, delivery, and execution to support flight test program -Collect and analyze Critical Engagement Conditions (CEC) and Empirical Measurement Events (EME) data from flight testing -Support development of Operational Assessment Report -Complete Insensitive Munitions/Final Hazard Classification (IM/FHC) testing including Fast Cook-off, Slow Cook-off, Drop Test, Bullet Impact and Fragment Impact testing of Interceptor configuration with Thermal Initiated Venting System (TIVS) to support transportation of Interceptor with TIVS in a Missile Round Pallet (MRP) and Single Missile Round Transport Container (SMRTC) -Complete Government Ground Test (GGT) data management, distribution, and archival/storage -Continue support of lethality assessment ***FY 2012 Plans:*** Plans include scope that was previously documented in THAAD element breakouts: THAAD Fire Control and Communication, Launcher, and Interceptor. -Support Flight Test, Ground Test, Mission Planning, Performance Assessment, Systems Analysis, and Range Safety analysis in accordance with IMTP v10.2 -Continue flight test planning, range interface, coordination with Operational Test Agencies (OTAs) and execution of flight test operations at Pacific Missile Range Facility (PMRF) for FTT-13 (THAAD Intercept Flight Test) and FTO-01 (BMDS Operational Flight Test) -Continue flight test planning, range interface, coordination with Operational Test Agencies (OTAs) at Pacific Missile Range Facility (PMRF) for FTT-15 (THAAD Intercept Flight Test) -Support planning and execution of BMDS interoperability exercises and overlays -Provide data management, facilities operations, and post-test analysis and reporting support in support of BMDS System Tests -Monitor targets design, development, delivery, and execution to support flight test program -Support pre-flight testing in the System Integration Laboratory (SIL) Hardware-in-the-Loop (HWIL) facility -Conduct JITC and Army certification testing to support incremental release of Post Deployment Software Support (PDSS) builds for THAAD Fire Control & Communication (TFCC) -Collect and analyze Critical Engagement Conditions (CEC) and Empirical Measurement Events (EME) data from flight testing -Onsite range support for THAAD component maintenance, repair and fueling -Continue to provide pre-mission planning, pre and post mission analysis, reporting support, and execution to BMDS Ground Test campaigns			
Title: Integrated Logistics Support (ILS)	-	23.024	-
Articles:	0	0	0

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Description: See Description Below ***FY 2010 Accomplishments:*** Funding for these FY 2010 accomplishments are reported in prior year budget project BX07 ($26,408) Provide maintenance and transportation for each THAAD component and ensure Government Furnished Equipment (GFE) is available as required. In coordination with the user, develop and maintain training and training equipment and conduct training for THAAD Battery fielding. -Completed a Performance Based Logistics (PBL) strategy working in conjunction with the Army -Completed Logistics documentation for Type Classification and Materiel Release Review Board (MRRB) -Completed Logistics products required for Sustainment Strategy including Logistics Management Information (LMI) and Spares) -Procured Missile Handling Equipment (Side Lift Forklift) to support ingress and egress operations for bunker storage at Anniston Munitions Center (ANMC) -Performed THAAD missile round Stockpile to Target pathfinder mission -Update/maintain training materials and courseware as a result of Lessons Learned from Battery #1 Collective Training, Force Development Experimentation and Limited User Test -Completed effort for Baseline Capability Development TFCC Netted Embedded Training -Completed Missile Round Trainers (24) for Battery #2 -Continued THAAD Integrated Logistics Support (ILS) 24 hour maintenance and supply operations center -Finalized and distributed the Final Materiel Fielding Plan, Materiel Fielding Agreement and Materiel Requirements List for Battery #2 -Finalized the Depot Maintenance Study to identify reparable items and facilities/tools required for Depot Maintenance Perform a Level of Repair Analysis (LORA) -Continued to coordinate and conduct transportation operations for THAAD Flight Test Interceptors, Ground Components, and Simulation-Over-Live-Driver (SOLD) hardware -Participated in Force Development Experimentation (FDE) and Limited User Test (LUT) -Updated the Unique Identification (UID) Plan; commence Unique Item Identifier marking; update the UID Registry -Published Demilitarization/Disposal Plan -Selected Product Support Integrator; identify Product Support Providers; develop and publish Performance Based Agreements (PBAs)			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provided technical support and transportation at Pacific Missile Range Facility (PMRF) for FTT-11 and FTT-14 (THAAD Intercept Flight Tests) -Completed the Battery Support Cost (BSC) Government Ground Test program mobility and Natural Environmental testing -Completed the BSC Government Ground Test program Electromagnetic Environmental Effects (E3) testing -Completed 8 Single Missile Round Transportation Container (SMRTCs) -Completed 1 Missile Transport Trailer (MTT) -Completed 4 Single Missile Round Transport Trailers (SMRTTs) -Completed 5 Tactical Active Leak Sensor Systems -Completed Battery #2 ground component hardware integration -Initiated New Equipment Training for Battery #2 -Continued Fix or Fight documentation -Created Depot Maintenance Support Plan -Completed Missile Supply Bulletin -Continued development of Interactive Electronic Technical Manual (IETM) ***FY 2011 Plans:*** -Conduct Material Release Board with Army -Provide technical support and transportation at Pacific Missile Range Facility (PMRF) for FTT-12 (THAAD Intercept Flight Test) -Complete Core Logistics Assessment and Core Depot Assessment/Source of Repair Analysis -Finalize Depot Maintenance Support Plan -Complete New Equipment Training (NET) for Battery #2 -Initiate Collective Training for Battery #2 -Initiate Institutional Conduct of Fire (ICOFT) design and acquisition -Complete Mobile Training Devices to support Battery sustainment ***FY 2012 Plans:*** Plans for this scope are now included in Maintenance, Training and Transportation.			
Title: Interceptor	-	27.726	-
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY 2010 accomplishments are reported in prior year budget project BX07 ($94,657)			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
The THAAD Interceptor is a certified round that is propelled by a single-stage, solid-propellant rocket booster. Its Kill Vehicle (KV) possesses a Divert and Attitude Control System (DACS) and an infrared Seeker used to destroy its target through hit-to-kill technology. -Continued Interceptor ground test program to verify missile requirements -Continued production and delivery of interceptors to support ground and flight testing -Provided engineering and technical support at Pacific Missile Range Facility (PMRF) for FTT-11 and FTT-14 (THAAD Intercept Flight Tests) -Continued ground testing and interceptor safety tests -Provided hardware for Insensitive Munitions/Final Hazard Classification (IM/FHC) testing -Inspect and refurbish Flight Test STS Vehicle and installed Range Safety Instrumentation System (RSIS) components to support flight tests -Continued Interceptor and Interceptor component delta qualification -Continued engineering support of Battery Interceptor production -Continued Flight Sequencing Assembly (FSA) design changes to support Ignition System Safety Review Board (ISSRB) requirement (integration of optical block) -Performed assembly design changes and conducted re-qualification testing on Flight Sequencing Assembly, Optical Block, and Heatshield -Supported planning and execution of Ballistic Missile Defense System (BMDS) Integration tests -Evaluated missile performance against real world scenarios and potential threats -Initiated development and fabrication of test instrumentation kits to support BMDS flight tests -Continued stockpile reliability test program and development of the Missile Stockpile Test Set -Prepared documentation/reports for submission to Materiel Release Review Board -Provided mission support during contingency operations at Pacific Missile Range Facility (PMRF) -Refurbished two Block Qualification Test interceptors and support government ground safety tests -Initiated procurement of additional Range Safety Instrumentation Safety (RSIS) kits -Maintained formal release of Interceptor software ***FY 2011 Plans:*** -Complete Interceptor ground test program to verify missile requirements and support Materiel Release Review Board (MRRB) -Continue to support Insensitive Munitions/Final Hazard Classification (IM/FHC) testing			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continue the qualification testing of the Flight Sequencing Assemblies, Optical Blocks, and Automated Test Consoles to prove compliance with MIL-STD-331 requirements -Complete (2) Missile Stockpile Test Sets and support stockpile reliability test program -Provide engineering and technical support at Pacific Missile Range Facility (PMRF) for FTT-12 -Continue engineering support of Battery Interceptor production -Continue to support planning and execution of BMDS Integration tests -Evaluate missile performance against real world scenarios and potential threats -Continue development and fabrication of test instrumentation kits to support BMDS flight tests ***FY 2012 Plans:*** Plans for this scope are now included in THAAD element breakouts: Weapon System Engineering Integration & Test and System Test.			
Title: Army Navy/Transportable Radar Surveillance - Model 2 (AN/TPY-2) Radar ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** Funding for these FY 2010 accomplishments are reported in prior year budget projects BX07 ($51,742) and EX07 ($270) The Army Navy/Transportable Radar Surveillance - Model 2 (AN/TPY-2) (THAAD Mode) Radar is a solid state, phased array radar capable of tracking multiple threats and multiple interceptors during engagements. The radar uses fence, volume, and cued search modes, and provides surveillance, acquisition, track, discrimination, interceptor communications, and hit assessment data collection for the fire control. The radar hardware is a transportable system composed of the Antenna Equipment Unit, Electronics Equipment Unit, Cooling Equipment Unit, and the Prime Power Unit (PPU). The manufacturing cost associated with the AN/TPY-2 (THAAD Mode) Radars for THAAD Batteries are provided for under the Sensors Program Element. -Continued to support the flight test program at Pacific Missile Range Facility (PMRF) -Continued to maintain Formal Release of Software Build 4.2.4 -Completed Government Ground Testing	- 0	24.640 0	- 0

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	PROJECT MD07: *THAAD*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provided technical support to fielding of THAAD Battery #1 to the Army at Force Development Experimentation (FDE) and Limited User Test (LUT) and THAAD deployment in Joint Project Optic Windmill ***FY 2011 Plans:*** -Support the BMDS flight test program -Complete the re-accreditation of the Simulation-Over-Live-Driver (SOLD) to include the Radio Frequency Scene Generator (RFSG) ***FY 2012 Plans:*** These plans are now in the Sensor Program Element.			
Title: Batteries #1 and #2 ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** Funding for these FY 2010 accomplishments are reported in prior year budget project BX07 ($168,849) Incremental funding for Batteries #1 and #2 which are composed of a basic load of 48 Interceptors, six Launchers (one provided by the development contract), two Army Navy/Transportable Radar Surveillance - Model 2 (AN/TPY-2) (THAAD Mode) Radars (provided by Sensors Program Element), 4 THAAD Fire Control and Communication (TFCC) Tactical Station Groups (TSGs) (two provided by the development contract), the required Peculiar and Common Support Equipment, and two Interceptors for flight test (provided to development contract). Following operational testing, the Batteries will be fielded to the Army starting in FY 2011. -Continued assembly of tactical Interceptors -Delivered three Launchers -Complete Battery #2 ground component hardware integration -Delivered one flight test vehicle -Completed BSC #2 -Completed ICSS #2 ***FY 2011 Plans:*** -Deliver 30 Interceptors and 1 flight test vehicle ***FY 2012 Plans:***	- 0	63.851 25	- 0

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Plans for this scope are now included in THAAD element breakout: Weapon System Engineering Integration & Test			
Title: Sustainment	-	85.985	-
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY 2010 accomplishments are reported in prior year budget project XX07 ($36,937) Operations & Sustainment Support of THAAD Batteries provides for logistical support to field, operate, maintain, repair and replenish the THAAD weapon system as it fielded to the Army. Contractor Logistics Support (CLS) technicians are responsible for field and sustainment maintenance including the repair and supply chain management of the required spares and repair parts, as well as providing engineering support services and software maintenance support. The Operations & Sustainment Support associated with the Army Navy/Transportable Radar Surveillance - Model 2 (AN/TPY-2) Radars allocated to THAAD Batteries are provided for under the Sensors Program Element. -Continued THAAD field support/Contract Logistics Support (CLS) for Battery #1 and #2 hardware -Completed software maintenance plan required for Post Deployment Software Sustainment (PDSS) -Provided maintenance support for components tactical software -Continued procurement of replenishment spares -Supported Force Development Experimentation (FDE) and Limited User Test (LUT) for Battery #1 -Supported New Equipment Training for Battery #2 -Provided Supportability Engineering and Planning Support			
FY 2011 Plans: -Continue THAAD field support/CLS for Battery #1 and #2 hardware -Provide maintenance support for components tactical software -Continue procurement of replenishment spares -Support New Equipment Training and Collective Training for Battery #2 -Initiate Battery #1 Replacement Training -Provide Supportability Engineering and Planning Support			
FY 2012 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
This effort moved to Defense Wide Operations and Maintenance Appropriation.			
Title: Program Management	-	14.301	-
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY 2010 accomplishments are reported in prior year budget project BX07 ($19,706) Program Management provides procurement support function across the program such as strategic planning, program integration, cost estimating, contracting, and financial management. This includes preparation of financial statements, reimbursement of financial services provided by Defense Finance Accounting Service (DFAS), internal review and audit, earned-value management, and program assessment. -Provided management, leadership, and planning for all activities -Provided salaries, travel, training, and supplies -Continued to provide project-wide programmatic support (Program Management and Integration (PM&I)			
FY 2011 Plans: -Provide management, leadership, and planning for all activities -Provide support to the Advanced Capability Development System Requirements Review (SRR) -Provide salaries, travel, training, and supplies -Continue to provide project-wide programmatic support (Program Management and Integration (PM&I)			
FY 2012 Plans: FY 2012 activities are included in Weapon System Engineering Integration & Test			
Title: Modeling and Simulations	-	13.090	7.113
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY 2010 accomplishments are reported in prior year budget project BX07 ($32,096)			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
The THAAD element will support the BMDS Hardware-in-the-Loop (HWIL) Modeling and Simulation Program by providing and integrating into the BMDS system-level HWIL single stimulation framework to support full-envelope BMDS ground test, flight test, and training events based upon Agency and warfighter needs. BMDS HWIL provides development, integration, and test funding to both MDA and non-MDA Elements participating in the BMDS ground test campaigns. BMDS HWIL also provides the core Lethality and Phenomenology models for use in analysis and BMDS and Element mission requirements. BMDS HWIL additionally maintains the Advanced Research Center and Simulation Center High Performance Computing Capabilities to support test and Modeling and Simulation (M&S) requirements across MDA. -Continued to develop, integrate, and test a common Ballistic Missile Defense (BMDS) HWIL stimulation framework with the Elements for the GTI-04, GTD-04 ground tests -Conducted BMDS HWIL stimulation framework Verification and Validation (V&V) for BMDS GTI-04 and GTD-04 ground tests -Defined and planned for enhancement to the Single Stimulation Framework (SSF) required for execution of the GT-05 campaign to include identification of interdependencies required for execution -Provided development, Operations and Maintenance, and Independent V&V of standardized phenomenology and lethality tools and models for the common environmental toolset -Provided support to integrate common Radar Digital Signal Injection System (RDSIS) for X-Band radars -Evolved and enhanced the SSF to provide increased Warfighter support, specifically Training and Exercises Integrate the SSF with additional Allied/Coalition elements to expand Distributed Ground Test and Exercise venues Initiate the technical integration of the SSF with the Digital Stimulation Architecture -Product Line development, sustainment, maintenance and product support for HWIL products -Planned, developed, integrated and tested a common Ballistic Missile Defense System (BMDS) Hardware-in-the-Loop (HWIL) stimulation framework with the Elements for the GTX, GTI, GTD ground tests, Active Layered Theatre Ballistic Missile Defense (ALTBMD) exercises, Assured Response (AR) exercises, Foreign Exercises, Near-Term Discrimination (NTD) excursions tests, and Concurrent Test, Training, and Operations (CTTO) demos -Conducted BMDS HWIL stimulation framework V&V for BMDS GTX, GTI, GTD ground tests, ALTBMD exercises, Assured Response (AR) exercises, Foreign Exercises, and Concurrent Test, Training and Operations (CTTO) demos -Provided systems engineering support to upgrade the BMDS stimulation framework to support wideband debris for BMDS sensors -Initiated integration of the BMDS stimulation framework with the additional sensors; provide common threat representations and scenarios to meet specific event and customer requirements for BMDS HWIL Framework			
FY 2011 Plans:			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Develop and deliver releases of M&S digital products: Digital Simulation Architecture framework for use in Technical Assessments; Missile Defense Space-warning Tool (MDST) for use in Technical Assessments and Warfighter Exercises; BMD International Simulation for use in International virtual BMD demonstrations, BMD education, and Warfighter wargames -Integrate, test, functionally qualify, and deliver BMDS constructive Performance Assessment Simulation (utilizing DSA and MDST) to support full-envelope BMDS performance assessment for Technical Assessments -Continue software operations/maintenance of the Extended Air Defense Simulation (EADSIM) code base for use in Warfighter exercises -Provide software support for PATRIOT System Effectiveness Model (PSEM) for use in Technical Assessments -Provide transitional DSA framework/modeling support to C2BMC software Spiral Testing for MDA`s release of C2BMC v8.x development -Procure, install and maintain Performance Assessment Simulation ensembles for Element M&S development laboratory use in the Digital M&S Integration Center (DMIC) in Huntsville, AL			
FY 2012 Plans: -Develop and delivered major releases of M&S digital products: Digital Simulation Architecture framework for use in Performance Assessment as part of the CD04 Operational Test, real-time venues including Warfighter Exercises, Warfighter Training, C2BMC software Spiral Testing for MDA`s release of C2BMC v8.x development, and Ground Test campaign; Missile Defense Space warning Tool (models validated space-borne assets of BMDS) for use in Performance Assessments and Warfighter Exercises; BMD International Simulation for use in International virtual BMD demonstrations, BMD education, and Warfighter wargames -Integrate, test, functionally qualify, and deliver end-to-end BMDS simulations supporting various uses: Performance Assessment Simulation (utilizing DSA, MDST, and Element-provided high-resolution models) to support full-envelope BMDS performance assessment for Performance Assessment events; Real-time Digital Simulation (utilizing DSA, MDST, and Element-provided medium-resolution models) to support Warfighter Exercises, Warfighter Training, Element spiral development, and Ground Test campaign -Operate and maintain software of the Extended Air Defense Simulation (EADSIM) code base for use in Warfighter Exercises -Provide software support for PATRIOT System Effectiveness Model (PSEM) for use in Performance Assessment events -Control and maintain Performance Assessment Simulation "ensembles" for Element M&S development laboratory use in the Digital M&S Integration Center (DMIC) in Huntsville, AL			
Title: Maintenance, Training and Transportation	-	-	49.956
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments:			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
All FY 2010 activities are funded in Integrated Logistic Support in project BX07 ($26,408) ***FY 2011 Plans:*** All FY 2011 activities are funded in Integrated Logistic Support ($23,024) ***FY 2012 Plans:*** Plans include scope that was previously documented in THAAD element breakouts: Integrated Logistics Support Provide maintenance and transportation for each THAAD component and ensure Government Furnished Equipment (GFE) is available as required. In coordination with the user, develop and maintain training and training equipment and conduct training for THAAD Battery fielding. -Continue support of THAAD Hybrid Army Cell Operations and Support to include Labor and Administrative Services -Provide supportability planning & analysis, training oversight, peculiar support equipment, transportation controls, deployment and sustainment support -Complete Collective Training for Battery #2 -Continue to plan for THAAD New Equipment Training (NET) and Collective Training for Batteries 3 through 9 -Continue to plan, update, manage and conduct replacement training in support of fielded systems -Provide maintenance support on multiple hardware and software configurations of THAAD components -Continue maintenance, operations and transportation in support of the THAAD development -Refurbishment of one Tactical Station Group in preparation for Institutional Training -Continue production of Institutional Conduct for Fire Trainer (ICOFT) -Complete design and initiate production of Radar March Order & Emplacement Trainer (MOET) -Continue support of Army requirement for additional training devices For Institutional Training Base (ITB) based on update to System Training Plan (STRAP)			
Title: Project Redwood- Details at a Higher Classification ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** N/A ***FY 2011 Plans:***	- 0	- 0	21.839 0

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
N/A ***FY 2012 Plans:*** This project is reported in accordance with Title 10, United States Code, Section 119 (a)(1) in the Special Access Program Annual Report to Congress.			
Accomplishments/Planned Programs Subtotals	-	420.463	276.667

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603884C: *Ballistic Missile Defense Sensors*	544.352	454.859	222.374		222.374	357.271	336.514	318.321	348.944	Continuing	Continuing
• 0603888C: *Ballistic Missile Defense Test and Targets*	737.863	1,113.425	1,071.039		1,071.039	898.680	790.906	787.113	878.215	Continuing	Continuing
• 0603892C: *BMD AEGIS*	1,418.992	1,467.278	960.267		960.267	957.992	1,001.510	970.607	1,033.710	Continuing	Continuing
• 0603896C: *BMD C2BMC*	327.074	342.625	364.103		364.103	330.337	353.081	338.835	304.217	Continuing	Continuing
• 0603911C: *BMD EUROPEAN CAPABILITY*	47.342	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	47.342
• 0603913C: *ISRAELI COOPERATIVE*	195.652	121.735	106.100		106.100	99.873	95.819	96.840	103.977	Continuing	Continuing
• Line Number 33: *THAAD*	419.004	858.870	833.150		833.150	728.561	921.781	955.514	745.430	Continuing	Continuing

D. Acquisition Strategy

The planned acquisition strategy for Advance Capability Development activities is for modification to the existing Development contract and award of Task Order contract, targeted for award in FY 2011. The program is posturing for potential competitive awards of select components in FY 2013. Continuation of a Sole Source Task Order Delivery Order Contract for Field Support and Contractor Logistics Support is included.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Weapon Sys Engr Integ & Test (WSEIT) Lockheed Martin 14 MD07	SS/CPAF	LMSSC:Sunnyvale, CA; Huntsville, AL	98.406	25.104	Nov 2010	73.587	Nov 2011	-		73.587	Continuing	Continuing	Continuing
THAAD Fire Control and Communication (TFCC) Tactical Station Groups (TSGs) LMSSC and Raytheon MD07	SS/CPAF	LMSSC and Raytheon:Huntsville, AL	71.645	18.611	Nov 2010	-		-		-	100.168	190.424	118.779
Launcher Lockheed Martin 15 MD07	SS/CPAF	LMSSC:Huntsville, AL	22.773	8.628	Nov 2010	-		-		-	77.255	108.656	85.883
Integrated Logistics Support (ILS) Lockheed Martin 17 MD07	SS/CPAF	LMSSC/Sunnyvale, CA:Huntsville, AL	66.395	13.417	Nov 2010	-		-		-	136.300	216.112	149.717
Interceptor Lockheed Martin 18 MD07	SS/CPAF	LMSSC:CA/ TX,AL,MA,NH,IL,FL & MD	163.811	14.426	Nov 2010	-		-		-	182.761	360.998	197.186
Army Navy/Transportable Radar Surveillance - Model 2 (AN/TPY-2) Radar Lockheed Martin 19 MD07	SS/CPAF	Raytheon:Bedford, MA	272.399	21.852	Nov 2010	-		-		-	102.111	396.362	123.963
Batteries #1 and #2 Lockheed Martin 20 MD07	SS/CPIF	LMSSC:Sunnyvale, CA; Huntsville, AL; NM & HI	570.467	63.851	Nov 2010	-		-		-	0.000	634.318	63.851
Batteries #1 and #2 Raytheon MD07	SS/CPIF	Raytheon :Wolburn, MA; Huntsville, AL	56.000	-		-		-		-	Continuing	Continuing	Continuing
Sustainment Lockheed Martin 21 MD07	SS/CPIF	LMSSC and Raytheon:CA/ TX,AL,MA,NH,IL,FL & MD	70.967	85.985	Nov 2010	-		-		-	0.000	156.952	85.985
Program Management Lockheed Martin 15 MD07	SS/CPAF	LMSSC:Sunnyvale, CA; Huntsville, AL	61.152	5.694	Nov 2010	-		-		-	65.511	132.357	71.205
Modeling and Simulations Teledyne Brown Eng MD07	SS/CPAF	THAAD, Huntsville, AL:Huntsville, AL	34.145	13.090	Nov 2010	7.113		-		7.113	26.318	80.666	39.408
		Subtotal	1,488.160	270.658		80.700		-		80.700			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	PROJECT MD07: *THAAD*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Weapon Sys Engr Integ & Test (WSEIT) Contract Support Services (CSS) 1 MD07	C/FFP	Dynetics, BAE & L3:Huntsville, AL & Salt Lake City, UT	31.040	5.771	Nov 2010	13.641	Nov 2011	-		13.641	Continuing	Continuing	Continuing
Weapon Sys Engr Integ & Test (WSEIT) Other Government Agencies (OGA) 1 MD07	MIPR	RDEC :Huntsville, AL	38.981	24.075	Nov 2010	5.477	Nov 2011	-		5.477	Continuing	Continuing	Continuing
Weapon Sys Engr Integ & Test (WSEIT) MDA Program Support 1 MD07	Various	MDA:Arlington, VA	39.459	6.766	Nov 2010	5.755	Nov 2011	-		5.755	Continuing	Continuing	Continuing
THAAD Fire Control and Communication (TFCC) Tactical Station Groups (TSGs) Contract Support Services 2 MD07	C/FFP	Dynetics, DCD, & Davidson Tech:Silver Spring, MD & Huntsville, AL	3.392	2.107	Nov 2010	-		-		-	8.810	14.309	10.917
THAAD Fire Control and Communication (TFCC) Tactical Station Groups (TSGs) Other Government Agencies 2 MD07	MIPR	NRDEC, RDEC :Natick, MA & Huntsville, AL	0.960	3.643	Nov 2010	-		-		-	9.443	14.046	13.086
THAAD Fire Control and Communication (TFCC) Tactical Station Groups (TSGs) MDA Program Support 2 MD07	Various	MDA:Arlington, VA	12.592	3.273	Nov 2010	-		-		-	7.958	23.823	11.231
Launcher Contract Support Services (CSS) 3 MD07	C/FFP	Teledyne Solutions:Huntsville, AL	1.914	1.600	Nov 2010	-		-		-	6.691	10.205	8.291
Launcher Other Government Agencies 3 MD07	MIPR	RDEC :Huntsville, AL	0.835	2.767	Nov 2010	-		-		-	7.172	10.774	9.939
Launcher MDA Program Support 3 MD07	Various	MDA:Huntsville, AL	6.309	2.179	Nov 2010	-		-		-	6.018	14.506	8.197
System Test Contract Support Services (CSS) MD07	C/CPFF		52.941	3.659	Nov 2010	-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	PROJECT MD07: *THAAD*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Multiple to include Dynetics, L3 & TSI:Huntsville, AL											
System Test Other Government Agency (OGA) MD07	MIPR	Multiple to include WSMR, PMRF, ATEC, RDEC & SMDC:NM, HI, VA & Huntsville, AL	174.436	33.930	Nov 2010	-		-		-	Continuing	Continuing	Continuing
System Test MDA Program Support MD07	Various	MDA:Arlington, VA	26.666	4.779	Nov 2010	3.300	Nov 2011	-		3.300	Continuing	Continuing	Continuing
Integrated Logistics Support (ILS) Contract Support Services 5 MD07	C/FFP	Dynetics, TST.BAE:Huntsville, AL; & Rockville, MD	20.065	3.520	Nov 2010	-		-		-	14.721	38.306	18.241
Integrated Logistics Support (ILS) Other Government Agencies 5 MD07	MIPR	IMMC & USAADASCH:Huntsville, AL; & Fort Bliss, TX	16.562	6.087	Nov 2010	-		-		-	15.777	38.426	21.864
Integrated Logistics Support (ILS) MDA Program Support 15 MD07	MIPR	CECOM, TACOM, GSA, RDEC & SMDC:Ft. Monmouth, NJ; Warren, MI & Huntsville, AL	4.570	-	Nov 2010	-		-		-	8.985	13.555	8.985
Interceptor Contract Support Services (CSS) 6 MD07	C/FFP	Dynetics & GA Tech:Huntsville, AL & GA	17.586	4.800	Nov 2010	-		-		-	20.074	42.460	24.874
Interceptor Other Government Agencies 6 MD07	MIPR	RDEC & SMDC:Huntsville, AL	10.735	8.300	Nov 2010	-		-		-	21.515	40.550	29.815
Interceptor MDA Program Support 5 MD07	Various	MDA:Huntsville, AL	7.263	0.200	Nov 2010	-		-		-	9.935	17.398	10.135
Army Navy/Transportable Radar Surveillance - Model 2 (AN/TPY-2) Radar MDA Program Support 6 MD07	Various	MDA:Arlington, VA	1.420	2.788	Nov 2010	-		-		-	8.079	12.287	10.867
Army Navy/Transportable Radar Surveillance - Model	MIPR	Multiple to include CECOM, RDEC &	1.598	-		-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	PROJECT MD07: *THAAD*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
2 (AN/TPY-2) Radar Other Government Agency MD07		SMDC:Ft. Monmouth, NJ & Huntsville, AL											
Army Navy/Transportable Radar Surveillance - Model 2 (AN/TPY-2) Radar Contract Support Services MD07	C/CPFF	Multiple to include Dynetics & GA Tech:Huntsville, AL & GA	2.367	-		-		-		-	Continuing	Continuing	Continuing
Batteries #1 and #2 GFE MD07	MIPR	Multiple to include CECOM, TACOM, GSA, RDEC & :Ft. Monmouth, NJ; Warren, MI & Huntsville, AL	1.945	-		-		-		-	Continuing	Continuing	Continuing
Sustainment GFE MD07	MIPR	Multiple to include CECOM, TACOM, GSA, RDEC & SMDC:Huntsville, AL	0.424	-		-		-		-	Continuing	Continuing	Continuing
Program Management Contract Support Services 4 MD07	C/FFP	Dynetics, BAE & Tecolote:Huntsville, AL	15.241	2.560	Nov 2010	-		-		-	10.706	28.507	13.266
Program Management Other Government Agencies 4 MD07	MIPR	IMMC & USAADASCH:Huntsville, AL & Fort Bliss, TX	1.788	4.427	Nov 2010	-		-		-	11.474	17.689	15.901
Program Management MDA Program Support 4 MD07	Various	MDA:Arlington, VA	7.874	1.620	Nov 2010	-		-		-	4.873	14.367	6.493
Maintenance, Training and Transportation Lockheed Martin 30 MD07	SS/CPAF	LMSSC:Sunnyvale, CA/ Huntsville, AL	-	-		31.000	Nov 2011	-		31.000	Continuing	Continuing	Continuing
Maintenance, Training and Transportation Other Government Agency MD07	MIPR	RDEC:Huntsville,AL/ FT Bliss, TX	-	-		16.900	Nov 2011	-		16.900	Continuing	Continuing	Continuing
Maintenance, Training and Transportation MDA Program Support 10 MD07	Various	MDA:Huntsville, AL	-	-		2.056	Nov 2011	-		2.056	Continuing	Continuing	Continuing
	SS/FP	N/A:N/A	-	-		21.839	Oct 2011	-		21.839	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	PROJECT MD07: *THAAD*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Redwood- Details at a Higher Classification Special Programs MD07													
		Subtotal	498.963	128.851		99.968		-		99.968			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
System Test BMDS Level Testing MD07	SS/CPAF	LMSSC, Dynetics, WSMR, PMFR, ATEC, RDEC and SMDC:Sunnyvale, CA; Huntsville, AL; NM & HI	50.848	20.954	Dec 2010	95.999	Jan 2012	-		95.999	Continuing	Continuing	Continuing
		Subtotal	50.848	20.954		95.999		-		95.999			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2,037.971	420.463		276.667		-		276.667			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	**PROJECT** MD07: *THAAD*

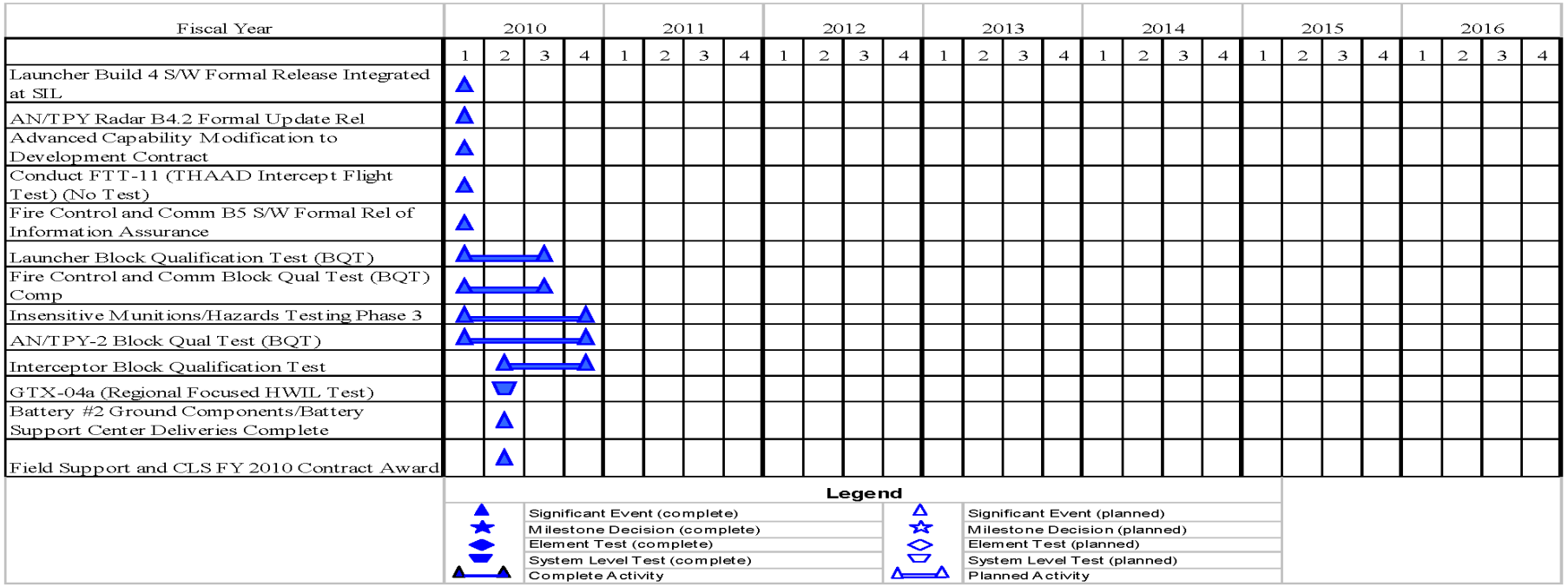

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	**PROJECT** MD07: *THAAD*

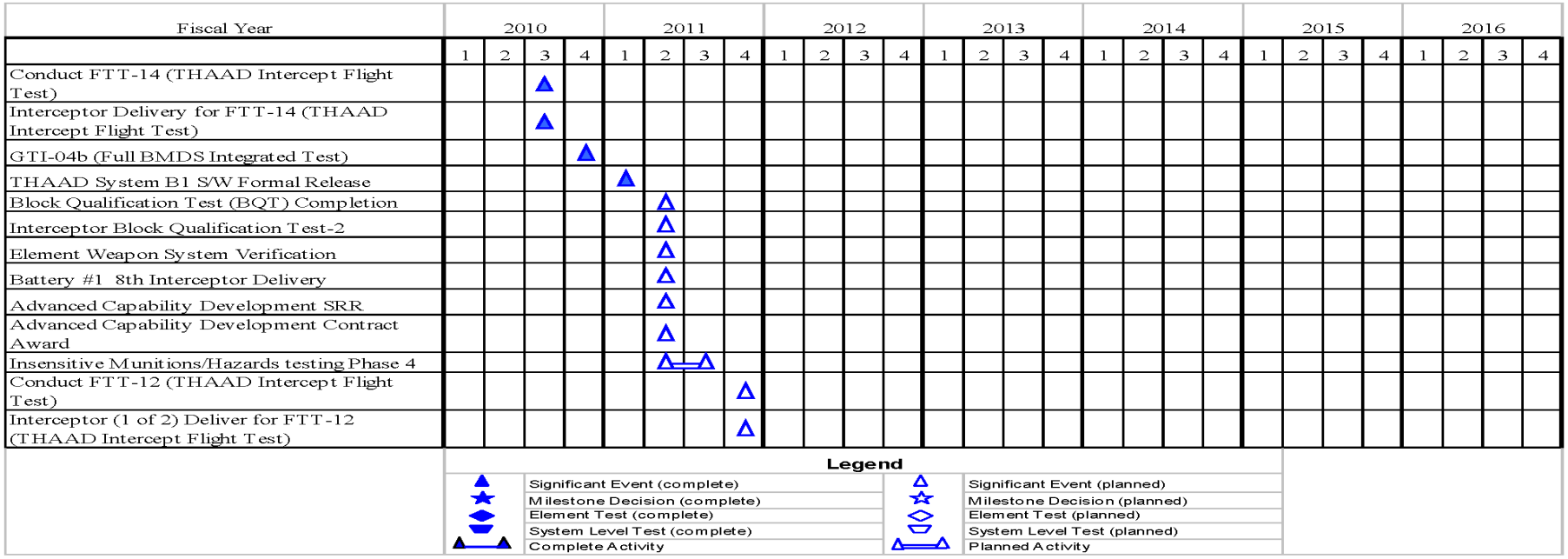

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	**PROJECT** MD07: *THAAD*

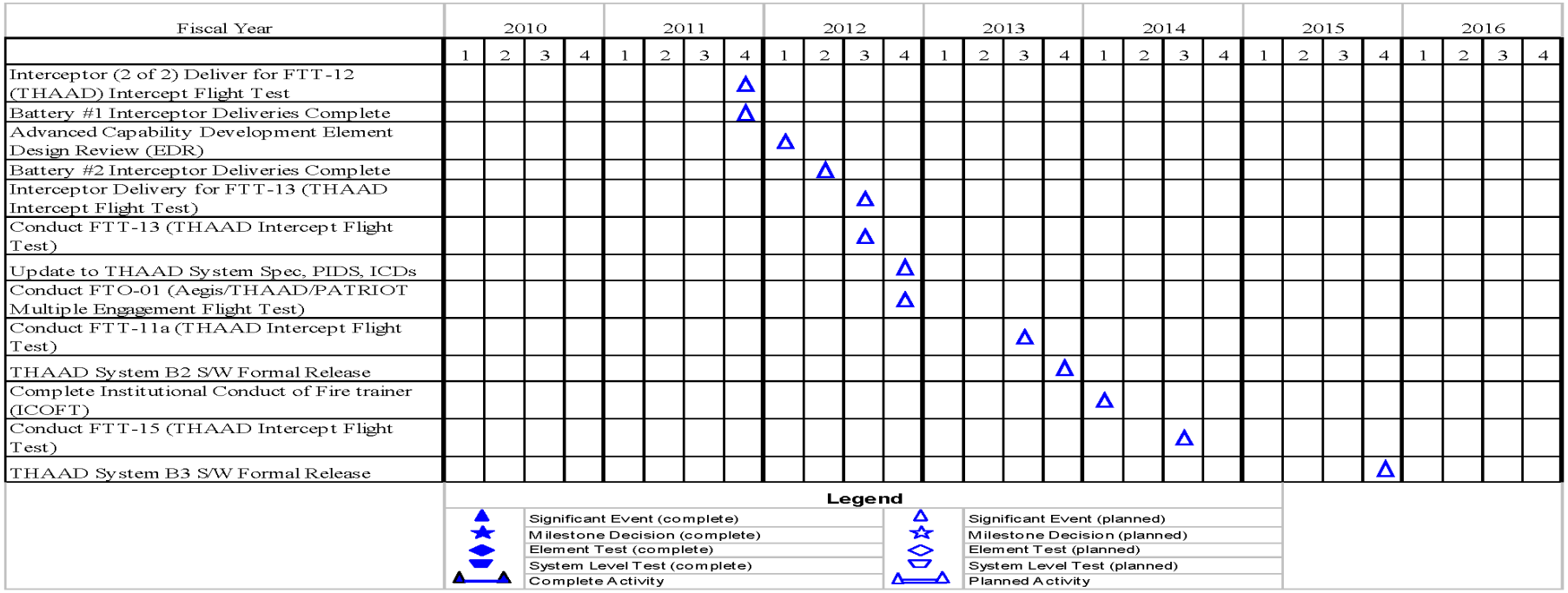

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	**PROJECT** MD07: *THAAD*

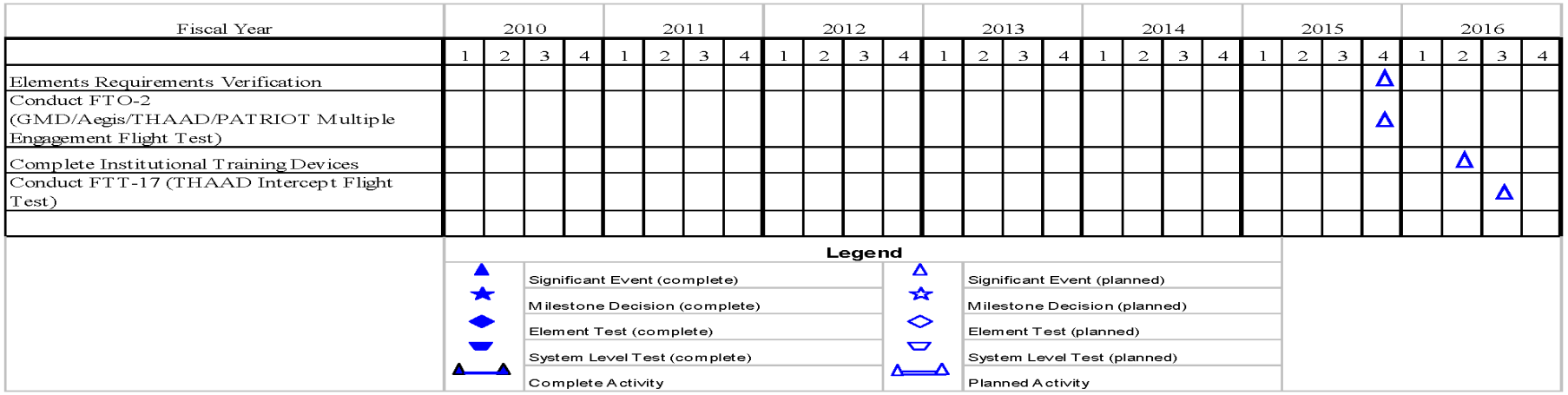

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	**PROJECT** MD07: *THAAD*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Launcher Build 4 S/W Formal Release Integrated at SIL	1	2010	1	2010
AN/TPY Radar B4.2 Formal Update Rel	1	2010	1	2010
Advanced Capability Modification to Development Contract	1	2010	1	2010
Conduct FTT-11 (THAAD Intercept Flight Test) (No Test)	1	2010	1	2010
Fire Control and Comm B5 S/W Formal Rel of Information Assurance	1	2010	1	2010
Launcher Block Qualification Test (BQT)	1	2010	3	2010
Fire Control and Comm Block Qual Test (BQT) Comp	1	2010	3	2010
Insensitive Munitions/Hazards Testing Phase 3	1	2010	4	2010
AN/TPY-2 Block Qual Test (BQT)	1	2010	4	2010
Interceptor Block Qualification Test	2	2010	4	2010
GTX-04a (Regional Focused HWIL Test)	2	2010	2	2010
Battery #2 Ground Components/Battery Support Center Deliveries Complete	2	2010	2	2010
Field Support and CLS FY 2010 Contract Award	2	2010	2	2010
Conduct FTT-14 (THAAD Intercept Flight Test)	3	2010	3	2010
Interceptor Delivery for FTT-14 (THAAD Intercept Flight Test)	3	2010	3	2010
GTI-04b (Full BMDS Integrated Test)	4	2010	4	2010
THAAD System B1 S/W Formal Release	1	2011	1	2011
Block Qualification Test (BQT) Completion	2	2011	2	2011
Interceptor Block Qualification Test-2	2	2011	2	2011
Element Weapon System Verification	2	2011	2	2011
Battery #1 8th Interceptor Delivery	2	2011	2	2011
Advanced Capability Development SRR	2	2011	2	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	**PROJECT** MD07: *THAAD*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Advanced Capability Development Contract Award	2	2011	2	2011
Insensitive Munitions/Hazards testing Phase 4	2	2011	3	2011
Conduct FTT-12 (THAAD Intercept Flight Test)	4	2011	4	2011
Interceptor (1 of 2) Deliver for FTT-12 (THAAD Intercept Flight Test)	4	2011	4	2011
Interceptor (2 of 2) Deliver for FTT-12 (THAAD) Intercept Flight Test	4	2011	4	2011
Battery #1 Interceptor Deliveries Complete	4	2011	4	2011
Advanced Capability Development Element Design Review (EDR)	1	2012	1	2012
Battery #2 Interceptor Deliveries Complete	2	2012	2	2012
Interceptor Delivery for FTT-13 (THAAD Intercept Flight Test)	3	2012	3	2012
Conduct FTT-13 (THAAD Intercept Flight Test)	3	2012	3	2012
Update to THAAD System Spec, PIDS, ICDs	4	2012	4	2012
Conduct FTO-01 (Aegis/THAAD/PATRIOT Multiple Engagement Flight Test)	4	2012	4	2012
Conduct FTT-11a (THAAD Intercept Flight Test)	3	2013	3	2013
THAAD System B2 S/W Formal Release	4	2013	4	2013
Complete Institutional Conduct of Fire trainer (ICOFT)	1	2014	1	2014
Conduct FTT-15 (THAAD Intercept Flight Test)	3	2014	3	2014
THAAD System B3 S/W Formal Release	4	2015	4	2015
Elements Requirements Verification	4	2015	4	2015
Conduct FTO-2 (GMD/Aegis/THAAD/PATRIOT Multiple Engagement Flight Test)	4	2015	4	2015
Complete Institutional Training Devices	2	2016	2	2016
Conduct FTT-17 (THAAD Intercept Flight Test)	3	2016	3	2016

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	PROJECT WX06: *Patriot Advanced Capability-3 (PAC-3)*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
WX06: *Patriot Advanced Capability-3 (PAC-3)*	20.961	-	-	-	-	-	-	-	-	0.000	20.961
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project WX06 Patriot Advanced Capability-3 (PAC-3) has been transferred to Project MD06 Patriot Advanced Capability (PAC-3).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Patriot Advanced Capability-3 (PAC-3)	20.961	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: -SW Coding, Performance Testing, Flight Testing, & Integration scheduled as part of PDB-7.0 Test & Fielding Program.			
Accomplishments/Planned Programs Subtotals	20.961	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	PROJECT MD06: *Patriot Advanced Capability-3 (PAC-3)*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD06: *Patriot Advanced Capability-3 (PAC-3)*	-	1.200	1.230	-	1.230	1.182	1.138	1.153	1.239	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

PATRIOT Advanced Capability (PAC 3) is one of the most mature elements of the Ballistic Missile Defense System and is now operational with the U.S. Army. It is a land-based element built upon the proven PATRIOT air and missile defense infrastructure.

The PATRIOT Advanced Capability-3 System was deployed to the Middle East as part of Operation Iraqi Freedom where it successfully engaged several ballistic missiles.

The Army is responsible for production and further development of Advanced Capability-3 System; the Missile Defense Agency remains responsible for the Ballistic Missile Defense System interoperability and integration efforts.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: General Support	-	1.200	1.230
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: -SW Coding, Performance Testing, Flight Testing, & Integration scheduled as part of PDB-7.0 Test & Fielding Program. Funding for these FY2010 accomplishments are reported in prior year budget project WX06 Patriot Advanced Capability-3 (PAC 3) ($20,961).			
FY 2011 Plans: -Support the day to day tasking that is leveraged upon Lower Tier Project Office (LTPO) by MDA based on the Transfer and Transition Plan Annex L.			
FY 2012 Plans: -Support the day to day tasking that is leveraged upon Lower Tier Project Office (LTPO) by MDA based on the Transfer and Transition Plan Annex L.			
Accomplishments/Planned Programs Subtotals	-	1.200	1.230

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	**PROJECT** MD06: *Patriot Advanced Capability-3 (PAC-3)*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The design objective of the PATRIOT system is to provide an element of the Ballistic Missile Defense System capable of being modified to cope with the evolving threat. This strategy minimizes technological risks and provides a means of enhancing system capability through planned upgrades of deployed systems.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	PROJECT MD06: *Patriot Advanced Capability-3 (PAC-3)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
General Support Evolutionary Development Program (EDP) Task 2 MD06	SS/FFP	Multiple:Multiple	32.360	-		-		-		-	32.360	64.720	32.360
		Subtotal	32.360	-		-		-		-	32.360	64.720	32.360

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
General Support General Support MD06	C/FFP	ITT/CAS:Huntsville, AL	1.160	1.200	Jan 2011	1.230	Jan 2012	-		1.230	Continuing	Continuing	Continuing
		Subtotal	1.160	1.200		1.230		-		1.230			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	33.520	1.200		1.230		-		1.230			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	**PROJECT** MD06: *Patriot Advanced Capability-3 (PAC-3)*

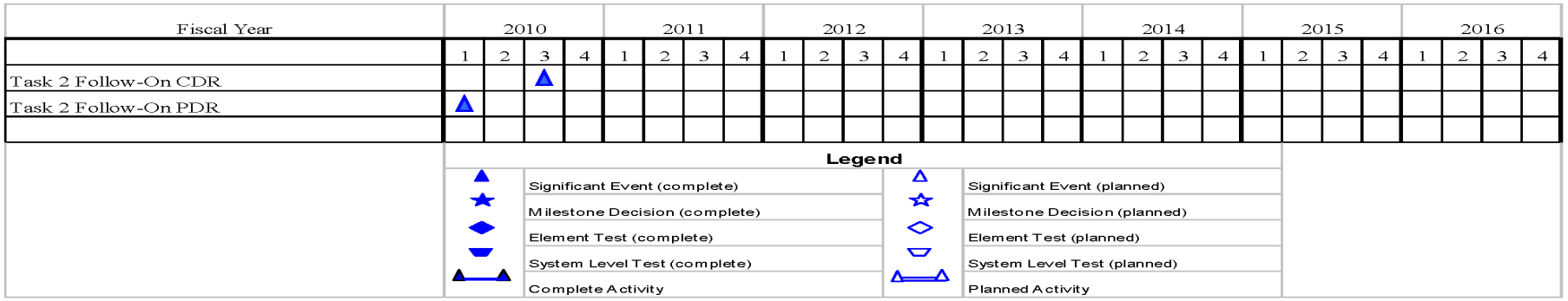

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	**PROJECT** MD06: *Patriot Advanced Capability-3 (PAC-3)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Task 2 Follow-On CDR	3	2010	3	2010
Task 2 Follow-On PDR	1	2010	1	2010

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	PROJECT ZX40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
ZX40: *Program-Wide Support*	38.690	-	-	-	-	-	-	-	-	0.000	38.690
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11

A. Mission Description and Budget Item Justification

Project ZX40 has been transferred project MD40.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	38.690	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	38.690	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	PROJECT MD40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	14.819	12.555	-	12.555	14.612	15.444	16.077	14.731	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). Includes Government Civilians, Advisory and Assistance Services, and Federally Funded Research and Development Contracts (FFRDC) providing integrity and oversight of the BMDS as well as supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2 after FY 2011), such as physical and technical security, legal services, travel and agency training, office and equipment leases, rents and utilities, data and unified communications support, supplies and maintenance, and similar operating expenses. Also includes legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.
In keeping with congressional intent, PWS is allocated among the PEs on a pro-rata basis and therefore fluctuates by year based on the total MDA budget and the individual PE`s budget amount.

Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($35,902).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	-	14.819	12.555
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($35,902).			
FY 2011 Plans: See paragraph A, Mission Description and Budget Item Justification			
FY 2012 Plans: See paragraph A, Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	14.819	12.555

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	**PROJECT** MD40: *Program-Wide Support*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	1,022.019	1,346.181	1,161.001	-	1,161.001	1,040.949	925.943	856.839	875.969	Continuing	Continuing
CX08: *Ground Based Midcourse Defense (GMD) Block 3.0*	822.878	-	-	-	-	-	-	-	-	0.000	822.878
XX08: *Ground Based Midcourse Defense (GMD) Sustainment*	187.070	-	-	-	-	-	-	-	-	0.000	187.070
MD08: *Ground Based Midcourse*	-	1,300.655	1,112.771	-	1,112.771	997.349	884.402	820.197	838.630	Continuing	Continuing
ZX40: *Program-Wide Support*	12.071	-	-	-	-	-	-	-	-	0.000	12.071
MD40: *Program-Wide Support*	-	45.526	48.230	-	48.230	43.600	41.541	36.642	37.339	Continuing	Continuing

Note

In accordance with the Missile Defense Agency (MDA) revised budget structure, the content previously planned in Projects CX08, WX08 and XX08 in the Fiscal Year 2010 budget submissions are now captured in Project MD08.

A. Mission Description and Budget Item Justification

To counter the Intercontinental Ballistic Missile and Intermediate Range Ballistic Missile threat, in accordance with the Achievable Capability List, the United States deploys Ground-Based Midcourse Defense (GMD) interceptors in silos at Fort Greely, Alaska and Vandenberg Air Force Base, California to defend our Homeland from Intercontinental Ballistic Missiles or Intermediate Range Ballistic Missile attack. In Fiscal Year 2012, MDA will continue the development of long-range Ground-based Midcourse Defense capabilities with missile fields at Fort Greely, Alaska and Vandenberg Air Force Base, California, where MDA will maintain twenty-six and four Ground-Based Interceptors (GBI), respectively. This work protects the United States against a limited number of regional actor launches of 1st and 2nd generation Intermediate Range Ballistic Missiles and Intercontinental Ballistic Missiles. Given the small inventory of long-range ballistic missiles deployed by regional actors, thirty highly-ready Ground Based Interceptors in hardened silos will provide the United States defensive capability.

Ground-Based Midcourse Defense Element consists of a complex communications system, fire control capability, and ground-based interceptors. The Ground-Based Midcourse Defense element is a key component of the Ballistic Missile Defense System, providing Combatant Commanders capability to engage ballistic missiles in the midcourse phase of flight. This phase, compared to boost or terminal, allows significant time for sensor viewing from multiple platforms and thus provides multiple engagement opportunities for hit-to-kill interceptors. Ground-Based Midcourse Defense provides the capability to engage and destroy long-range threats in the midcourse battle space to protect the U.S. Homeland.

As part of the Department of Defense reform agenda, reduces funds below the aggregate level reported in FY 2010 for contracts that augment staff functions.

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	1,027.371	1,346.181	1,112.655	-	1,112.655
Current President's Budget	1,022.019	1,346.181	1,161.001	-	1,161.001
Total Adjustments	-5.352	-	48.346	-	48.346
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	5.986	-			
• SBIR/STTR Transfer	-9.864	-			
• Other Adjustment Detail	-1.474	-	48.346	-	48.346

Change Summary Explanation

The FY 2012 $48.346 million dollar increase in this program element is the result of East Coast IDT, and High Priority MDA Transfers, less efficiency savings. This program has realized $52.271 million in efficiency savings.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	PROJECT CX08: *Ground Based Midcourse Defense (GMD) Block 3.0*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
CX08: *Ground Based Midcourse Defense (GMD) Block 3.0*	822.878	-	-	-	-	-	-	-	-	0.000	822.878
Quantity of RDT&E Articles	7	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project CX08 has been transferred to project MD08.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD08 for FY2010 Accomplishments	822.878	-	-
Articles:	7		
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	822.878	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	PROJECT XX08: *Ground Based Midcourse Defense (GMD) Sustainment*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
XX08: *Ground Based Midcourse Defense (GMD) Sustainment*	187.070	-	-	-	-	-	-	-	-	0.000	187.070
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project XX08 has been transferred to project MD08.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD08 for FY 2010 Accomplishments	187.070	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: See Project MD08 for FY2010 Accomplishments.			
Accomplishments/Planned Programs Subtotals	187.070	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	PROJECT MD08: *Ground Based Midcourse*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD08: *Ground Based Midcourse*	-	1,300.655	1,112.771	-	1,112.771	997.349	884.402	820.197	838.630	Continuing	Continuing
Quantity of RDT&E Articles	0	2	5		5	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Projects CX08, WX08 and XX08 in the FY 2010 budget submissions is now captured in Project MD08.

A. Mission Description and Budget Item Justification

Project MD08 provides funding for continued development of Ground-Based Midcourse Defense (GMD) capabilities, with the following functionalities which are included in Ballistic Missile Defense System Integrated Build C and Build D, and fielded in Capability Delivery 04 and Capability Delivery 06.

The Ground-Based Midcourse Defense program is described as follows:

-Ground-Based Midcourse Defense capability consists of communications systems, fire control capabilities, and ground-based interceptors. MDA will continue the development and fielding of the Ground-Based Midcourse Defense capability to defend the U.S. against a limited number of launches of Intermediate-Range Ballistic Missiles and Intercontinental Ballistic Missiles
To prove the Ground-Based Midcourse Defense capability works, MDA will execute a rigorous test program that includes expanding our flight and ground test programs to test our capability against intermediate and long-range threats to build the confidence in the Ballistic Missile Defense System, bolster deterrence against their use, and send a message to potential adversaries looking to acquire ballistic missiles
-MDA will continue to provide for the operations and sustainment of Ground-Based Midcourse Defense fielded capability at Fort Greely, Alaska; Eareckson Air Station, Alaska; Vandenberg Air Force Base, California; the Missile Defense Integration Operations Center (MDIOC), Colorado and across the nation-wide Ground-Based Midcourse Defense Communications Network
-Ground-Based Midcourse Defense will pursue a competitive Development and Sustainment Contract (DSC) for future development; fielding; test; systems engineering, integration and configuration management; equipment manufacturing and upgrade; training; and operations and sustainment support for the Ground-Based Midcourse Defense system and associated support facilities
-MDA will continue execution of a lifecycle management plan to sustain the Ground-Based Midcourse Defense system through 2032 and beyond. To increase reliability of the Ground-Based Interceptor fleet we will rotate newer Ground-Based Interceptors into operational fleet and upgrade older Ground-Based Interceptors for flight testing and operational spares. MDA will execute an obsolescence and technology refresh program for Ground Systems components to mitigate obsolescence issues
-MDA will complete Missile Field 2 (MF2) at Fort Greely, Alaska and plan for the decommissioning of Missile Field 1 (MF1)
-MDA organized a Failure Investigation Team (FIT) that was formed to investigate the cause of the unsuccessful intercept of Flight Test Ground-Based Midcourse Defense-06 (FTG-06). FIT findings were published in August 2010
-MDA established a Failure Review Board (FRB) to investigate the cause of unsuccessful intercept of Flight Test Ground-Based Midcourse Defense-06a (FTG-06a)

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	PROJECT MD08: *Ground Based Midcourse*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Ground Systems	-	195.563	71.773
Articles:	0	2	0

Description: See Description Below

FY 2010 Accomplishments:
The Ground Based Midcourse Defense Ground Systems enable control and operation of the Ground Based Midcourse Defense Element as part of the Ballistic Missile Defense System. Ground Systems consists of the Ground Based Midcourse Defense Fire Control, Test Exerciser, and External Systems Interface (ESI), Ground Based Midcourse Defense Communications Network, In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT), Launch Site Components (LSC) (silos, SIVs), and Launch Support Systems (LSS) (Command Launch Equipment (CLE) and Launch Support Equipment (LSE)).

-Ground Systems 6B suite integrates additional forward based radars (6B1.5) from Sensor`s Army Navy/Transportable Radar Surveillance radars, and software builds (6B2) for Ground-Based Midcourse Defense to provide Command & Control, Battle Management and Communications essential elements of information, 2-stage interceptor demonstration capability, Sea Based X-Band Radar-Interceptor Data Terminal dynamic positioning, Warfighter requested changes, and supports activation of Fort Greely, Alaska Missile Field-2
-Continued the Fort Greely Future Power Plant
-Developed software builds for continued support of the Flight Test capability
-Continued development needed to support transition of the Ground-Based Midcourse Defense Communications Network Long Haul Communications to Defense Information Systems Agency
-Continued construction and integration of fourteen silos for Missile Field-2 and Missile Field-2 Mechanical Electrical Building (MEB)
-Continued development of Command Launch Equipment hardware and software to mitigate obsolescence and support an increased number of Ground Based Interceptors
-Participated in Booster Verification Test-01 (BVT-01) (For reference: event executed under Program Element 0603911C)
-Participated in a Failure Investigation Team (FIT) that was formed to investigate the cause of the unsuccessful intercept of Flight Test Ground-Based Midcourse Defense-06 (FTG-06)

Funding for these FY10 accomplishments are reported in prior year budget project CX08 ($91,385)

FY 2011 Plans:
-Deliver Ground Systems 6B1.5 suite of products to integrate additional forward based Army/Navy Transportable Radar Surveillance radar using the Ballistic Missile Defense System Command, Control, Battle Management, and Communications with the Ground-Based Midcourse Defense Ground System as part of Capability Delivery 04x

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	**PROJECT** MD08: *Ground Based Midcourse*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Deliver Ground Systems 6B2 suite of products for Ground-Based Midcourse Defense to provide Command & Control, Battle Management and Communications essential elements of information for situational awareness, 2-stage interceptor demonstration capability, Sea Based X-Band Radar-Interceptor Data Terminal dynamic positioning, Sea Based X-Band Radar version 3 interoperability, Warfighter requested changes, use of data provided by Army Navy/Transportable Radar Surveillance radars with the Ground-Based Midcourse Defense Ground Systems, and supports activation of Fort Greely, Alaska Missile Field-2 -Initiate design and development of Ground Systems 6B3 suite of products to integrate with the Command & Control, Battle Management and Communications system, accommodate Ground Based Interceptors software changes, support interface change between Space-Based Infrared Satellite Network & the Ground-Based Missile Defense Fire Control and incorporate recommendations from the Warfighter -Continue construction and integration of a new fourteen silo Missile Field-2 and Missile Field-2 Mechanical Electrical Building (MEB) to provide the Warfighter with a highly reliable and hardened Missile Field capability at Fort Greely, Alaska -Continue the Missile Defense Complex Communications infrastructure repairs at Fort Greely, Alaska to meet current DoD / Army operational standards -Complete the Fort Greely Future Power Plant -Initiate design of a second Fire Direction Center Node at Fort Greely, Alaska -Conducted Flight Test Ground-Based Midcourse Defense 06a (FTG-06a) to verify corrective actions from Ground-Based Midcourse Defense 06 (FTG-06) failures ***FY 2012 Plans:*** -Continue development of Ground Systems 6B3 suite of products to initiate Near Term Discrimination (NTD), support interface changes with the Space-Based Infrared System, accommodate Ground Based Interceptors software changes, maintain sensor and Command & Control, Battle Management and Communications integration, and incorporate Warfighter requested changes -Continue the Missile Defense Complex Communications infrastructure repairs at Fort Greely, Alaska. Complete final cutover and transition to the communications Infrastructure to meet current DoD / Army operational standards -Complete the final integration of a new fourteen silo Missile Field-2 and Missile Field-2 Mechanical Electrical Building (MEB) to provide the Warfighter with a highly reliable and hardened Missile Field capability at Fort Greely, Alaska -Complete the design and installation of a second Fire Direction Center Node at Fort Greely, Alaska to provide redundant dual-node Warfighter capability. This node shall be primarily used for flight test, ground test and exercises -Initiate preliminary design in preparation for construction of an IFICS Data Terminal (IDT) at an East Coast site, and GFC and EKV software upgrades to enable a 3rd Communications Event (CE)			
Title: Element Engineering and Integration	-	190.236	108.471
Articles:	0	0	0

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	PROJECT MD08: *Ground Based Midcourse*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Description: See Description Below ***FY 2010 Accomplishments:*** Ground-Based Midcourse Defense Element Engineering and Integration (EE&I) provides systems engineering and integration essential for the development and fielding of the Ground-Based Midcourse Defense hardware and software. Included in this effort are concept definition, requirements and interfaces, system design, integration, test planning and verification efforts. Key products are development and maintenance of the technical baseline and critical engineering processes for implementation and delivery of an integrated Ground-Based Midcourse Defense element capability. Ground-Based Midcourse Defense will support System Pre-Flight predictions for each system level flight test using the test framework set up with the Ballistic Missile Defense System configuration for a particular flight test. This provides the confidence in Flight Test execution by predicting element performance and exercising element interfaces. This work is also used to prove out the construct of the flight test to ensure the required data and data management plan will support System Post Flight Reconstruction objectives. System Post Flight Reconstruction will use a Hardware-In-The-Loop and / or a Digital Models and Simulations Environment to replicate the day of flight for the Ballistic Missile Defense System configuration, modified to represent the actual environmental conditions and target dynamics observed in flight. The results of this testing are used to increase confidence in the models and simulations by anchoring the results with emphasis on the Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs) back to the real world event. CECs/EMEs are the conditions and events where data is obtained from flight and ground tests in order to anchor system models and simulations system post flight reconstruction (SPFR) is used for validation (anchoring) of models and simulations. -Collected test data from CECs/EMEs necessary for validation, verification, and accreditation of modeling and simulation representations used for assessing Ground-Based Midcourse Defense weapon system performance -Collected and Analyzed Critical Engagement Conditions / Empirical Measurement Event data necessary for validation, verification, and accreditation of modeling and simulation applications in the following areas: solar modeling and potential effects on intercepts, Exoatmospheric Kill Vehicle divert system performance, Exoatmospheric Kill Vehicle performance and maneuverability when reentering the atmosphere and 2-stage interceptor performance (For reference: event executed under Program Element 0603911C) -Continued to deliver digital representations of the Ground-Based Midcourse Defense weapon system to support the annual performance assessment -Continued integration of Ground-Based Midcourse Defense digital simulations into the Missile Defense Agency common framework for assessing Ballistic Missile Defense System performance			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	PROJECT MD08: *Ground Based Midcourse*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continued system engineering effort enabling Ballistic Missile Defense System Level capabilities integration among Ground-Based Midcourse Defense, Command & Control, Battle Management and Communications, and Sensors -Continued requirements integration and traceability between Ballistic Missile Defense System Specification documents and corresponding Ground-Based Midcourse Defense requirements and integration documentation -Utilized Exoatmospheric Kill Vehicle Hardware-In-The-Loop Ten-Foot vacuum space chamber (10V Chamber) for Flight Test Ground-Based Midcourse Defense-06 Pre-Mission Testing (PMT). -Continued software management, verification, validation and specialty engineering -Continued system analysis, integration, verification and information sharing with Warfighter community -Continued design, planning, pre- and post-flight test analysis for current and future flight and ground tests -Participated in a Failure Investigation Team (FIT) that was formed to investigate the cause of the unsuccessful intercept of Flight Test Ground-Based Midcourse Defense-06 (FTG-06). FIT findings were published in Aug 2010 with separate failures identified in both the SBX and the EKV -Performed information assurance (IA) activities: conduct engineering and architectural analyses/studies; provide operations and maintenance for IA capabilities; maintain IA workforce training and certification; support certification and accreditation testing and analysis Funding for these FY10 accomplishments are reported in prior year budget project CX08 ($122,609)			
FY 2011 Plans: -Continue modeling and simulation development and integration to assess component and system performance and execute annual Technical Assessments -Continue modeling and simulation verification, validation, and accreditation to establish high confidence in Warfighter assessments -Continue engineering analysis, capability integration, and performance verification for successful Ground-Based Midcourse Defense development and Ballistic Missile Defense System integration; integrate Ground-Based Midcourse Defense Tactical System Hardware / Software with Missile Defense Agency Single Stimulation Framework in support of Ballistic Missile Defense System Ground Test (GT)-04 Campaign -Maintain traceability between the Ballistic Missile Defense System Specification, associated documentation and the corresponding Ground-Based Midcourse Defense Element requirements and integration into Ballistic Missile Defense System -Conduct Ground-Based Midcourse Defense Build D Element Requirements Review and Preliminary Design Review for Ground Systems 6B3, EKV 9.X and 22.X development -Support Component Requirements Reviews and Preliminary Design Reviews to ensure successful development capabilities			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	PROJECT MD08: *Ground Based Midcourse*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continue software management, verification, validation and planning for integration of Ground-Based Midcourse Defense Fire Control 6B2 functionality in support of the Ballistic Missile Defense System Capability Delivery 04 -Trace Ballistic Missile Defense System Specification requirements to Ground-Based Midcourse Defense Capability Document, identify verification methods, document technical Core Standard variances for planning future development activities consistent with window requirements identified in the BMD System Description Document and the software delivery requirements identified in the Master Integration Plan -Continue design, planning, pre- and post-flight test analysis for current and future flight and ground tests -Support planning, integration, execution, and analysis for the Ballistic Missile Defense System Technical Assessment and Ballistic Missile Defense System Performance Assessment -Support Ballistic Missile Defense Systems / Subsystem design review following Element Requirement Reviews to review the maturity of the technical baseline at both the System / Subsystem level and plans for integration, test and verification prior to execution -Support system-level models and simulations accreditation anchored to real-world events -Report element verification activity for Ballistic Missile Defense System performance verification in support of incremental capability deliveries -Initiate the FTG-06a failure response and corrective action implementation			
FY 2012 Plans: -Continue modeling and simulation development and integration to assess component and system performance and execute Technical Assessments -Continue modeling and simulation verification, validation, and accreditation to establish high confidence in Warfighter assessments -Continue engineering analysis, capability integration, and performance verification for successful Ground-Based Midcourse Defense development and Ballistic Missile Defense System integration; development and Ballistic Missile Defense System integration, including GMD certification of compliance with BMD System Specification requirements; ensure compliance with BMD System Description Document integration windows and Master Integration Plan software build requirements; integrate Ground-Based Midcourse Defense -Maintain traceability between the Ballistic Missile Defense System Specification, associated documentation and the corresponding Ground-Based Midcourse Defense Element requirements and integration into Ballistic Missile Defense System Conduct Ground-Based Midcourse Defense Build D Critical Design Review to initiate development for Ground Systems 6B3, EKV 9.X and 22.X -Support Component Critical Design Reviews to ensure successful development capabilities			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continue software management, verification, validation and planning for utilization of Ground-Based Midcourse Defense Fire Control 6B2 functionality in support of the Ballistic Missile Defense System Capability Delivery 04 -Trace Ballistic Missile Defense System Specification requirements to Ground-Based Midcourse Defense Capability Document, identify verification methods, document technical Core Standard variances for planning future development activities consistent with window requirements identified in the BMD System Description Document and the software delivery requirements identified in the Master Integration Plan -Continue FTG-06a failure response and corrective action implementation -Continue design, planning, pre- and post-flight test analysis for current and future flight and ground tests -Utilize Exoatmospheric Kill Vehicle Hardware-In-The-Loop 10-foot vacuum space chamber (10V Chamber) for Pre-Mission Testing (PMT) and Post Flight Reconstruction (PFR) -Support planning, integration, execution, and analysis for the Ballistic Missile Defense System Technical Assessment and Ballistic Missile Defense System Performance Assessment -Support Ballistic Missile Defense System / Subsystem Design Review following Element Design Reviews to review the maturity of the technical baseline at both the System / Subsystem level and plans for integration, test and verification prior to execution -Support system-level models and simulations accreditation anchored to real-world events -Report element verification activity for BMDS performance verification in support of incremental capability deliveries			
Title: Program Integration and Control	-	189.536	146.773
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** This effort provides for the prime contractor and government management of the Ground-Based Midcourse Defense program. Included in this effort is program and business management, program administration, technical and testing oversight, verification of hardware and software development, quality / safety / mission assurance, integrated logistic support, and government manpower and infrastructure to develop, test and sustain the Ground-Based Midcourse Defense system and components. -Provided technical and business management support activities, financial management, cost and schedule performance analysis cost estimation and analysis, configuration management and integration activities -Provided contractor program management, subcontract management, quality assurance, verification of hardware and software development, and technical and testing oversight -Ensured Ground-Based Midcourse Defense program compliance with internal and external direction, policies, and regulations			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continued a ``Mission Assurance and Manufacturing Engineering Program`` to include Quality, Configuration Management, Manufacturing, Engineering, and Safety -Provided Quality Safety and Mission Assurance (QSMA) operations to ensure compliance with Agency requirements for design, test, manufacturing, quality, safety and reliability -Provided Midcourse Element infrastructure support for Agency operations -Planned and executed Flight Test Ground-Based Midcourse Defense-06 (FTG-06) -Planned and executed Booster Verification Test-01 (BVT-01) (For reference: event executed under Program Element 0603911C) Funding for these FY10 accomplishments are reported in prior year budget project CX08 ($184,580)			
FY 2011 Plans: -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 Ground-Based Midcourse Defense program compliance with internal and external direction, policies, and regulations -Conducted Internal Baseline Reviews that align with the six Missile Defense Agency approved baselines -Continue a Mission Assurance and Manufacturing Engineering Program to include Quality, Configuration Management, Manufacturing, Engineering, and Safety -Provide Quality Safety and Mission Assurance (QSMA) operations to ensure compliance with Agency requirements for design, test, manufacturing, quality, safety and reliability -Planned and executed Flight Test Ground-Based Midcourse Defense-06a (FTG-06a) -Initiate the FTG-06a failure response and corrective action implementation			
FY 2012 Plans: -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 Ground-Based Midcourse Defense program compliance with internal and external direction, policies, and regulations -Conduct Internal Baseline Reviews that align with the six Missile Defense Agency approved baselines -Continue a Mission Assurance and Manufacturing Engineering Program to include Quality, Configuration Management, Manufacturing, Engineering, and Safety			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provide Quality Safety and Mission Assurance (QSMA) operations to ensure compliance with Agency requirements for design, test, manufacturing, quality, safety and reliability -Continue FTG-06a failure response and corrective action implementation			
Title: Ground Based Interceptor	-	358.912	403.305
Articles:	0	0	5
Description: See Description Below			
FY 2010 Accomplishments: The Ground Based Interceptor program supports defense of the Homeland by completing and fielding five (GBIs 29-33) and continued manufacturing of six operational 3-stage interceptors (GBIs 34-39) to replace older fielded configuration to maintain a total of 30 operational assets. To aid in the accomplishment of this mission, the Ground Based Interceptor program provides developmental assets for flight testing through conversion of older fielded Ground Based Interceptors to Flight Test configuration. Ground Based Interceptor software builds will also be initiated to implement Single Shot Probability of Kill improvements and booster software changes to accommodate the Fleet Avionics Upgrade / Obsolescence Program. -Completed acquisition of three additional Ground Based Interceptors (GBIs 31-33) and emplaced a total of five Ground Based Interceptors (GBIs 29-33) at Fort Greely, Alaska or Vandenberg Air Force Base California to replace older fielded Ground Based Interceptors -Completed acquisition of Booster Verification Test-01 with Exoatmospheric Kill Vehicle for 2-Stage Interceptor Verification Testing. (For reference: event executed under Program Element 0603911C) -Initiated and completed upgrade of two fielded Ground Based Interceptors -Continued acquisition of 11 Ground Based Interceptors (GBIs 34-44) to replace older fielded Ground Based Interceptors -Continued development of software for Ground Based Interceptor -Participated in a Failure Investigation Team (FIT) that was formed to investigate the cause of the unsuccessful intercept of Flight Test Ground-Based Midcourse Defense-06 (FTG-06). FIT findings were published in Aug 2010 with separate failures identified in both the SBX and the EKV. EKV failure was determined to be a quality escape and process/procedural changes have been incorporated in future units including the FTG-06a EKV. Additional mitigations including hardware design modifications are being evaluated with plans for incorporation in follow-on test and operational assets Funding for these FY10 accomplishments are reported in prior year budget project CX08 ($326,660)			
FY 2011 Plans: -Initiate upgrade of one fielded Ground Based Interceptor			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continue acquisition of six additional Ground Based Interceptors (GBIs 34-39) for Fort Greely, Alaska or Vandenberg Air Force Base to replace older fielded Ground Based Interceptors to reduce the age of the fielded fleet -Continue acquisition of five Ground Based Interceptors (GBIs 40-44) to replace older fielded Ground Based Interceptors -Initiate flight test rotation plan of older fielded Ground Based Interceptors to Flight Test configuration to support Integrated Master Test Plan requirements and Stockpile Reliability Program -Initiate Upgrade Kit and Limited Life Item Hardware purchases that will be used to upgrade the fielded Ground Based Interceptors to support flight test rotations of older GBIs as part of the program plan to sustain the Ground Based Interceptors to Fiscal Year 2032 and beyond -Continue purchase of booster and Exoatmospheric Kill Vehicle components including motor sets for five additional new Ground Based Interceptors, (Fleet Avionics Upgrade/Obsolescence Program), mitigating manufacturing restart costs of the select group of warm Ground Based Interceptor 3rd and 4th tier suppliers -Complete testing and fielding of Exoatmospheric Kill Vehicle version 9.X/22.X software that will improve Single Shot Probability of Kill by 30% -Initiate Exoatmospheric Kill Vehicle software development for increasing Single Shot Probability of Kill and to incorporate known critical software changes -Continue Ground Based Interceptor Stockpile Reliability Program which includes testing of available Ground Based Interceptor components to collect reliability and aging data and assessment of operational fleet and flight test rotation upgrade requirements -Resume development of the GBI Fleet Avionics Upgrade / Obsolescence Program -Initiate booster software development to accommodate the Fleet Avionics Upgrade / Obsolescence Program -Continue 2-Stage Ground Based Interceptor acquisition for Flight Test -Initiate the FTG-06a failure response and corrective action implementation			
FY 2012 Plans: -Complete acquisition of six Ground Based Interceptors (GBIs 34-39) to replace older fielded Ground Based Interceptors -Continue acquisition of five Ground Based Interceptor (GBI-40-44) to replace older fielded Ground-Based Interceptors -Continue flight test rotation plan of older fielded Ground Based Interceptors to Flight Test configuration to support Integrated Master Test Plan requirements -Continue acquisition of Upgrade Kit and Limited Life Item Hardware that will be used to support flight test rotations of fielded GBIs as part of the program plan to sustain the Ground Based Interceptors to Fiscal Year 2032 and beyond -Complete purchase of booster and Exoatmospheric Kill Vehicle components including motor sets for five additional new Ground Based Interceptors (Fleet Avionics Upgrade/Obsolescence Program), mitigating manufacturing restart costs of the select group of warm Ground Based Interceptor 3rd and 4th tier suppliers			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Complete Exoatmospheric Kill Vehicle software development for increasing Single Shot Probability of Kill and to incorporate known critical software changes -Continue Ground Based Interceptor Stockpile Reliability Program which includes testing of available Ground Based Interceptor components to collect reliability and aging data and assessment of operational fleet upgrade requirements -Continue development of the GBI Fleet Avionics Upgrade / Obsolescence Program -Continue FTG-06a failure response and corrective action implementation			
Title: BMDS Level Testing	-	182.247	140.504
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Ground-Based Midcourse Defense executes a rigorous test program that includes expanding our flight and ground test programs to test our capability against intermediate- and long-range threats. The test program is intended to demonstrate the missile defense capabilities under developments and ensure the capabilities transferred to the Warfighter are operationally effective, suitable, and survivable. Missile Defense Agency Element testing is based on an integrated, comprehensive, and phased test program. Element systems, subsystems, and components are tested early in development and are necessary prior to conducting Ballistic Missile Defense-System level testing. Ground-Based Midcourse Defense Element Level testing is funded as part of a developmental program and reflected in this Program Element submission. This Program Element also provides Ground-Based Midcourse Defense participation in the consolidated Missile Defense Agency-wide System Test Program and the resources for the, planning, design, execution, and management of Ground-Based Midcourse Defense in Ballistic Missile Defense System testing in accordance with the Ballistic Missile Defense System Test Policy, Missile Defense Agency Directive 3202.03 (January 2009). -Conducted Flight Test Ground-Based Midcourse Defense-06 (FTG-06) intercept flight test, which resulted in an unsuccessful intercept of an IRBM-class target launched from the Reagan Test Site. -A Failure Investigation Team (FIT) was formed to investigate the cause of the unsuccessful intercept. FIT findings were published in Aug 2010 with separate failures identified in both the SBX and the EKV. -A re-test (Flight Test Ground-Based Midcourse Defense-06a) was conducted in 1QFY2011. -Mitigations for the SBX failure have been identified and will be incorporated in a spiral fashion with initial spiral planned for demonstration during FTG-06a. EKV failure was determined to be a quality escape and process/procedural changes have been			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
incorporated in future units including the FTG-06a EKV. Additional mitigations including hardware design modifications are being evaluated with plans for incorporation in follow-on test and operational assets -Participated in Booster Verification Test-01 (For reference: event executed under Program Element 0603911C) -First time event for flying a 2-stage Ground-Based Interceptor, performing Exoatmospheric Kill Vehicle separation from a 2-stage booster and delivering an Exoatmospheric Kill Vehicle to its insertion point -Collected Critical Engagement Conditions / Empirical Measurement Event data necessary for validation, verification, and accreditation of modeling and simulation applications in the following areas: solar modeling and potential effects on intercepts, Exoatmospheric Kill Vehicle divert system performance, Exoatmospheric Kill Vehicle performance and maneuverability when reentering the atmosphere and 2-stage interceptor performance -Initiated early planning and analysis for Flight Test Ground-based Midcourse Defense-06a, using a Ground Based Interceptor launched from Vandenberg AFB (VAFB) against a target launched from Reagan Test Site (RTS) -Conducted System Post-Flight Reconstruction using flight test data to assist in validation and updates of models and simulations -Continued to support execution of Ballistic Missile Defense System Ground Test-04 test campaign to assess Ballistic Missile Defense system capabilities -Demonstrated Ground-Based Midcourse Defense Fire Control 6B1.5 Funding for these FY10 accomplishments are reported in prior year budget project CX08 ($97,644)			
FY 2011 Plans: -Conducted Flight Test Ground-Based Midcourse Defense 06a (FTG-06a), a 3-stage intercept of IRBM target based on results from the FTG-06 3-stage intercept engagement with associated objects, using a Ground Based Interceptor launch from Vandenberg Air Force Base, California against a target launched from Reagan Test Site (RTS) but unable to achieve planned intercept -Verified corrective actions from FTG-06 failure -Initiated Failure Review Board (FRB) to identify root cause of unachieved intercept -Collected Critical Engagement Conditions / Empirical Measurement Event data that validates Models and Simulations estimates on interceptor performance in medium closing velocity engagements and Exoatmospheric Kill Vehicle performance with multiple competing objects -Initiate the FTG-06a failure response, which may include the conduct of a non-intercept test to verify FTG-06a corrective actions. Non-intercept test, if required, will be Flight Test Ground-Based Midcourse Defense Kill Vehicle Test (FTI-06b), a 3-stage			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Capability Enhancement II (CEII) non-intercept test of the EKV, using a Ground- Based Interceptor launch from Vandenberg Air Force Base, California. There is no target planned for this test. -Verify FTG-06a corrective actions -Critical Engagement Conditions / Empirical Measurement Event data collected validates Models and Simulations estimates on Exoatmospheric Kill Vehicle discrimination performance. -Demonstrate upgrades on the EKV as a risk reduction in preparation for GMD intercept flight test FTG-06b. -Continue to support execution of Ballistic Missile Defense System Ground Test-04 test campaign to assess Ballistic Missile Defense System capabilities -Initiate planning for Flight Test Ground-Based Midcourse Defense-06b (FTG-06b), a 3-stage intercept engagement with associated objects, using a Ground Based Interceptor launch from Vandenberg Air Force Base against a target launched from RTS ***FY 2012 Plans:*** -Continue to support execution of Ballistic Missile Defense System Ground Test-04 test campaign to assess Ballistic Missile Defense System capabilities -Continue FTG-06a failure response and corrective action implementation to include re-testing in FTG-06b -Conduct Flight Test Ground-Based Midcourse Defense-06b (FTG-06b), a 3-stage Capability Enhancement II (CEII) intercept engagement with associated objects, using a Ground-Based Interceptor launch from Vandenberg Air Force Base, California against a target launched from RTS -Verify FTG-06a corrective actions -Critical Engagement Conditions / Empirical Measurement Event data collected validates Models and Simulations estimates on booster, avionics and divert systems performance over time and Exoatmospheric Kill Vehicle discrimination performance on new threat scene with more and different types of multiple competing objects -Demonstrate Ground-Based Midcourse Defense Fire Control 6B2 / Command Launch Equipment 4.3 functionality in an intercept Flight Test GMD (FTG)			
Title: Sustainment	-	184.161	241.945
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments:			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
The Operations and Sustainment mission provides for the operations, maintenance, repair, training, sustaining engineering (including stock pile reliability and logistics) of the Ground-Based Midcourse Defense System. In addition to the above, base operations support for Ground-Based Midcourse Defense facilities in Colorado Springs, Colorado; Vandenberg Air Force Base, California; Fort Greely, Alaska; and Eareckson Air Station, Alaska are included as well as Government Furnished Services and Equipment (GFX). Execution of the Operations and Sustainment mission will be achieved through a combination of directed activities under the competitively awarded Performance Based Logistics contract (operations, maintenance, repair and training) and through direct placement of funding to mission essential activities (stockpile reliability, logistics, base operations costs and GFX). -Provided Ground-Based Midcourse Defense Element Operations and Sustainment for Primary Mission Equipment, support equipment, and operational facilities at all Ground-Based Midcourse Defense sites -Continued reduction of spares replenishment through logistics repair analysis captured through performance metrics creating changes in procedures that reduce preventative and corrective maintenance repairs, improve reliability, Reliability Centered Maintenance (RCM), and Condition Based Maintenance (CBM) -Continued on-site sustaining engineering, ensuring logistics analysis is incorporated in technical data products -Continued Stockpile Reliability Program (SRP) and component aging testing -Continued to train, educate, qualify and certify the Warfighter and other staff members as well as develop and field technical manuals to maintain crew proficiency and support architecture baseline changes -Continued Base Operations Support at all Ground-Based Midcourse Defense Sites in accordance with host installation support agreements Funding for these FY10 accomplishments are reported in prior year budget project XX08 ($187,070) ***FY 2011 Plans:*** -Provide Ground-Based Midcourse Defense Element operations and sustainment for Primary Mission Equipment (PME), support equipment, and operational facilities at all Ground-based Midcourse Defense sites -Continue reduction of spares replenishment through logistics repair analysis captured through performance metrics creating changes in procedures that reduce preventative and corrective maintenance repairs, improve reliability, Reliability Centered Maintenance (RCM), and Condition Based Maintenance (CBM) -Continue on-site sustaining engineering, ensuring logistics analysis is incorporated in technical data products -Continue Stockpile Reliability Program (SRP) and component aging testing to understand the health of the deployed assets -Continue to train, educate, qualify and certify the Warfighter and other staff members as well as develop and field technical manuals to maintain crew proficiency and support architecture baseline changes			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continue Base Operations Support at all Ground-Based Midcourse Defense Sites in accordance with host installation support agreements ***FY 2012 Plans:*** -Provide Ground-Based Midcourse Defense Element operations and sustainment for Primary Mission Equipment (PME), support equipment, and operational facilities at all Ground-based Midcourse Defense sites -Continue reduction of spares replenishment through logistics repair analysis captured through performance metrics creating changes in procedures that reduce preventative and corrective maintenance repairs, improve reliability, Reliability Centered Maintenance (RCM), and Condition Based Maintenance (CBM) -Continue on-site sustaining engineering, ensuring logistics analysis is incorporated in technical data products -Continue Stockpile Reliability Program (SRP) and component aging testing to understand the health of the deployed assets -Continue to train, educate, qualify and certify the Warfighter and other staff members as well as develop and field technical manuals to maintain crew proficiency and support architecture baseline changes -Continue Base Operations Support at all Ground-Based Midcourse Defense Sites in accordance with host installation support agreements -Initiate Ground Systems Obsolescence and Technology Refresh Program to address software and hardware obsolescence, reliability, and information assurance			
Accomplishments/Planned Programs Subtotals	-	1,300.655	1,112.771

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603884C: *Ballistic Missile Defense Sensors*	544.352	454.859	222.374		222.374	357.271	336.514	318.321	348.944	Continuing	Continuing
• 0603888C: *Ballistic Missile Defense Test and Targets*	737.863	1,113.425	1,071.039		1,071.039	898.680	790.906	787.113	878.215	Continuing	Continuing
• 0603890C: *Ballistic Missile Defense Enabling Programs*	355.870	402.769	373.563		373.563	331.203	314.193	336.749	346.560	Continuing	Continuing
• 0603896C: *BMD C2BMC*	327.074	342.625	364.103		364.103	330.337	353.081	338.835	304.217	Continuing	Continuing
• 0603898C: *BMD JOINT WARFIGHTER SUPPORT*	58.105	68.726	41.225		41.225	58.089	55.961	56.479	60.684	Continuing	Continuing
	82.926	86.198	69.325		69.325	64.514	55.808	56.769	54.621	Continuing	Continuing

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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*											
• 0603907C: *SEA BASED X-BAND RADAR (SBX)*	157.739	153.056	177.058		177.058	172.622	162.628	185.934	173.587	Continuing	Continuing
• 0603911C: *BMD EUROPEAN CAPABILITY*	47.342	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	47.342

D. Acquisition Strategy

The Ground-Based Midcourse Defense program will continue to follow the Missile Defense Agency`s capability-based acquisition strategy that emphasizes testing, development, and evolutionary acquisition through incremental development. The Agency has structured the missile defense acquisition strategy to continually provide needed upgrades to the Ground-Based Midcourse Defense system components within authorized funding availability. This process 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.

Ground-Based Midcourse Defense will award a competitive Development and Sustainment Contract (DSC) for continuing development; fielding; test; systems engineering, integration and configuration management; equipment manufacturing and upgrade; training, and operations and sustainment support for the Ground-Based Midcourse Defense system and associated support facilities. This competition based acquisition approach, emphasizes application of performance based tenets to establish long term relationships which provide timely high quality support of the core Ground-Based Midcourse Defense weapons system while reducing life cycle and long-term ownership costs. The Ground-Based Midcourse Defense competitive acquisition approach implements a transition strategy for the current contracts to DSC to support uninterrupted field operations, continued development, interceptor manufacturing, and test execution.

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Systems Long Haul Communications Transfer to Defense Information Systems Agency MD08	MIPR	MDA:DISA	26.000	6.967	May 2011	5.585		-		5.585	Continuing	Continuing	Continuing
Ground Systems Fort Greely Missile Field 2 MD08	SS/CPAF	Boeing:AL/AK/AZ/CA/CO/VA	252.901	67.100	May 2011	-		-		-	0.000	320.001	Continuing
Ground Systems Ground Systems Engineering Services MD08	SS/CPAF	Boeing:AL/AK/AZ/CA/CO/VA	-	39.378	May 2011	16.712		-		16.712	Continuing	Continuing	Continuing
Ground Systems Ground Systems Software Development 6B Dot Builds MD08	SS/CPAF	Boeing:AL/AK/AZ/CA/CO/VA	17.160	21.412	May 2011	-		-		-	0.000	38.572	Continuing
Ground Systems Ground Systems Software Development 6B.3 with NTD MD08	SS/CPAF	Boeing:AL/AK/AZ/CA/CO/VA	-	27.804	May 2011	33.143		-		33.143	Continuing	Continuing	Continuing
Ground Systems East Coast IDT MD08	SS/CPAF	Boeing:AL	-	-	May 2011	16.333		-		16.333	Continuing	Continuing	Continuing
Ground Based Interceptor Ground Based Interceptors 34-44 MD08	SS/CPAF	Boeing:AL/AK/AZ/CA/CO/TX/VA	292.873	136.771	May 2011	182.770		-		182.770	Continuing	Continuing	Continuing
Ground Based Interceptor Ground Based Interceptors Upgrades & Operational Spares MD08	SS/CPAF	Boeing:AL/AK/AZ/CA/CO/TX/VA	22.006	73.153	May 2011	122.742		-		122.742	Continuing	Continuing	Continuing
Ground Based Interceptor Ground Based Interceptors Supplier Restart / Requalification MD08	SS/CPAF	Boeing:AL/AK/AZ/CA/CO/TX/VA	50.000	40.029	May 2011	28.084		-		28.084	Continuing	Continuing	Continuing
Ground Based Interceptor Ground Based Interceptors Software Maintenance & Updates MD08	SS/CPAF	Boeing:AL/AK/AZ/CA/CO/TX/VA	-	9.590	May 2011	11.593		-		11.593	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	PROJECT MD08: *Ground Based Midcourse*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Based Interceptor Ground Based Interceptors Fleet Avionics Upgrade/ Obsolescence Program Development MD08	SS/CPAF	Boeing:AL/AK/AZ/CA/ CO/TX/VA	-	39.114	May 2011	2.912		-		2.912	Continuing	Continuing	Continuing
Ground Based Interceptor Ground Based Interceptors Rotations for Ballistic Missile Defense System Level Testing MD08	SS/CPAF	Boeing:AL/AK/AZ/CA/ CO/TX/VA	86.422	60.255	May 2011	55.204		-		55.204	Continuing	Continuing	Continuing
		Subtotal	747.362	521.573		475.078		-		475.078			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Ground Systems Ground Systems Prime Program Support MD08	SS/CPAF	Boeing:AL/AK/AZ/CA/ CO/TX/VA	47.037	32.902	May 2011	-		-		-	0.000	79.939	Continuing
Element Engineering and Integration Ballistic Missile Defense System Hardware-In-The-Loop MD08	MIPR	MDA:AL/VA	34.145	34.257	May 2011	32.845		-		32.845	Continuing	Continuing	Continuing
Element Engineering and Integration Modeling and Simulation MD08	SS/CPAF	Boeing:AL/AK/AZ/CA/ CO/TX/VA	39.788	48.554	May 2011	41.010		-		41.010	Continuing	Continuing	Continuing
Element Engineering and Integration System Engineering and Integration MD08	SS/CPAF	Boeing:AL/AK/AZ/CA/ CO/TX/VA	105.337	84.391	May 2011	23.469		-		23.469	Continuing	Continuing	Continuing
Element Engineering and Integration Information Assurance MD08	SS/CPAF	Boeing:AL/AK/AZ/CA/ CO/TX/VA	-	23.034	May 2011	11.147		-		11.147	Continuing	Continuing	Continuing
	MIPR	MDA:/AL	25.058	28.789	Oct 2010	22.218		-		22.218	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	PROJECT MD08: *Ground Based Midcourse*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Integration and Control Global Deployment Support MD08													
Program Integration and Control Prime Program Management MD08	SS/CPAF	Boeing:AL/AK/AZ/CA/CO/TX/VA	159.315	61.905	May 2011	34.388		-		34.388	Continuing	Continuing	Continuing
Program Integration and Control Govt Civilian Salaries MD08	MIPR	MDA:AL/VA	53.100	20.650	Oct 2010	39.334		-		39.334	Continuing	Continuing	Continuing
Program Integration and Control FFRDC Support MD08	MIPR	MIT/LL:AL/VA/CO	10.421	6.321	Oct 2010	2.360		-		2.360	Continuing	Continuing	Continuing
Program Integration and Control Contract Support Services MD08	C/CPAF	MDA:AL/VA/CO/AK	127.658	67.071	Oct 2010	43.713		-		43.713	Continuing	Continuing	Continuing
Program Integration and Control Other Govt Agencies MD08	MIPR	Various:AL/VA/FL/CO	11.800	3.500	Oct 2010	3.260		-		3.260	Continuing	Continuing	Continuing
Program Integration and Control Safety and Quality MD08	C/CPAF	Boeing:AL/AK/AZ/CA/CO/TX/VA	7.096	1.300	May 2011	-		-		-	Continuing	Continuing	Continuing
Program Integration and Control Travel MD08	MIPR	MDA:AL/VA	-	-	Oct 2010	1.500		-		1.500	Continuing	Continuing	Continuing
Sustainment Maintenance of Primary System MD08	SS/CPAF	Boeing:AL/AK/CA	270.223	69.914	May 2011	100.123		-		100.123	Continuing	Continuing	Continuing
Sustainment Sustaining Support Services MD08	SS/CPAF	Boeing:AL/AK/CA	259.254	49.895	May 2011	52.119		-		52.119	Continuing	Continuing	Continuing
Sustainment Operations & Sustainment Repair and Maintenance Personnel MD08	SS/CPAF	Boeing:AL/AK/CA	42.719	11.614	May 2011	21.309		-		21.309	Continuing	Continuing	Continuing
Sustainment Stockpile Reliability MD08	MIPR	Naval Surface Warfare Center:IN	34.949	16.098	May 2011	25.982		-		25.982	Continuing	Continuing	Continuing
	MIPR	Army:Ft. Greely, AK	23.289	15.440	May 2011	10.325		-		10.325	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	PROJECT MD08: *Ground Based Midcourse*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Sustainment Fort Greely, Alaska Operations (Gov`t Leases & Services) MD08													
Sustainment Vandenberg Air Force Base Operations (Gov`t Leases & Services) MD08	MIPR	Air Force:Vandenberg, CA	-	4.500	May 2011	3.338		-		3.338	Continuing	Continuing	Continuing
Sustainment Colorado Springs Operations (Gov`t Leases & Services) MD08	MIPR	Air Force:COS, CO	-	8.200	May 2011	5.435		-		5.435	Continuing	Continuing	Continuing
Sustainment Government Furnished Equipment & Services (GFX) MD08	MIPR	Military Traffic Management Command:Various	25.297	8.500	May 2011	8.937		-		8.937	Continuing	Continuing	Continuing
Sustainment GS Obsolescence MD08	SS/CPAF	Boeing:AL/AK/AZ/CA/CO/VA	-	-	May 2011	14.186		-		14.186	Continuing	Continuing	Continuing
Sustainment Decomission Missile Field 1 Planning MD08	MIPR	MDA:AL	-	-	May 2011	0.191		-		0.191	Continuing	Continuing	Continuing
		Subtotal	1,276.486	596.835		497.189		-		497.189			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BMDS Level Testing Ground Test-04 Campaign (Focused-Integrated-Distributed) MD08	C/CPAF	Boeing:AL/AK/AZ/CA/CO/TX/VA	-	15.640	May 2011	17.344		-		17.344	Continuing	Continuing	Continuing
BMDS Level Testing Ground Based Midcourse Defense Ground Chamber Tests MD08	C/CPAF	Boeing:AL/AK/AZ/CA/CO/TX/VA	-	35.298	May 2011	3.629		-		3.629	Continuing	Continuing	Continuing
BMDS Level Testing Flight Test Range Costs MD08	MIPR	VAFB, CA/RTS, Kwaj:PMRF, HI	-	24.486	May 2011	13.227		-		13.227	Continuing	Continuing	Continuing
BMDS Level Testing Flight Test Planning, Analysis & Execution MD08	C/CPAF	Boeing:AL/AK/AZ/CA/CO/TX/VA	83.424	54.448	May 2011	57.481		-		57.481	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	PROJECT MD08: *Ground Based Midcourse*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BMDS Level Testing Target of Opportunity Test Participation (Flight Test Sensors / Flight Test Experiment) MD08	C/CPAF	Boeing:AL/AK/AZ/CA/CO/TX/VA	-	1.001	May 2011	-		-		-	Continuing	Continuing	Continuing
BMDS Level Testing Test Infrastructure & Support MD08	C/CPAF	Boeing:AL/AK/AZ/CA/CO/TX/VA	42.675	43.954	May 2011	42.349		-		42.349	Continuing	Continuing	Continuing
BMDS Level Testing Flight Test Silo Turnaround MD08	C/CPAF	Boeing:AL/AK/AZ/CA/CO/TX/VA	-	7.420	May 2011	6.474		-		6.474	Continuing	Continuing	Continuing
		Subtotal	126.099	182.247		140.504		-		140.504			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2,149.947	1,300.655		1,112.771		-		1,112.771			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	**PROJECT** MD08: *Ground Based Midcourse*

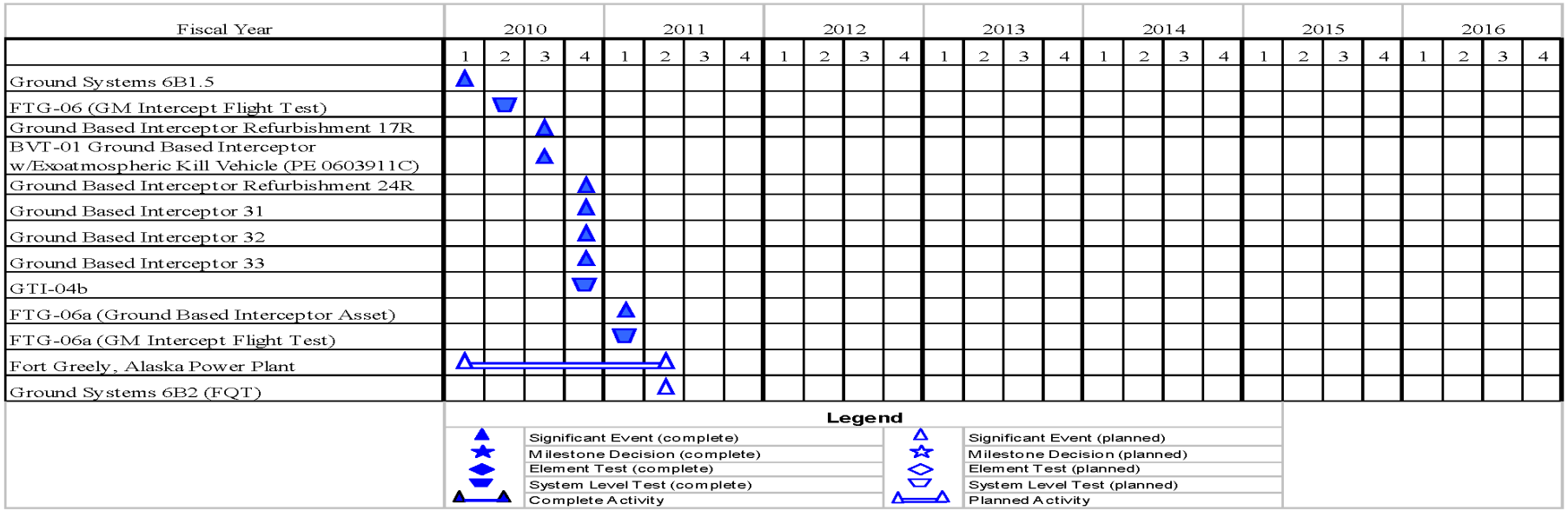

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		**DATE:** February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	**PROJECT** MD08: *Ground Based Midcourse*

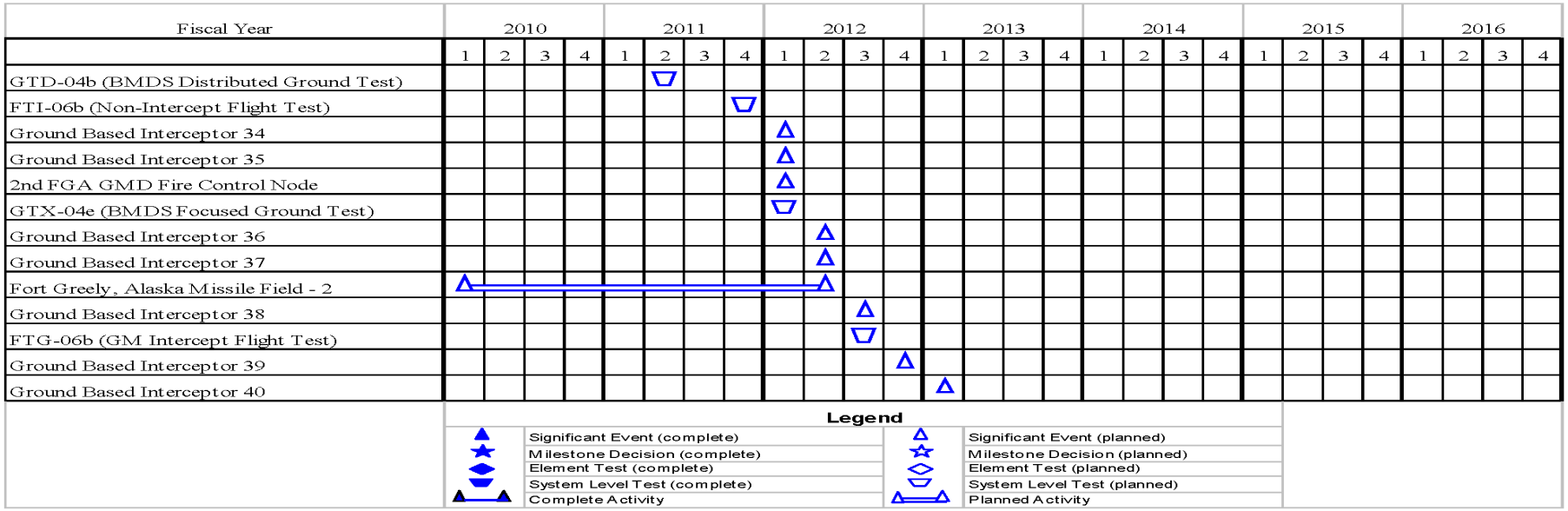

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	**PROJECT** MD08: *Ground Based Midcourse*

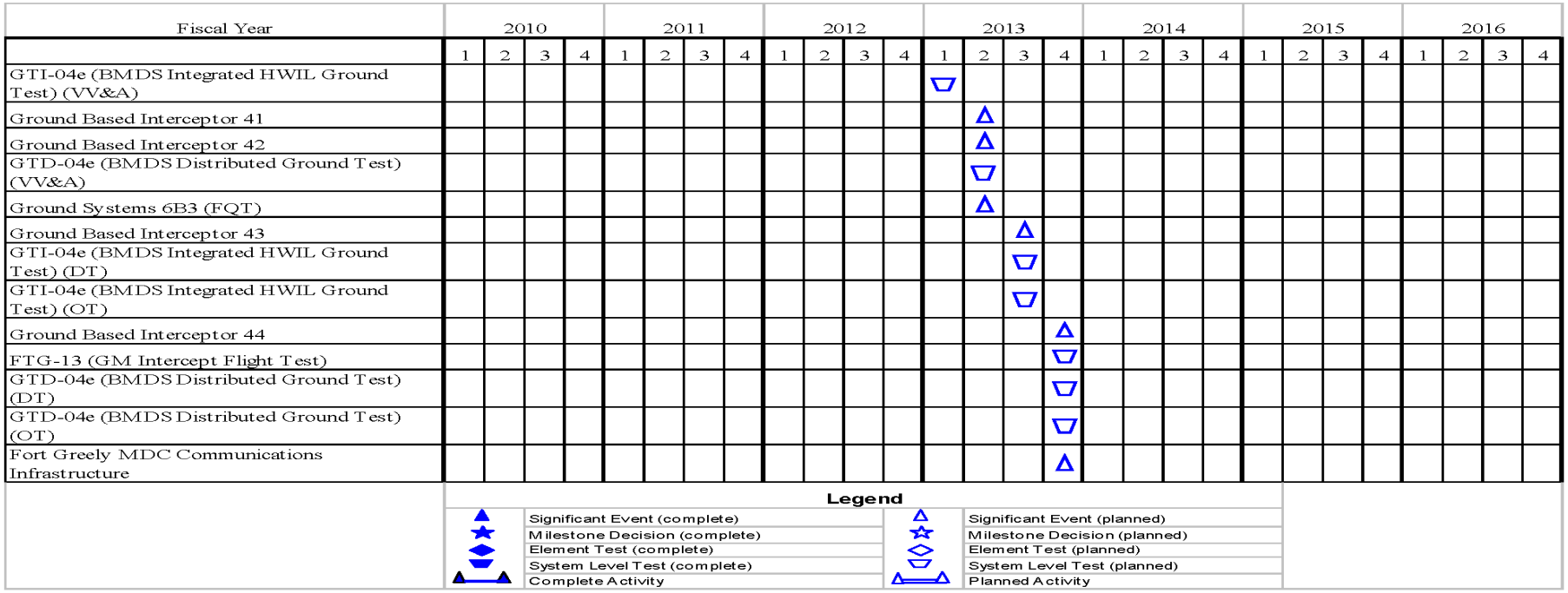

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	**PROJECT** MD08: *Ground Based Midcourse*

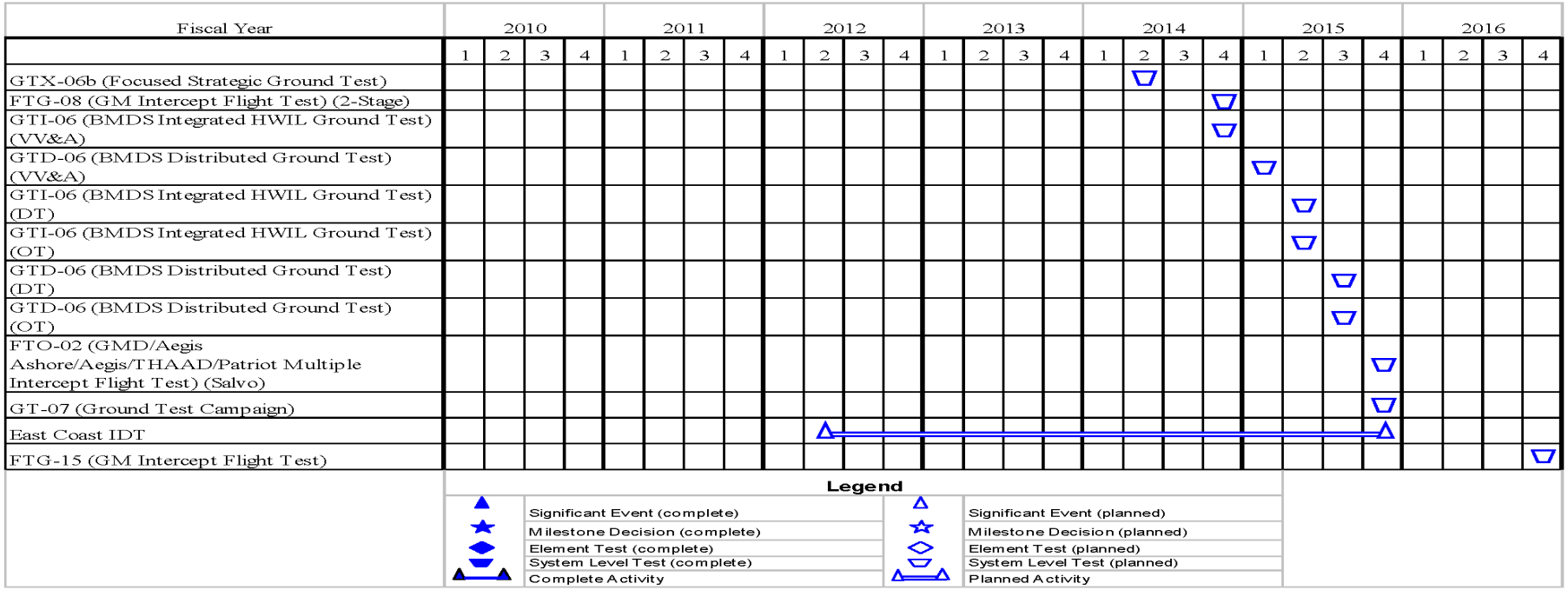

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	PROJECT MD08: *Ground Based Midcourse*

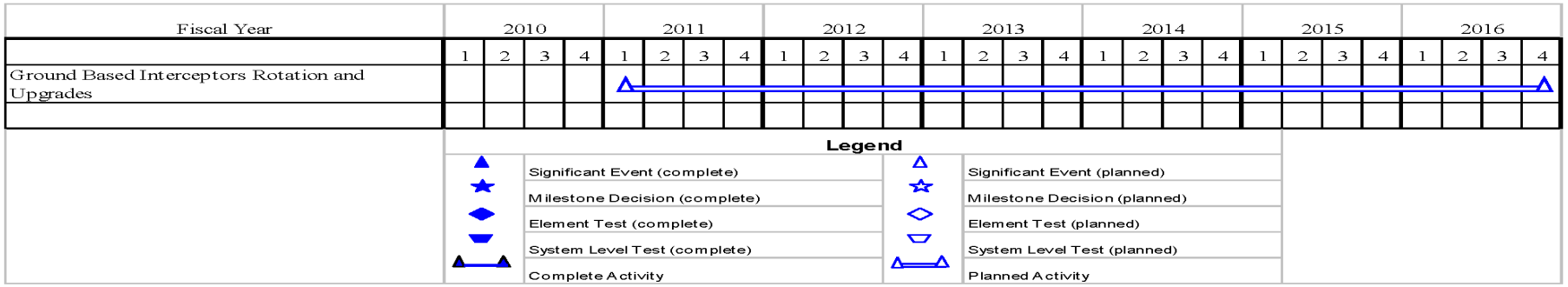

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	**PROJECT** MD08: *Ground Based Midcourse*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Ground Systems 6B1.5	1	2010	1	2010
FTG-06 (GM Intercept Flight Test)	2	2010	2	2010
Ground Based Interceptor Refurbishment 17R	3	2010	3	2010
BVT-01 Ground Based Interceptor w/Exoatmospheric Kill Vehicle (PE 0603911C)	3	2010	3	2010
Ground Based Interceptor Refurbishment 24R	4	2010	4	2010
Ground Based Interceptor 31	4	2010	4	2010
Ground Based Interceptor 32	4	2010	4	2010
Ground Based Interceptor 33	4	2010	4	2010
GTI-04b	4	2010	4	2010
FTG-06a (Ground Based Interceptor Asset)	1	2011	1	2011
FTG-06a (GM Intercept Flight Test)	1	2011	1	2011
Fort Greely, Alaska Power Plant	1	2010	2	2011
Ground Systems 6B2 (FQT)	2	2011	2	2011
GTD-04b (BMDS Distributed Ground Test)	2	2011	2	2011
FTI-06b (Non-Intercept Flight Test)	4	2011	4	2011
Ground Based Interceptor 34	1	2012	1	2012
Ground Based Interceptor 35	1	2012	1	2012
2nd FGA GMD Fire Control Node	1	2012	1	2012
GTX-04e (BMDS Focused Ground Test)	1	2012	1	2012
Ground Based Interceptor 36	2	2012	2	2012
Ground Based Interceptor 37	2	2012	2	2012
Fort Greely, Alaska Missile Field - 2	1	2010	2	2012

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	**PROJECT** MD08: *Ground Based Midcourse*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Ground Based Interceptor 38	3	2012	3	2012
FTG-06b (GM Intercept Flight Test)	3	2012	3	2012
Ground Based Interceptor 39	4	2012	4	2012
Ground Based Interceptor 40	1	2013	1	2013
GTI-04e (BMDS Integrated HWIL Ground Test) (VV&A)	1	2013	1	2013
Ground Based Interceptor 41	2	2013	2	2013
Ground Based Interceptor 42	2	2013	2	2013
GTD-04e (BMDS Distributed Ground Test) (VV&A)	2	2013	2	2013
Ground Systems 6B3 (FQT)	2	2013	2	2013
Ground Based Interceptor 43	3	2013	3	2013
GTI-04e (BMDS Integrated HWIL Ground Test) (DT)	3	2013	3	2013
GTI-04e (BMDS Integrated HWIL Ground Test) (OT)	3	2013	3	2013
Ground Based Interceptor 44	4	2013	4	2013
FTG-13 (GM Intercept Flight Test)	4	2013	4	2013
GTD-04e (BMDS Distributed Ground Test) (DT)	4	2013	4	2013
GTD-04e (BMDS Distributed Ground Test) (OT)	4	2013	4	2013
Fort Greely MDC Communications Infrastructure	4	2013	4	2013
GTX-06b (Focused Strategic Ground Test)	2	2014	2	2014
FTG-08 (GM Intercept Flight Test) (2-Stage)	4	2014	4	2014
GTI-06 (BMDS Integrated HWIL Ground Test) (VV&A)	4	2014	4	2014
GTD-06 (BMDS Distributed Ground Test) (VV&A)	1	2015	1	2015
GTI-06 (BMDS Integrated HWIL Ground Test) (DT)	2	2015	2	2015
GTI-06 (BMDS Integrated HWIL Ground Test) (OT)	2	2015	2	2015
GTD-06 (BMDS Distributed Ground Test) (DT)	3	2015	3	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	**PROJECT** MD08: *Ground Based Midcourse*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
GTD-06 (BMDS Distributed Ground Test) (OT)	3	2015	3	2015
FTO-02 (GMD/Aegis Ashore/Aegis/THAAD/Patriot Multiple Intercept Flight Test) (Salvo)	4	2015	4	2015
GT-07 (Ground Test Campaign)	4	2015	4	2015
East Coast IDT	2	2012	4	2015
FTG-15 (GM Intercept Flight Test)	4	2016	4	2016
Ground Based Interceptors Rotation and Upgrades	1	2011	4	2016

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	PROJECT ZX40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
ZX40: *Program-Wide Support*	12.071	-	-	-	-	-	-	-	-	0.000	12.071
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11

A. Mission Description and Budget Item Justification

Project ZX40 has been transferred project MD40.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	12.071	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	12.071	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	PROJECT MD40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	45.526	48.230	-	48.230	43.600	41.541	36.642	37.339	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). Includes Government Civilians, Advisory and Assistance Services, and Federally Funded Research and Development Contracts (FFRDC) providing integrity and oversight of the BMDS as well as supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2 after FY 2011), such as physical and technical security, legal services, travel and agency training, office and equipment leases, rents and utilities, data and unified communications support, supplies and maintenance, and similar operating expenses. Also includes legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.
In keeping with congressional intent, PWS is allocated among the PEs on a pro-rata basis and therefore fluctuates by year based on the total MDA budget and the individual PE`s budget amount.

Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($18,722).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	-	45.526	48.230
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($18,722).			
FY 2011 Plans: See paragraph A, Mission Description and Budget Item Justification			
FY 2012 Plans: See paragraph A, Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	45.526	48.230

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603882C: *Ballistic Missile Defense Mid-Course Segment*	**PROJECT** MD40: *Program-Wide Support*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	172.419	-	-	-	-	-	-	-	-	0.000	172.419
WX19: *Airborne Laser Capability Development*	167.608	-	-	-	-	-	-	-	-	0.000	167.608
ZX40: *Program-Wide Support*	4.811	-	-	-	-	-	-	-	-	0.000	4.811

Note

In FY 2011 the Boost Defense Program will transition from a weapon system development program to a science and technology program under Program Element 0603901C.

A. Mission Description and Budget Item Justification

Program Element 0603883C, Boost Defense Segment (BDS), funds the Airborne Laser Test Bed (ALTB) element portions of the Ballistic Missile Defense System (BMDS). The ALTB provides a capability to destroy ballistic missiles in the boost phase of their trajectory, the segment from post launch through propellant burnout. The boost phase typically includes the first 60-300 seconds of flight and concludes at altitudes between 20-450 kilometers. The ALTB program is designing, building, and testing airborne laser systems with unique capabilities to provide boost-phase defense against ballistic missile threats by acquiring, tracking, and destroying ballistic missiles and to support the multi-tiered BMDS concept. ALTB integrates three major subsystems (High Energy Laser [HEL]; Beam Control/Fire Control [BC/FC]; and Battle Management, Command, Control, Communications, Computers and Intelligence [BMC4I]) into a modified commercial 747 aircraft. ALTB also includes ALTB-specific ground support equipment.

In FY 2010, the primary mission of ALTB is to significantly increase the overall defensive capability of the BMDS by destroying threat ballistic missiles in their boost phase, by reducing the number of targets faced by successive defenders, and by addressing certain threats that are difficult for other elements to counter. ALTB is the primary boost-phase defense element being developed for the BMDS, uniquely adding the capability to destroy ballistic missiles from short to Intercontinental Ballistic Missile (ICBM) range during the boost phase. By destroying the missile during the boost phase, ALTB negates the threat prior to its ability to deploy multiple reentry vehicles, submunitions, or countermeasures. Following successful engagement by ALTB, warheads and engagement debris do not reach the intended target areas, with a reasonable probability that the threat missile debris will fall within the hostile country`s own territory, reducing the possible effect of debris on protected areas and assets and perhaps serving as a deterrent. Secondary missions for an operational ALTB will be to provide additional threat protection through early ballistic missile launch warning, launch site estimation, cueing to BMDS, and impact point prediction. Detecting and tracking a missile during its boost phase significantly improves accurate estimation of the launch point and therefore enhances the probability of a successful counterstrike against an aggressor`s missile launchers. ALTB`s sensor capabilities further increase the robustness of the BMDS by enhancing the performance of other elements. In addition, ALTB`s mobility and speed-of-light engagement capability present adversaries with additional complexities when trying to develop or employ countermeasures. As an airborne platform with aerial refueling capability, ALTB adds unique flexibility to deploy quickly to areas of interest and to adapt more readily to evolving situations that may threaten the US or its allies.

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*

The Airborne Laser Test Bed (ALTB) prototype has demonstrated the technology to destroy a boosting missile in flight. The initial lethal demonstration of a boosting ballistic missile occurred in February, 2010. After the initial shoot down demonstration, ALTB tested against missiles in flight at greater ranges and on the ground against countermeasures to fully characterize the ALTB.

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	182.317	-	-	-	-
Current President's Budget	172.419	-	-	-	-
Total Adjustments	-9.898	-	-	-	-
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-5.948	-			
• SBIR/STTR Transfer	-3.675	-			
• Other Adjustment Detail	-0.275	-	-	-	-

Change Summary Explanation

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
WX19: *Airborne Laser Capability Development*	167.608	-	-	-	-	-	-	-	-	0.000	167.608
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

Beginning in FY 2011, the Boost Defense Segment Program Element, 0603883C, will be transferred to the Directed Energy Research Program Element, 0603901C. The Boost Defense Program will transition from a weapon system development program to a science and technology program beginning in FY 2011.

A. Mission Description and Budget Item Justification

The Airborne Laser Test Bed`s (ALTB) revolutionary speed-of-light technology makes it a pathfinder for future directed energy weapon systems. The ALTB program is testing an airborne laser system with unique capabilities to defend against ballistic missile threats by acquiring, tracking, and destroying ballistic missiles. The high-powered laser has been fired over 100 times on the ground and was installed on the ALTB aircraft in FY 2008. The ALTB has demonstrated precision tracking and atmospheric beam compensation during flight over 2 dozen times in FY 2007 and 2009 -- including successful tracking against two boosting missiles in June 2009 and engagement against a low-power Missile Alternative Range Target Instrument (MARTI) boosting missile test asset in August 2009. The first high-powered lasing external to the aircraft in flight occurred in December 2009, with the first shoot down against a short-range liquid fueled foreign acquired target completed in February 2010. Engagement range for the ALTB is dependent upon track illumination, atmospheric compensation, laser power and missile type. After the initial shoot down demonstration, ALTB completed another successful flight experiment with a High Powered Missile Alternative Range Target Instrument (MARTI) at extended range. The ALTB tested against missiles in flight at greater ranges and on the ground against countermeasures to characterize the ALTB throughout the remainder of FY 2010.

Current Program Knowledge Points (KPs) are:

-Demonstrate High Energy Laser (HEL) performance Internal/External on the Aircraft in Flight (KP#9) - This KP demonstrated functionality of the optical system with the HEL on the aircraft in flight (completed Dec 09)
-Engagement against a High Power Missile Alternative Range Target Instrument (MARTI) (KP#10) - This KP validated and characterized High Power (using the High Energy Laser) ALTB performance against boosting targets (completed Jan 10)
-ALTB Technology Demonstrator lethal demonstration (KP #11) - This KP demonstrated ALTB capability to negate a threat representative boosting ballistic missile (completed Feb 10)

Following the ALTB Technology Demonstrator lethal demonstration, additional lethal demonstration events were conducted to further evaluate geometries and/or ranges of the current ALTB configuration.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Airborne Laser Test Bed	50.920	-	-
Articles:	0	0	
Description: See Description Below ***FY 2010 Accomplishments:*** Planned Program ($50.9 million) -Conducted additional lethal demonstration events through 4th Quarter of FY 2010, followed by system characterization, support, and development activities -Closed out technology demonstrator development contract (closeout of contractual requirements) ***FY 2011 Plans:*** N/A			
Title: Industrial Base	3.890	-	-
Articles:	0	0	
Description: See Description Below ***FY 2010 Accomplishments:*** -Continued development of advanced optics, coatings, and substrates to enable higher power/increased reliability laser operations -Maintained optics testing capabilities while testing new optics, materials, and coatings to maintain ready spares/aircraft availability -Continued improvements to bulkhead window production capability to enable higher power/longer and safer High Energy Laser (HEL) operations ***FY 2011 Plans:*** N/A			
Title: Direct Support Activities	22.600	-	-
Articles:	0	0	
Description: See Description Below ***FY 2010 Accomplishments:***			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Combined Test Force ($13.1 million): -Planned for and supported ALTB maintenance activities -Planned for and supported ground and flight test activities for the ALTB Characterization and Capability Demonstration phase: system characterization and adjunct missions -Created and presented safety documents to the test wing safety review boards Lethality and Survivability ($1.5 million) -Continued intelligence, lethality data collection, assessments and evaluation Diagnostics/Instrumentation ($8.0 million) -Ensured dedicated Airborne Diagnostic Target (ADT) was available for use during additional flight tests in FY 2010` ***FY 2011 Plans:*** N/A			
Title: Characterization and Capability Demonstration ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** After the Airborne Laser Test Bed (ALTB) lethal demonstration (Flight Experiment Laser-01) and continuing through 4th quarter FY 2010, the ALTB program continued to demonstrate viability of the ALTB by conducting additional lethal demonstration efforts followed by further system characterization, support and development activities. The ALTB continued ground testing to gain knowledge of the capability of the system. ALTB performed product requirements analysis/derivation, design, development, testing and delivery of verified Modeling and Simulation tools in support of Ballistic Missile Defense System events. The program consolidated engineering and operations data and evaluated and characterized system capabilities.	90.198 0	- 0	-

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Completed engagement against a Low Power Missile Alternative Range Target Instrument (MARTI) - This validated and characterized Low Power (using the Surrogate High Energy laser) ALTB performance against boosting targets. -Demonstrated High Energy Laser (HEL) performance Internal/External on the Aircraft in Flight - This demonstrated functionality of the optical system with the HEL on the aircraft in flight. -Completed engagement against a High Power Missile Alternative Range Target Instrument (MARTI) - This validated and characterized High Power (using High Energy Laser) ALTB performance against boosting targets. -Completed ALTB Technology Demonstrator lethal demonstration - This demonstrated ALTB capability to negate a threat representative boosting ballistic missile (completed Feb 10) Conducted additional lethal demonstration events through 4th Quarter FY 2010 to further evaluate geometries and/or ranges of the current ALTB configuration ($28.7 million) Maintained ALTB chemical operations and initiated post lethal demonstration ground test program to further characterize performance ($6.0 million): -Completed High Energy Laser power tuning/optimization testing, for increases in High Energy Laser power to provide a longer range kill capability -Completed wavefront analysis to provide a longer range kill capability -Completed Beam Control/Fire Control adjustments to improve jitter and pointing accuracy Conducted sustainment activities to maintain the ALTB ($55.5 million): -Sustained the ALTB (Laser, Beam Control/Fire Control, and Battle Management subsystems)			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provided Quality Safety and Mission Assurance (QSMA) operations to ensure compliance with Agency requirements for design, test, manufacturing, quality, safety and reliability -Continued implementation of ALTB program security requirements -Published Adversary Data Package Addenda reflecting intelligence assessment updates -Produced and updated threat data to support demonstration of ALTB capability to destroy a boosting missile flight ***FY 2011 Plans:*** N/A			
Accomplishments/Planned Programs Subtotals	167.608	-	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603888C: *Ballistic Missile Defense Test and Targets*	737.863	1,113.425	1,071.039		1,071.039	898.680	790.906	787.113	878.215	Continuing	Continuing
• 0603901C: *DIRECTED ENERGY RESEARCH*	0.000	98.688	96.329		96.329	91.953	93.134	92.304	95.003	Continuing	Continuing

D. Acquisition Strategy

MDA`s fiscal year FY 2010 budget submission reflected an emphasis on early intercept research and development. The acquisition strategy to conduct this technology development effort consists of three focus areas. First, leverage the technical expertise of Federally Funded Research and Development Centers and University Applied Research Centers. Second, continue to leverage relevant existing contracts within limits of Competition and Contracting Act (CICA) taking into account contractor past performance, scope, ceiling and period of performance. Third, for new technology initiatives, seek industry solutions via the Advanced Technology Broad Agency Announcement and competitive procurements.

Beginning in FY 2011, the Boost Defense Segment Program Element, 0603883C, will be transferred to the Directed Energy Research Program Element, 0603901C.

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Airborne Laser Test Bed Prime Contract WX19	C/CPAF	The Boeing Company:Seattle, WA	687.967	-		-		-		-	0.000	687.967	687.967
Airborne Laser Test Bed BMDS Security WX19	C/CPAF	The Boeing Company:Seattle, WA	1.915	-		-		-		-	0.000	1.915	1.915
Airborne Laser Test Bed Technical Support Costs-1 WX19	C/CPAF	Northrop Grumman:Kirtland AFB/ Various	46.293	-		-		-		-	0.000	46.293	46.293
Airborne Laser Test Bed FFRDC Support WX19	MIPR	Aerospace:Kirtland AFB	2.460	-		-		-		-	0.000	2.460	2.460
Airborne Laser Test Bed Technical Support Costs-2 WX19	MIPR	Tecolote Research:Kirtland AFB	3.158	-		-		-		-	0.000	3.158	3.158
Airborne Laser Test Bed Logistics Costs WX19	C/CPAF	The Boeing Company:Seattle, WA, Tyndall AFB FL, KAFB NM	2.080	-		-		-		-	0.000	2.080	2.080
Airborne Laser Test Bed Government and Other Support Costs WX19	MIPR	AFRL:Kirtland AFB/MA, Multiple	2.908	-		-		-		-	0.000	2.908	2.908
Airborne Laser Test Bed Government and Other Costs-1 WX19	C/FP	ABL SPO:Kirtland AFB/ Multiple	5.179	-		-		-		-	0.000	5.179	5.179
Airborne Laser Test Bed Government and Other Costs-2 WX19	MIPR	ACC:VA	0.717	-		-		-		-	0.000	0.717	0.717
Airborne Laser Test Bed Government and Other Costs-3 WX19	MIPR	Brooks City Base:TX	0.625	-		-		-		-	0.000	0.625	0.625
Airborne Laser Test Bed Other Support Costs WX19	MIPR	Tyndall AFB:FL	0.260	-		-		-		-	0.000	0.260	0.260
Airborne Laser Test Bed CCMWG/Program Integration Support WX19	C/CPAF	The Boeing Company:Seattle, WA	3.734	-		-		-		-	0.000	3.734	3.734

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Airborne Laser Test Bed Active Ranging System WX19	MIPR	ESC Hanscom AFB:MA	3.000	-		-		-		-	0.000	3.000	3.000
Airborne Laser Test Bed Technical Support Costs-3 WX19	C/CPAF	KAFB/WPAFB:Multiple	0.476	-		-		-		-	0.000	0.476	0.476
Airborne Laser Test Bed Common Threat WX19	C/CPAF	Multiple:Multiple	1.862	-		-		-		-	0.000	1.862	1.862
Airborne Laser Test Bed BMDS Level Testing WX19	C/CPAF	The Boeing Company:Seattle, WA	10.000	-		-		-		-	0.000	10.000	10.000
Industrial Base Contract WX19	C/CPFF	Lockheed Martin/ Multiple:MD, CA	15.568	-		-		-		-	0.000	15.568	15.568
Characterization and Capability Demonstration Prime Contract WX19	C/CPAF	The Boeing Company:Seattle, WA	31.154	-		-		-		-	0.000	31.154	31.154
Characterization and Capability Demonstration BMDS Security WX19	C/CPAF	The Boeing Company:Seattle, WA	0.040	-		-		-		-	0.000	0.040	0.040
Characterization and Capability Demonstration Technical Support Costs-1 WX19	C/CPAF	Northrup Grumman:Kirtland AFB/ Various	4.151	-		-		-		-	0.000	4.151	4.151
Characterization and Capability Demonstration Government and Other Support Costs-1 WX19	MIPR	AFRL:Kirtland AFB/MA, Multiple	0.225	-		-		-		-	0.000	0.225	0.225
Characterization and Capability Demonstration Government and Other Support Costs-2 WX19	C/FP	ALTB SPO:Kirtland AFB, Multiple	1.701	-		-		-		-	0.000	1.701	1.701
Characterization and Capability Demonstration Government and Other Support Costs-3 WX19	MIPR	ACC, Brooks City Base:VA, TX	0.325	-		-		-		-	0.000	0.325	0.325
	MIPR	Aerospace:KAFB	1.200	-		-		-		-	0.000	1.200	1.200

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Characterization and Capability Demonstration FFRDC Support WX19													
Characterization and Capability Demonstration Technical Support Costs-2 WX19	MIPR	Tecolote Research:KAFB	0.670	-		-		-		-	0.000	0.670	0.670
Characterization and Capability Demonstration Common Threat WX19	MIPR	Multiple:Multiple	0.677	-		-		-		-	0.000	0.677	0.677
Characterization and Capability Demonstration BMDS Level Testing WX19	C/CPAF	The Boeing Company:Seattle, WA	50.055	-		-		-		-	0.000	50.055	50.055
		Subtotal	878.400	-		-		-		-	0.000	878.400	878.400

Remarks

Common threat engineering produces common and consistent adversary trajectory and signature data to enable Ballistic Missile Defense (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.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT WX19: *Airborne Laser Capability Development*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Direct Support Activities BMDS Level Testing - Combined Test Force WX19	MIPR	AFFTC:Edwards AFB	54.495	-		-		-		-	0.000	54.495	54.495
Direct Support Activities BMDS Level Testing - Lethality and Survivability WX19	MIPR	AFRL:Eglin AFB/NM, FL	26.334	-		-		-		-	0.000	26.334	26.334
Direct Support Activities BMDS Level Testing - Diagnostics/Instrumentation WX19	MIPR	Hanscom AFB, Peterson AFB, Hill AFB, Kirtland AFB:MA, CO, UT, NM	55.247	-		-		-		-	0.000	55.247	55.247
		Subtotal	136.076	-		-		-		-	0.000	136.076	136.076

Remarks

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,014.476	-		-		-		-	0.000	1,014.476	1,014.476

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	**PROJECT** WX19: *Airborne Laser Capability Development*

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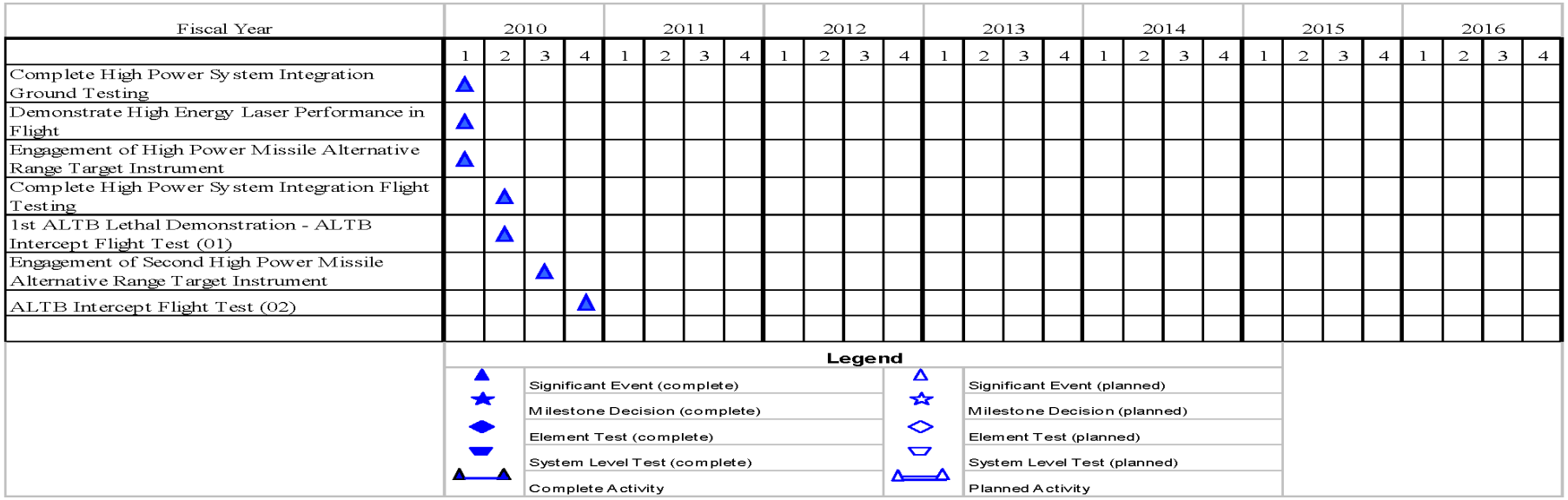

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	**PROJECT** WX19: *Airborne Laser Capability Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Complete High Power System Integration Ground Testing	1	2010	1	2010
Demonstrate High Energy Laser Performance in Flight	1	2010	1	2010
Engagement of High Power Missile Alternative Range Target Instrument	1	2010	1	2010
Complete High Power System Integration Flight Testing	2	2010	2	2010
1st ALTB Lethal Demonstration - ALTB Intercept Flight Test (01)	2	2010	2	2010
Engagement of Second High Power Missile Alternative Range Target Instrument	3	2010	3	2010
ALTB Intercept Flight Test (02)	4	2010	4	2010

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603883C: *Ballistic Missile Defense Boost Defense Segment*	PROJECT ZX40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
ZX40: *Program-Wide Support*	4.811	-	-	-	-	-	-	-	-	0.000	4.811
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project ZX40 has been transferred project MD40.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	4.811	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	4.811	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	544.352	454.859	222.374	-	222.374	357.271	336.514	318.321	348.944	Continuing	Continuing
BX11: *Ballistic Missile Defense Radars Block 2.0*	2.995	-	-	-	-	-	-	-	-	0.000	2.995
CX11: *Ballistic Missile Defense Radars Block 3.0*	11.658	-	-	-	-	-	-	-	-	0.000	11.658
EX11: *Ballistic Missile Defense Radars Block 5.0*	102.929	-	-	-	-	-	-	-	-	0.000	102.929
WX11: *Ballistic Missile Defense Radars Capability Development*	264.015	-	-	-	-	-	-	-	-	0.000	264.015
XX11: *Ballistic Missile Defense Radars Sustainment*	107.074	-	-	-	-	-	-	-	-	0.000	107.074
MD11: *BMDS Radars*	-	440.023	211.981	-	211.981	342.307	321.416	304.708	334.070	Continuing	Continuing
ZX40: *Program-Wide Support*	55.681	-	-	-	-	-	-	-	-	0.000	55.681
MD40: *Program-Wide Support*	-	14.836	10.393	-	10.393	14.964	15.098	13.613	14.874	Continuing	Continuing

A. Mission Description and Budget Item Justification

The BMDS network of layered Sensors provides essential data for the command and control of BMDS weapon systems, such as Terminal High Altitude Area Defense (THAAD) and Ground-based Midcourse Defense (GMD). These sensors, connected to the BMDS through Command and Control, Battle Management, Communications (C2BMC), enable detection and tracking of targets, and provide fire-control quality ballistic missile position, velocity, and discrimination data to BMDS weapon systems. Overlapping sensor coverage, with a diversity of sensor types, improves target detection, tracking, discrimination and kill assessments, while reducing potential impact of countermeasures. The extended sensor coverage and accuracy provided by a network of layered sensors reduces the number of target engagements required, conserves interceptor inventory, and ensures a high probability of successful engagement.

The BMD Sensors Program contributes to regional missile defense through the following activities:

- Development, delivery and deployment of Army Navy/Transportable Radar Surveillance (AN/TPY-2) radars for either forward-based or THAAD Fire Unit use to meet warfighter needs
- Operations and sustainment of deployed AN/TPY-2 radars in Japan, Israel, and other locations (to be determined)

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*

AN/TPY-2 radars can be configured to operate either as a THAAD Fire Unit Radar (THAAD mode) or Forward-Based Radar. These radars are transportable, adding flexibility to respond to geographical changes in threats. Under this Program Element, six AN/TPY-2 radars have completed manufacturing. The AN/TPY-2 used in a forward-based role provides detection and tracking during the boost phase. This significantly reduces the uncertainty in target discrimination and reaction time, increasing the probability of a successful BMDS engagement. In forward-based mode, the AN/TPY-2 also provides acquisition and track data via the Ballistic Missile Defense System Command, Control, Battle Management and Communications (C2BMC) and Link 16 to the Aegis missile defense system for cueing. The AN/TPY-2 used in THAAD mode is an integral component of the THAAD Battery. The THAAD battery radar is capable of tracking multiple threats and multiple interceptors during engagements in the terminal phase. It provides surveillance, acquisition, track, discrimination, interceptor communications, and hit assessment data collection for the fire control. The current and planned utilization of the AN/TPY-2 radars supports GMD, THAAD, and the Aegis Weapon System via C2BMC.

BMDS regional defense includes the Phased Adaptive Approach (PAA). This approach was developed in response to the rapid proliferation of short and medium range ballistic missiles in Iran and the threat they pose to U.S. Allies and partners, as well as to U.S. deployed personnel in the Middle East and in Europe. By leveraging recent advances in sensor and interceptor technologies, the United States will counter this growing regional threat with a flexible and adaptable integration of systems. The United States is pursuing a four phased approach which will provide a more effective missile defense capability for defense of NATO territories and enhance U.S. homeland defense. It will be complementary to and interoperable with those being developed by NATO, and applicable in other theaters around the world. U.S. missile defense will be more adaptable and flexible in order to counter threat advances and provide increased defended areas over time. The initial phase includes the deployment of current and proven missile defense, including the sea-based Aegis Weapons System, the SM-3 interceptor (Block IA), and sensors such as the forward-based AN/TPY-2. Subsequent phases will be implemented based on technical maturity, appropriate testing, and threat driven requirements.

The BMDS Sensors program also includes the Groundbased Radar - Prototype (GBR-P) -- a large, steerable, X-band phased array radar currently located at the Reagan Test Site (RTS), Kwajalein Atoll. This radar is currently maintained in caretaker status and is available to support BMDS testing and X-Band software development efforts.

The BMDS Sensors program contributes to U.S. homeland defense through the following activities:

- Operations and sustainment of the COBRA DANE radar
- Upgrade of the Thule Early Warning Radar (EWR) to add missile defense capability to this sensor
- Upgrade of the Clear, AK Early Warning Radar

The Thule UEWR located at Thule Air Base, Greenland, is an Ultra High Frequency (UHF) radar that has been upgraded (completed in FY 2010) to include missile defense functionality. This capability expands defense of the U.S. to include defense against limited Iranian long-range threats.

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*

The Cobra Dane radar located at Eareckson AFS, Shemya, Alaska (AK) is also part of the BMDS Homeland Defense architecture.

The Clear EWR located at Clear Air Force Station, AK, is an Ultra High Frequency (UHF) radar that is being upgraded to include missile defense functionality. The addition of the Clear UEWR into the BMDS sensor architecture will improve BMDS sensor coverage and provide new engagement options against long-range missile threats and reduce reliance on the Cobra Dane asset.

The BMDS Sensors Program also contributes to the testing and proving of the U.S. missile defense systems through the following activities:

- Participation in BMDS flight and ground test campaigns
- Modeling and simulation efforts to include: enhanced sensor models, development of radio frequency (RF) scene generators, integration of digital simulations into the BMDS modeling and simulation architecture, and verification, validation, and accreditation (VV&A) of radar models
- Development and implementation of Concurrent, Test, Training, and Operations (CTTO) capabilities

To hedge against future ballistic missile threats, the Sensors Program supports the following activities:

- Development of advanced radar discrimination algorithms and Common X-Band software for X-Band radars to address evolving threats
- Operations and support of the External Sensors Lab (ESL) -- a research and development lab critical to researching potential capabilities gained from sensors external to the BMDS; after FY 2011, the MDA Directorate of Advanced Technology will assume responsibility for the ESL; funding will reside in the Advanced Technology Program Element (0603175C); the ESL technology effort supports evolution and advances for the BMDS Overhead Persistent Infrared (OPIR) Architecture (BOA) capabilities, as well as the development of the Precision Tracking Space System (PTSS) and Airborne Infrared (ABIR) sensor capabilities.

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603884C: *Ballistic Missile Defense Sensors*

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	621.017	454.859	469.589	-	469.589
Current President's Budget	544.352	454.859	222.374	-	222.374
Total Adjustments	-76.665	-	-247.215	-	-247.215
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	9.284	-			
• SBIR/STTR Transfer	-7.730	-			
• Other Adjustment Detail	-78.219	-	-247.215	-	-247.215

Change Summary Explanation

Beginning in FY 2012 funding was realigned from this RDT&E PE to the BMDS Radars O&M line to fund the operation and maintenance of AN/TPY-2 radars. Other adjustments include MDA programmatic changes. This RDT&E program has realized $35.504 million in efficiency savings.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT BX11: *Ballistic Missile Defense Radars Block 2.0*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
BX11: *Ballistic Missile Defense Radars Block 2.0*	2.995	-	-	-	-	-	-	-	-	0.000	2.995
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project BX11 has been transferred to Project MD11.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD11 for FY 2010 Accomplishments.	2.995	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	2.995	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT CX11: *Ballistic Missile Defense Radars Block 3.0*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
CX11: *Ballistic Missile Defense Radars Block 3.0*	11.658	-	-	-	-	-	-	-	-	0.000	11.658
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project CX11 has been transferred to Project MD11.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD11 for FY 2010 Accomplishments	11.658	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	11.658	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT EX11: *Ballistic Missile Defense Radars Block 5.0*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
EX11: *Ballistic Missile Defense Radars Block 5.0*	102.929	-	-	-	-	-	-	-	-	0.000	102.929
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project EX11 has been transferred to Project MD11.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD11 for FY 2010 Accomplishments	102.929	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	102.929	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT WX11: *Ballistic Missile Defense Radars Capability Development*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
WX11: *Ballistic Missile Defense Radars Capability Development*	264.015	-	-	-	-	-	-	-	-	0.000	264.015
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project WX11 has been transferred to Project MD11.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD11 for FY 2010 Accomplishments	264.015	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	264.015	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT XX11: *Ballistic Missile Defense Radars Sustainment*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
XX11: *Ballistic Missile Defense Radars Sustainment*	107.074	-	-	-	-	-	-	-	-	0.000	107.074
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project XX11 has been transferred to Project MD11.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD11 for FY 2010 Accomplishments	107.074	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	107.074	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT MD11: *BMDS Radars*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD11: *BMDS Radars*	-	440.023	211.981	-	211.981	342.307	321.416	304.708	334.070	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

The MD11 R-4/4A depicts only test events for which Sensors participation is ``mandatory``. For a full listing of BMDS test events, see the R-4/4A in the Test and Targets PE (0603888C).

A. Mission Description and Budget Item Justification

Project MD11 continues efforts described for FY 2010 in Projects BX11, CX11, EX11, WX11, and XX11. Activities in this project include:

-Operations and sustainment of deployed radars
-Development, delivery and deployment of AN/TPY-2 radars for either forward-based or THAAD Fire Unit use to meet warfighter needs
-Development of radar discrimination advanced algorithms for X-Band radars and selectable X-Band software for AN/TPY-2 radars to address evolving threats
-System engineering, and software development and testing support
-Modeling and simulation efforts to include: enhanced sensor models, development of RF scene generators, integration of digital simulations into the BMDS modeling and simulation architecture, and VV&A of radar models
-Participation in BMDS flight and ground test campaigns

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: BMDS Level Testing	-	52.318	48.640
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: The BMDS sensors test program provides for sensors participation in the execution of BMDS testing described in Project MD04 of PE0603888C Test and Targets, as well as element-level testing focused on BMDS sensors critical engagement conditions (CECs) and empirical measurement events (EMEs) to anchor models and simulations. Reliable models and simulations are essential to reducing design, development and testing costs. BMDS-Level Testing proves the operational effectiveness of the BMDS and its supporting sensors.			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT MD11: *BMDS Radars*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Funding ($39.597M) for these FY 2010 accomplishments is reported in prior year budget project WX11. FY 2010 funding also included Concurrent Test, Training and Operations (CTTO) and Element Test and Infrastructure, which are reported in discrete paragraphs for FY 2011 and FY2012. -Supported AN/TPY-2 software capability release (CR-2.4) testing and CEC data collection for advanced discrimination techniques -Supported 2-Stage Booster Interceptor Flight Test BVT-01 from VAFB utilizing TPY-2 Forward Based (FB) and SBX -Supported USAF Target of Opportunity Glory Trip 200 utilizing SBX and AN/TPY-2 FB -Supported THAAD Intercept Flight Tests (FTT-11, FTT-12) -Support COBRA DANE flight testing and CECs for scan angles, and mono pulse tracking (FTX-10) -Supported other flight tests as targets of opportunity (FTL-01) -Participated in Regional Focused Hardware In The Loop (HWIL) Tests GTX-04a (support to C2BMC demonstration of dual AN/TPY-2 radar command and control) -Participated in Full BMDS HWIL Test GTI-04b -Planned, developed, integrated and tested a common HWIL stimulation framework (Single Stimulation Framework) with the Elements for the GTX-04a and GTI-04b ground tests, and CTTO demos -Provided Test Site Support at VAFB for AN/TPY-2 testing -Continued CTTO development for TPY-2 and UEWRs -Completed Thule UEWR BMDS integration testing -Demonstrated AN/TPY-2 (Forward Based) performance and integration with host nation systems in support of Contingency Analysis and Activation Team (CAAT) Spiral 2 Technical Capability Declaration To EUCOM ***FY 2011 Plans:*** -Plan and execute sensors participation in BMDS flight tests, including Aegis flight test FTM-15, the first test to demonstrate Phased Adaptive Approach capabilities -Continue to plan and execute sensors participation in BMDS ground test campaign GT-04 -Initiate planning for sensors participation in FY 2012 BMDS flight tests and ground tests ***FY 2012 Plans:*** -Plan and execute sensors participation in BMDS flight tests IAW the BMDS Integrated Master Test Plan (IMTP 11.1) -Plan and execute sensors participation in BMDS ground test campaign in accordance with the BMDS IMTP -Plan and execute AN/TPY-2 support for THAAD flight tests in FY 2012 (previously funded in BMD Terminal Defense PE 0603881C). This accounts for the change in funding levels from FY 2011 to FY 2012.			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT MD11: *BMDS Radars*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Initiate planning for sensors participation in FY 2013 BMDS flight tests and ground tests			
Title: Sensors Directorate Operations	-	59.251	54.977
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** This effort provided operations support across all MDA Sensors projects, including civilian salaries and travel. In addition, it provided other technical and business operations support services, technical oversight, and performance analysis provided by Federally Funded Research and Development Centers (FFRDCs), University Applied Research Centers (UARCs), and Advisory & Assistance Services. Funding ($56.420M) for these FY 2010 accomplishments is reported in prior year budget project EX11. -Provided Program Management support across all BMDS Builds, including Concept Development. ***FY 2011 Plans:*** -Provide Program Management Support across all BMDS Builds, including Concept Development. ***FY 2012 Plans:*** This effort will continue to provide operations support as described for FY 2011, but at reduced costs due to efficiencies from in-sourcing and implementation of a new Missile Defense Agency support services contract.			
Title: Upgrade Clear Early Warning Radar	-	-	28.275
Articles:	0		0
Description: See Description Below ***FY 2010 Accomplishments:*** NA ***FY 2012 Plans:*** -Support engineering for BMDS Communications work at Clear -Purchase Long Lead fiber and SATCOM to support BMDS Communications -Support design and implementation of GCN connectivity and associated Network monitoring for integration into the GMD -Purchase Long Lead UEWR equipment --commercial-off-the-shelf (COTS) items and the UEWR receiver/exciter (REX) -Complete refinement of design, culminating with critical design review			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT MD11: *BMDS Radars*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
(CDR)			
Title: Project Oak	-	-	28.002
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** N/A ***FY 2011 Plans:*** N/A ***FY 2012 Plans:*** Project Oak details are at a higher classification. This project is reported in accordance with Title 10, United States Code, Section 19 (a)(1) in the Special Access Program Annual Report to Congress.			
Title: X-Band Basic Program	-	50.271	13.146
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** This effort includes development of common X-Band software, development of mission profiles to support AN/TPY-2 operations worldwide and development of CECs and EMEs. The selectable software CX-1 Build consolidates the AN/TPY-2 forward-based mode capabilities release 2.4 and the AN/TPY-2 THAAD mode release 4.2.4 (THAAD fire unit radar software), providing the flexibility and interchangeability of those two radars. CX-1 also includes baseline THAAD mode and forward-based mode discrimination (Army/STRATCOM interest item), sensor registration, interference monitoring, and acquisition sensor tasking. These capabilities will expand the range window and augment threat handling. Funding ($11.658M) for these FY 2010 accomplishments is reported in prior year budget project CX11. -Assessed discrimination response in ground test campaign GTI-04b -Participated in Performance Assessment (PA-09) -Evaluated selectable AN/TPY-2 software capability release CX-1 performance using targets of opportunity -Integrated prototype designs into AN/TPY-2 digital representation			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT MD11: *BMDS Radars*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Initiated sensor model functionality including scan angle bias, debris modeling, and environmental modeling, as required through application of CEC/EME results from flight and ground tests, and satellite tracking campaign (1st QTR FY 2010) -Supported FTG-06 Failure Review Board (FRB) Funding ($119.496M) for these FY 2010 accomplishments is reported in prior year budget project WX11. -Conducted Selectable Software Build CX-1 design reviews -Delivered the first AN/TPY-2 selectable software build for integrated ground testing (CX-1) -Completed AN/TPY-2 CX-1 formal qualification testing (FQT) -Integrated and tested CX-1 on an AN/TPY-2 radar -Supported mission profile and conventional discrimination development to support AN/TPY-2 #3 operations in Israel -Provided systems engineering ``reach-back`` for consolidated contractor logistics support contract -Completed VV&A plan for the RF scene generator (Radar Digital Signal Injection System (RDSIS)) supporting AN/TPY-2 CX-1 -Completed analysis of calibration satellite tracking events to anchor models -Initiated development of X-Band Simulator Test (XST) simulation model based on RDSIS to provide HWIL Service that interfaces with Sea-Based X-Band Radar (SBX) and the X-band family of radars In support of the warfighter Prioritized Capabilities List (PCL), these efforts deliver the following new BMDS capabilities: -Integration of Hercules Suite 1 Algorithms (AN/TPY-2 (FBM) Build CX-1) -C2BMC Sensor Resource Management and Tasking (AN/TPY-2 (FBM) Build CX-1) -C2BMC Multi-Radar Capability (AN/TPY-2 (FBM) Build CX-1) -GMD Utilization of Discriminated Track (AN/TPY-2 (FBM) Build CX-1) -Additional C2BMC Messages and Expanded Threat Set (AN/TPY-2 (FBM) Build CX-1) ***FY 2011 Plans:*** -Complete Verification and Validation of the first selectable software build (CX-1) -Initiate development of the Advanced Processor Platform (APP) -- the next generation processor replacing superdome units in AN/TPY-2 radars ***FY 2012 Plans:*** -Continue development of the APP			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT MD11: *BMDS Radars*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continue development of selectable X-Band software builds.			
Title: AN/TPY-2 Radar Deployment / Site Activation	-	-	17.793
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** Funding for these FY 2010 accomplishments is reported in prior year budget projects EX11 ($16.403M) and BX11 ($2.995M). -Replace Japanese launch pad site that was removed to accommodate AN/TPY-2 Forward-based Radar Site at Shariki -Joint Spectrum Center (JSC) Siting support for Central Command (CENTCOM) -Conduct site surveys for additional BMDS AN/TPY-2 Forward-based radar deployment ***FY 2011 Plans:*** N/A ***FY 2012 Plans:*** -Package and ship AN/TPY-2 Radar #4 to PAA Forward-based Radar site -Complete site survey, preparation and activation, including preparation of radar and communications equipment for deployment -Complete installation and deployment activities: radar installation, power installation, fuel tank installation -Complete CLS training of operators and maintainers			
Title: Element Test and Infrastructure	-	16.115	15.198
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** This effort provided development testing not covered under the BMDS Level Testing. Test events are listed below. Testing focused on BMDS sensors critical engagement conditions (CEC) and empirical measurement events (EME). CEC/EMEs are the conditions and events where data is obtained from flight and ground tests in order to anchor system M&S. FY 2010 accomplishments are reported under BMDS Level Testing above. Funding ($21.795M) for these accomplishments is reported in prior year budget project WX11. ***FY 2011 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT MD11: *BMDS Radars*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Plan and execute sensors participation in flight tests for additional data collection opportunities to support development progress -Execute element-level ground test campaign to support anchoring M&S for various CEC/EMEs -Upgrade sensor interfaces to support Single Stimulation Framework (SSF) integration -Support evolving SSF (software upgrades) integration into Sensors Hardware in the Loop (HWIL) Ground Test Infrastructure -Configure and maintain Sensors HWIL Ground Test Infrastructure to support BMDS Ground Tests ***FY 2012 Plans:*** For FY 2012, Sensors planned testing includes: -Plan and execute sensors participation in flight tests for additional data collection opportunities to support development progress -Execute element-level ground test campaign to support anchoring M&S for various CEC/EMEs -Support evolving SSF (software upgrades) integration into Sensors Hardware in the Loop (HWIL) Ground Test Infrastructure -Configure and maintain Sensors HWIL Ground Test Infrastructure to support BMDS Ground Tests			
Title: BMDS Radars Modeling & Simulation (M&S) ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** SN Modeling and Simulation (M&S) activities support all phases of Sensors development, including development of modifications to the X-Band and UEWR digital representations, flight test missions, ground tests, wargames, exercises, and program assessment. Models and simulations are tailored to the specific need of a component in its current phase of development. These range from low-fidelity analyses supporting concept definition studies to high-fidelity models integrated into the BMD Digital Simulations Architecture (DSA) and used to support engineering development or testing. Funding ($24.724M) for these FY 2010 accomplishments is reported in prior year budget project WX11 Sensors Engineering. -Completed integration of the next generation AN/TPY-2 digital simulations into the BMD Digital Simulations Architecture for support of Technical Assessment TA-10 -Completed integration of the radio frequency (RF) scene generator for the AN/TPY-2 (CX-1) into the BMDS Hardware in the Loop (HWIL) single stimulation framework in support of GTI-04b (full BMDS HWIL test) -Completed integrated validation and verification (V&V) plan and report for AN/TPY-2 simulations (CRUSHM, CX-1)	- 0	25.971 0	4.900 0

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Initiated development of the high fidelity digital models, Open System Architecture (OSA) Sensor Model (OSM) representations of the SBX, CDU, UEWR, and AN/TPY-2 sensors, to support Wargames, Exercises, Training and Performance/Technical Assessments -Supported Assured Response 04X (AR04X) with OSM`s -Completed initial digital simulation of first generation selectable software (CX-1) for the X-band sensors ***FY 2011 Plans:*** -Complete V&V report and Certification Letter for the Common Software Simulation (CXSIM) v1.0 supporting AN/TPY-2 CX1.2 -Continue development of digital simulation of first generation common software for AN/TPY2 CXSIM (CX1.3) for participation in Technical Assessment 04 and Performance Assessment 04 (TA04/PA04) Event -Complete development of XST simulation model based on RDSIS to provide the diffuse cloud model and simple antenna motion -Complete V&V report and Certification Letter for the RDSIS supporting AN/TPY-2 CX1 -Complete development of the Open Systems Architecture Sensor Models (OSM) with a focus on OSM-S version representing tactical software version SBX 3.1 -Support Technical Assessment 04 (TA04) and Performance Assessment 04 (PA04) planning, integration, risk reduction testing, and event execution, using OSM to represent SBX, CDU, and UEWR sensors and CXSIM representing AN/TPY2 -Maintain digital and HWIL representations of the tactical versions of AN/TPY2 (CX1.3), SBX 3.1, UEWR 8.2.3, and CDU 2.6.6 and continue enhancements of these sensor models as required through application of CEC/EMEs ***FY 2012 Plans:*** -Continue to support Technical Assessments and Performance Assessments using OSM -Continue to maintain digital and HWIL representations of the tactical versions of AN/TPY2 (CX1.3), SBX 3.1, UEWR 8.2.3, and CDU 2.6.6 and CEC/EME implementation			
Title: BMDS Radars Concurrent Test, Training & Operations (CTTO) Infrastructure	-	35.860	-
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** Concurrent Test, Training and Operations (CTTO) capability for AN/TPY-2, SBX and UEWRs provides operational sites the ability to run training and testing while concurrently providing on-going sensor coverage to the BMDS. CTTO allows BMDS warfighters to train in the same environment in which they fight. The overall effort is closely aligned with the Single Stimulation Framework (SSF), which is used to conduct and stimulate the hardware and software used in BMDS ground tests with realistic threat scenarios.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Funding ($35.286M) for these FY 2010 accomplishments is reported in prior year budget project WX11 BMDS Test and Evaluation. -Planned, developed, integrated and tested a common HWIL stimulation framework (Single Stimulation Framework) with the Elements for the GTX-04a and GTI-04b ground tests, and CTTO demos -Provided Test Site Support at VAFB for AN/TPY-2 testing -Continued CTTO development for AN/TPY-2 and UEWRs ***FY 2011 Plans:*** -Refine AN/TPY-2 and UEWR Single Stimulation Framework (SSF) interfaces to support BMDS ground test campaigns -Continue delivery of X-Band Simulator Test (XST) simulation model based on RDSIS to provide HWIL service that will interface with the SBX and X-Band family of radars and provide more accurate debris modeling ***FY 2012 Plans:*** This effort is not funded in FY 2012.			
Title: Sensors Engineering	-	16.833	1.050
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** Sensors engineering activities included implementation of Information Assurance, a critical component to ensuring success of the Sensors Mission. The Sensors Information Assurance Program manages the IA process from development through sustainment. Funding ($5.633M) for these FY 2010 accomplishments is reported in prior year budget project WX11. FY 2010 funding also included BMDS Radars modeling and simulation. -Initiated development of mission profiles to enable coordinated tasking/control of multiple AN/TPY-2 radars -Initiated algorithm development to facilitate sensor registration capabilities -Initiated development of X-band sidecar to facilitate the development of integrated BMDS capabilities -Completed initial engineering trade studies for sensor registration, discrimination, system track, battle management and hit/kill assessment ***FY 2011 Plans:*** -Conduct Certification and Accreditation for all Sensors Systems			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Implement DoD 8500 Information Assurance (IA) Policy/ Guidance -Conduct Information Assurance/Computer Network Defense (IA/CND) Engineering Requirements Development and Architecture Integration -Support Bi-Annual Information Assurance testing for vulnerabilities and Third Party Information Assurance assessments of the Systems ***FY 2012 Plans:*** -Continue to conduct IA certification and accreditation of all Sensors Systems -Continue to conduct engineering trade studies for sensor registration, discrimination, system track, battle management and other system functions			
Title: BMDS Radars (Sustainment) ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** This effort provided for the operation and support of AN/TPY-2 Radars until certified operational and transferred to a Service component. MDA uses Consolidated Contractor Logistics Support (C-CLS) to operate and sustain the AN/TPY-2 Forward Based radars. AN/TPY-2 Fire Unit Radars are operated by the military as part of a THAAD Battery. Funding ($72.523M) for these FY 2010 accomplishments is reported in prior year budget project XX11. -Operated and sustained seven (7) AN/TPY-2 radars: two (2) forward-based radars outside continental United States (OCONUS), three (3) THAAD battery radars (US), and two (2) AN/TPY-2 test assets (Vandenberg Air Force Base (VAFB) and Pacific Missile Range Facility (PMRF)) -Provided personnel to support forward-based radar operations in Israel and Japan -Provided training, facility maintenance, depot support, and spares -Provided superdome computer maintenance -Operated and maintained site power in Japan -Completed generator overhaul and replacements in Japan -Provided X-Band Radar (XBR) depot support and spares -Completed Cooling Equipment Unit (CEU) Refurbishment -Completed Limited User Test of AN/TPY-2 Radar #5	- 0	115.039 0	- 0

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Completed Reliability Test Support of AN/TPY-2 Radar #5 -Initiated AN/TPY-2 Radar #4 refurbishment -Maintained the Ground based Radar - Prototype (GBR-P) (currently in caretaker status) -Supported the FTG-06 Failure Review Board (FRB) in developing solutions for SBX FTG-06 performance issues ***FY 2011 Plans:*** -Operate and sustain 7 AN/TPY-2 radars: three (3) forward-based radars (OCONUS), two (2) THAAD battery radars (US), one (1) AN/TPY-2 test asset (PMRF), and refurbishment of 1 AN/TPY-2 -Provide depot level logistics support for seven AN/TPY-2 radars supporting BMDS forward Based Radar Sites and THAAD Batteries -Operate and sustain radar during integration testing at Vandenberg Air Force Base (VAFB), White Sands Missile Range (WSMR), and Pacific Missile Range Facility (PMRF) or Reagan Test Site (RTS) -Provide AN/TPY-2 operational spares, repair, and replacement parts -Provide AN/TPY-2 Forward-based Radar operators/maintainers, site maintenance, fuel, utility, and communications support costs -Operate and sustain the Ground-based Radar - Prototype (GBR-P) in caretaker status -Complete AN/TPY-2 Transition and Transfer Annex -Achieve Material Release of AN/TPY-2 to lead service -- Army -Refurbish AN/TPY-2 Radar #4 -Demonstrate SBX resolution of FTG-06 problems in FTG-06A ***FY 2012 Plans:*** For FY 2012, operations and sustainment (CLS) of the AN/TPY-2 radars moves to O&M appropriation.			
Title: UEWR (Beale, Fylingdales, Thule) & COBRA DANE Sustainment ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** Funding ($20.650M) for these FY 2010 accomplishments is reported in prior year budget project XX11. -Provided maintenance of the System Program Agency (SPA) UEWR sustainment lab string -Provided sustainment of the Cobra Dane (CD) radar -Continued UEWR/CD Common Mission software sustainment -Achieved Air Force acceptance of Verification Closure Notice 2 (VCN-2 -Beale, Fylingdales, Thule)	- 0	22.661 0	- 0

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provided program management office support personnel -Implemented DoD 8500 Information Assurance (IA) Policy/ Guidance ***FY 2011 Plans:*** -Continue UEWR/CD Common Mission software sustainment -Provide for program management office support personnel ***FY 2012 Plans:*** FY 2012 ($15.600M) UEWR and Cobra Dane software sustainment transitioned to O&M. Funding for UEWR/CD program office ($6.655M) support is found under the Sensors Directorate Operations accomplishment paragraph below.			
Title: BMDS Radars Communications (Sustainment) ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** This Operations and Support (O&S) effort supported the AN/TPY-2 Communications suites. It includes communications suite operational spares, repair, and replacement; communications operators/maintainers; communications support costs; and sustains C2BMC operations 24 hours a day, 365 days a year. AN/TPY-2 communications suites provide the interface between the radar and C2BMC that enables sensor networking for the BMDS. Funding ($13.901M) for these FY 2010 accomplishments is reported in prior year budget project XX11. After FY 2011, these activities are funded in the C2BMC program element 0603896C. -Continued round-the-clock sustainment for Communications capabilities associated with AN/TPY-2 -Continued on-site C2BMC support of fielded sites for hardware and software -Continued C2BMC operator training for fielded capabilities -Continued sustaining engineering support and integrated logistics support for fielded hardware and software ***FY 2011 Plans:*** For FY 2011, this program plans to: -Continue round-the-clock sustainment for Communications capabilities associated with AN/TPY-2 -Continue on-site C2BMC support of fielded sites for hardware and software -Continue C2BMC operator training for fielded capabilities	- 0	13.782 0	- 0

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continue sustaining engineering support and integrated logistics support for fielded hardware and software ***FY 2012 Plans:*** Funds ($13.988M) and plans are described in C2BMC PE 0603896C, Project MD01			
Title: AN/TPY-2 C2BMC Fielding	-	12.980	-
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: The C2BMC program provides network communications to both task AN/TPY-2 radars and pass radar data to BMDS elements. The BCN provides a survivable, robust, diverse and redundant, end-to-end, high availability operational communications network (COMNET) that quickly and unambiguously shares information across the global BMDS. The BCN standardizes BMDS communication systems capabilities at all BMDS locations. MDA needs to have a rapidly deployable, re-configurable BMDS communications suite to meet the short term specific needs of MDA missions. The High Mobility Multipurpose Wheeled Vehicle (HMMWV) Based Communications Node (HBCN) and the C2BMC Deployable Interface Node (CDIN), a shelterized or transit case BCN support system, will fulfill this requirement for deployable re-configurable BMDS communications suites. The HBCN is an integrated communication suite consisting of two customized HMMWVs and a Tactical Operations Center (TOC). Its purpose is to enable communications between AN/TPY-2 Radar and the C2BMC suite and the rest of the BMDS. The HBCN contains both mission communication equipment and campus communication equipment. One HMMWV will be dedicated to providing the mission communications consisting of a High Availability Communication Node Equipment (HACNE) C2BMC Network Interface Processor (CNIP) and other supporting equipment. The other HMMWV will be dedicated to providing the campus communications consisting of Defense Information Services Network (DISN) Service Delivery Node, Defense Red Switch Network (DRSN), Secret Internet Protocol Router Network (SIPRNET), Non-secure Internet Protocol Router Network (NIPRNET), organic Satellite Communications (SATCOM) and SATCOM interface. All operations can be performed within the HMMWVs or be remoted in a TOC. The TOC is an expandable 20`x20` room capable of supporting the C2BMC operators. MDA has two HBCN systems: one is supporting Site 512; the second is designated for emergency deployments and disaster recovery.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
The CDIN durable military transit case Ballistic Missile Defense Systems (BMDS) Communications Networks (BCN) support system is both vehicle and facility independent. However, even though it is facility independent it must be installed in some kind of a shelter or building. The recommended facility is the expandable TOC identified for the High Mobility Multipurpose Wheeled Vehicle (HMMWV) Based Communications Node (HBCN). The CDIN system will be capable of providing the mission and campus communications for a rapidly deployed AN/TPY-2 Radar. Also, the Extremely High Frequency (EHF) Teleports will be upgraded to provide AN/TPY-2 data to Ground Based Midcourse (GMD) and Aegis for engagement to alleviate the issues associated with Ultra High Frequency (UHF) communications. This satisfies a Combatant Command (COCOM) requirement for EHF operational capability due to continuous issues with UHF communications supporting the BMDS mission. Locations: United States -- Northwest, VA; Wahiawa, HI. International -- Ramstein. These teleport terminals provide an entry point (Northwest at Chesapeake, VA) into the US from the European Gateway. These upgrades include an X/Ka-Band capability, and associated baseband equipment. They provide the BMDS necessary satellite communications connectivity to the European Gateway at Ramstein. This funding supports the BMDS essential minimum communications connectivity provisions for robust, redundant, secure, survivable communications path directly to the BMDS and GMD Fire Control (GFC). These teleports provide multiple diverse network routing paths to ensure no single points of failure. Funding for FY 2010 accomplishments is reported in prior year budget projects EX11 ($30.106M). After FY 2011, funds and plans for these activities are reported in the C2BMC program element 0603896C. -Acquired Modernization of Enterprise (MET) SATCOM X/Ka-band capability for teleport upgrades in EUCOM -Continued BMDS Communications Systems integration and certifications -Supported exercises and tests of the AN/TPY-2 radar system with the BMDS Communications Networks (HBCN and CDIN transit case support systems) -Initiated communications teleports in the Middle East ***FY 2011 Plans:*** -Complete the development of the Protected Anti-Jam/Anti-Scintillation Net-Centric System (PAAWNS) -Transport and install the first Modernization of Enterprise Terminal (MET) to EUCOM -Integrate and certify BMDS Communications Systems			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Support exercises and tests of the AN/TPY-2 radar system with the BMDS Communications Networks (BCN) support systems (HBCN and CDIN) -Continue upgrades to support BCN at the teleports in the EUCOM and CENTCOM AOR`s; Lago Patria, and Ramstein ***FY 2012 Plans:*** Funds ($13.175M) and plans are described in PE 0603896C, Project MD01 -Continue round-the-clock sustainment for Communications capabilities with AN/TPY-2 -Continue on-site C2BMC support of fielded sites for hardware and software -Continue C2BMC operator training for fielded capabilities -Continue sustaining engineering support and integrated logistics support for fielded hardware and software			
Title: External Sensors	-	18.942	-
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** Funding ($17.484M) for these FY 2010 accomplishments is reported in prior year budget project WX11. For FY 2011, funding for the External Sensors Lab remains in the Sensors program element, but is managed by the MDA Directorate of Advanced Technology as the office of primary responsibility (OPR). After 2011, funding for this effort resides in the Advanced Technology program element 0603175C. -Continued to develop and deliver algorithms to utilize sensor data: demonstrated automated reverse cue capability for hit/kill assessment; integrated STSS data as a source into the ESL data stream and demonstrated fusion of STSS data on target of opportunity -Continued to develop software code for operational site -- delivered ESL Baseline Release (EBR) 5.0 code to C2BMC for verification testing: delivered code included Pre-Planned Product Improvement (P3I) upgrade to accommodate the move from obsolete SGI based machine to Linux based machine -Demonstrated precision cue to AN/TPY-2 via C2BMC ***FY 2011 Plans:*** -Complete ESL Baseline Release (EBR) 6.0, which adds GEO1 and 3GIRS (Third Generation Infrared Sensor) data as another source to generate improved ESL tracks -Develop, deliver, and demonstrate new Overhead Persistent Infrared (OPIR) sensors capability to the BMDS			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Add capability for Midcourse Radar Cue -Demonstrate fusion of Airborne Infrared (ABIR) data with OPIR data for early intercept ***FY 2012 Plans:*** Funds ($17.560M) and plans are described in Advanced Technology PE 0603175C			
Accomplishments/Planned Programs Subtotals	-	440.023	211.981

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603175C: *Ballistic Missile Defense Technology*	164.670	132.220	75.003		75.003	103.844	111.712	164.378	170.851	Continuing	Continuing
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	690.054	436.482	290.452		290.452	318.745	309.894	340.969	320.638	Continuing	Continuing
• 0603888C: *Ballistic Missile Defense Test and Targets*	737.863	1,113.425	1,071.039		1,071.039	898.680	790.906	787.113	878.215	Continuing	Continuing
• 0603890C: *Ballistic Missile Defense Enabling Programs*	355.870	402.769	373.563		373.563	331.203	314.193	336.749	346.560	Continuing	Continuing
• 0603896C: *BMD C2BMC*	327.074	342.625	364.103		364.103	330.337	353.081	338.835	304.217	Continuing	Continuing
• 0603907C: *SEA BASED X-BAND RADAR (SBX)*	157.739	153.056	177.058		177.058	172.622	162.628	185.934	173.587	Continuing	Continuing
• 0603911C: *BMD EUROPEAN CAPABILITY*	47.342	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	47.342
• 0604884C: *AIRBORNE INFRARED (ABIR)*	0.000	111.671	46.877		46.877	49.948	49.173	33.035	34.249	Continuing	Continuing
• Line Number 35: *BMDS AN/ TPY-2 Radars*	191.081	0.000	380.195		380.195	365.559	376.844	380.715	380.250	Continuing	Continuing

D. Acquisition Strategy

The Consolidated - Contractor Logistics Support (C-CLS) contract was awarded in FY08 to operate and maintain the AN/TPY-2 radars and provide logistical support for other radars in the BMDS Radars PE. The C-CLS contract provides the operations and support activities required for site surveys, planning, relocation, depot maintenance, forward-based system operations, repair, and replacement. The contract is an Indefinite Delivery/Indefinite Quantity (IDIQ) task order contract.

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Test & Evaluation projects use multiple existing development contracts depending on the system(s) involved in the testing.
The BMDS radar (AN/TPY-2, Forward-Based) project used an existing radar design to minimize development costs and schedule. Design enhancements focus on software changes for the forward based algorithms and C2BMC connectivity.

MDA will assess the appropriateness of competition for the Clear EWR Upgrade. The Agency has issued a Request for Information (RFI) on performance of this effort.

The Selectable Software work will be performed on the existing AN/TPY-2 development contract.

The BMDS Communications System Complex-Transportable (BCSC-T) Program Plan addresses the design, development, acquisition, testing, integration, activation, and fielding of the BCSC-T. The overall executing agent is the Program Manager - Communications and Transmission Systems (PMDCATS). Lockheed Martin Mission Systems (C2BMC prime contractor) via an Other Transaction Agreement, provides on-site support.

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Sensors Directorate Operations Govt Salaries, Travel, Training (MDA Sensors) MD11	MIPR	MDA:AL, VA	12.883	16.784	Oct 2010	15.750	Oct 2011	-		15.750	Continuing	Continuing	Continuing
Sensors Directorate Operations Contractor Support Services, FFRDC/UARC MD11	SS/CPAF	CSS, APL, LL, OGA:AL/ MA/VA/MD	41.155	37.982	Oct 2010	31.580	Oct 2011	-		31.580	Continuing	Continuing	Continuing
Sensors Directorate Operations Other Govt Agencies MD11	MIPR	SMDC:AL	2.382	4.485	Oct 2010	7.647	Oct 2011	-		7.647	Continuing	Continuing	Continuing
Upgrade Clear Early Warning Radar Design Refinement MD11	C/CPAF	Raytheon, Boeing, or Other:MA, AK, AL	-	-		2.497	Dec 2011	-		2.497	0.000	2.497	8.276
Upgrade Clear Early Warning Radar Radar Upgrade -- Prime Contractor MD11	C/CPAF	Raytheon, Boeing, or Other:MA, AK, AL	-	-		3.910	Dec 2011	-		3.910	115.260	119.170	121.960
Upgrade Clear Early Warning Radar Program Office - OGA MD11	MIPR	USAF:Hanscom AFB, MA	-	-		1.755	Dec 2011	-		1.755	10.422	12.177	13.430
Upgrade Clear Early Warning Radar SPA Upgrade MD11	MIPR	USAF:Hanscom AFB, MA	-	-		1.848	Dec 2011	-		1.848	3.741	5.589	6.907
Upgrade Clear Early Warning Radar BCN Upgrades MD11	MIPR	MDA C2BMC / DISA:MA, AK	-	-		15.600	Dec 2011	-		15.600	10.000	25.600	39.479
Upgrade Clear Early Warning Radar DPW Site Activation/ Admin Comms MD11	MIPR	MDA C2BMC:MA, AK	-	-		1.299	Dec 2011	-		1.299	6.316	7.615	9.566
Upgrade Clear Early Warning Radar GMD Fire Control Integration MD11	SS/CPAF	Boeing/Raytheon:MA, AK, AL	-	-		1.366	Nov 2011	-		1.366	12.548	13.914	14.890
Project Oak Project Oak MD11	MIPR	Various:Various	-	-		28.002	Nov 2011	-		28.002	Continuing	Continuing	Continuing
X-Band Basic Program X-Band Software	SS/CPAF	Raytheon:MA	99.854	38.271	Oct 2010	11.216	Oct 2011	-		11.216	0.000	149.341	65.363

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT MD11: *BMDS Radars*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Enhancements/Development MD11													
X-Band Basic Program Wildcat Software Development MD11	SS/CPAF	Raytheon:MA	-	12.000	Oct 2010	-		-		-	0.000	12.000	12.000
X-Band Basic Program Radar Discrimination Capability Common Advanced Algorithm Insertion (Budg Proj CX11) MD11	C/CPAF	Raytheon/Boeing:MA/ AL	11.658	-		-		-		-	0.000	11.658	12.447
X-Band Basic Program DESIM Phase 2&# Spt to TA10, SW mod for SRR MD11	SS/CPAF	Boeing:AL	8.583	-		-		-		-	0.000	8.583	8.583
X-Band Basic Program DESIM Phase 2&3, OSA Sensor model MD11	SS/CPAF	NG:AL	9.362	-		-		-		-	0.000	9.362	9.362
X-Band Basic Program TPY-2 RAFU Kit Install, Production readiness MD11	SS/CPAF	LM, RDEC:AL	0.697	-		-		-		-	0.000	0.697	0.697
X-Band Basic Program Army Hybrid Program Office MD11	MIPR	SMDC:AL	-	-		1.930	Oct 2011	-		1.930	Continuing	Continuing	Continuing
AN/TPY-2 Radar Deployment / Site Activation Site Activation & Deployment MD11	SS/CPAF	Raytheon:OCONUS	16.403	-		14.500	Dec 2011	-		14.500	0.000	30.903	16.382
AN/TPY-2 Radar Deployment / Site Activation DPW Primary Facilities MD11	MIPR	MDA DPW:OCONUS, AL	-	-		3.293	Dec 2011	-		3.293	3.398	6.691	7.120
BMDS Radars Modeling & Simulation (M&S) M&S Program Support MD11	SS/CPAF	Raytheon:MA	-	12.213	Jan 2011	2.650	Nov 2011	-		2.650	99.466	114.329	99.466
BMDS Radars Modeling & Simulation (M&S) VV&A of Models MD11	SS/CPAF	Raytheon:MA	-	11.200	Jan 2011	2.250	Nov 2011	-		2.250	89.401	102.851	89.401

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT MD11: *BMDS Radars*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BMDS Radars Modeling & Simulation (M&S) Legacy Models Support MD11	SS/CPAF	Raytheon, Boeing:MA, AL	-	0.962	Jan 2011	-		-		-	0.000	0.962	0.962
BMDS Radars Modeling & Simulation (M&S) Warfighter Exercises MD11	SS/CPAF	Raytheon:MA	-	1.596	Jan 2011	-		-		-	6.417	8.013	6.417
Sensors Engineering Sensor Registration MD11	SS/CPAF	Raytheon, Torch:MA, AL	17.053	4.748	Oct 2010	-		-		-	0.000	21.801	4.748
Sensors Engineering Sys Integration & Tech Assessments MD11	SS/CPAF	Raytheon:MA, AL	-	10.085	Oct 2010	1.050	Nov 2011	-		1.050	14.317	25.452	14.317
Sensors Engineering Information Assurance AN/ TPY-2 (C-CLS/GMD CCC/ X00047) MD11	SS/CPAF	Raytheon:MA	-	1.750	Oct 2010	-		-		-	7.000	8.750	7.000
Sensors Engineering Information Assurance SBX (C-CLS/GMD CCC/X00047) MD11	SS/CPAF	Raytheon:MA	-	0.250	Oct 2010	-		-		-	0.000	0.250	0.250
Sensors Engineering BMD Sensor M&S MD11	SS/CPAF	Raytheon, APL, NGC, NTB:MA, MD, VA, AL	10.006	-		-		-		-	0.000	10.006	10.553
Sensors Engineering BMDS Sensors V&V MD11	SS/CPAF	APL, MIT, Raytheon:MD, MA, VA, AL	3.298	-		-		-		-	0.000	3.298	3.298
AN/TPY-2 C2BMC Fielding AN/TPY-2 Teleport MD11	MIPR	DISA, SPAWAR:VA	2.335	7.487	Oct 2010	-		-		-	0.000	9.822	7.487
AN/TPY-2 C2BMC Fielding AN/TPY-2 US Comms/ PAAWNS MD11	MIPR	DISA:VA	-	2.387	Oct 2010	-		-		-	0.000	2.387	2.387
AN/TPY-2 C2BMC Fielding AN/TPY-2 Comms Fielding MD11	MIPR	DISA:VA	3.700	3.106	Oct 2010	-		-		-	0.000	6.806	3.106
	MIPR	PM DCATS, WIN-T, NRDEC, PMRF:VA, CA	9.123	-		-		-		-	0.000	9.123	9.123

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT MD11: *BMDS Radars*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AN/TPY-2 C2BMC Fielding AN/TPY-2 BMDS Deployable Interface Nodes MD11													
AN/TPY-2 C2BMC Fielding AN/TPY-2 Teleport SATCOM MD11	MIPR	DISA/PM DCATS/ NAVSEA:VA	23.479	-		-		-		-	0.000	23.479	15.669
AN/TPY-2 C2BMC Fielding AN/TPY-2 Comms Modems MD11	MIPR	DISA:VA	4.110	-		-		-		-	0.000	4.110	4.110
External Sensors External Sensors - Prime MD11	SS/CPAF	NG (RaPID):CO	13.920	13.148	Oct 2010	-		-		-	0.000	27.068	13.148
External Sensors Independent Analysis for ESL MD11	MIPR	NSWC-DD:VA	0.798	1.103	Oct 2010	-		-		-	0.000	1.901	1.103
External Sensors Truth Sources / Advanced Algorithms MD11	MIPR	NASIC (WPAFB):OH	0.798	0.552	Oct 2010	-		-		-	0.000	1.350	0.552
External Sensors ESL Support MD11	SS/CPAF	MDIOC:CO	1.064	1.324	Oct 2010	-		-		-	0.000	2.388	1.324
External Sensors Site 2 MD11	MIPR	Site 2:CO	-	1.103	Oct 2010	-		-		-	0.000	1.103	1.103
External Sensors Technical Expertise MD11	SS/CPAF	SCITEC STTR:CO	0.532	0.717	Oct 2010	-		-		-	0.000	1.249	0.717
External Sensors Site 15 MD11	MIPR	Site 15:CO	-	0.552	Oct 2010	-		-		-	0.000	0.552	0.552
External Sensors FFRDC MD11	SS/CPAF	FFRDC:CO	0.372	0.443	Oct 2010	-		-		-	0.000	0.815	0.443
		Subtotal	293.565	184.248		148.143		-		148.143			

Remarks

Note: Project Oak is described at a higher level of classification.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT MD11: *BMDS Radars*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BMDS Radars (Sustainment) AN/TPY-2 #2 CLS (Shariki) MD11	SS/CPAF	Raytheon:MA	-	27.937	Dec 2010	-		-		-	164.703	192.640	223.021
BMDS Radars (Sustainment) AN/TPY-2 #3 CLS (Site 512) MD11	SS/CPAF	Raytheon:MA	-	27.671	Dec 2010	-		-		-	157.435	185.106	215.003
BMDS Radars (Sustainment) AN/TPY-2 #4 CLS (PAA) MD11	SS/CPAF	Raytheon:MA	-	-		-		-		-	128.535	128.535	155.452
BMDS Radars (Sustainment) AN/TPY-2 #4 Refurbishment MD11	SS/CPAF	Raytheon:MA	12.758	12.442	Dec 2010	-		-		-	0.000	25.200	12.442
BMDS Radars (Sustainment) AN/TPY-2 #6 CLS (FBM @site TBD) MD11	SS/CPAF	Raytheon:MA	-	22.530	Dec 2010	-		-		-	163.851	186.381	220.208
BMDS Radars (Sustainment) AN/TPY-2 #1 CLS (Test Asset) MD11	SS/CPAF	Raytheon:MA	-	-		-		-		-	33.761	33.761	40.642
BMDS Radars (Sustainment) AN/TPY-2 #5 CLS (THAAD) MD11	SS/CPFF	Raytheon:MA	-	11.523	Dec 2010	-		-		-	91.347	102.870	116.105
BMDS Radars (Sustainment) AN/TPY-2 #7 CLS (THAAD) MD11	SS/CPAF	Raytheon:MA	-	11.356	Dec 2010	-		-		-	85.287	96.643	109.878
BMDS Radars (Sustainment) Army Hybrid Program Office MD11	MIPR	SMDC:AL	0.750	1.580	Dec 2010	-		-		-	7.802	10.132	11.563
BMDS Radars (Sustainment) AN/TPY-2 Radars Operation & Sustainment MD11	SS/CPAF	Raytheon:MA	47.182	-		-		-		-	0.000	47.182	68.301
BMDS Radars (Sustainment) AN/TPY-2 #2 Shariki Site Support MD11	MIPR	US Army:Japan	0.800	-		-		-		-	0.000	0.800	0.800
	SS/FPIF	Raytheon:MA	8.800	-		-		-		-	0.000	8.800	8.800

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT MD11: *BMDS Radars*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BMDS Radars (Sustainment) AN/TPY-2 PPU Refurbishment/Retrofit MD11													
BMDS Radars (Sustainment) AN/TPY-2 Parts International Transportation MD11	MIPR	TACS HDAC Distro:CA	1.779	-		-		-		-	0.000	1.779	1.830
BMDS Radars (Sustainment) AN/TPY-2 Fire Unit Radar Compliance Validation MD11	SS/CPAF	GDIT:AL	0.176	-		-		-		-	0.000	0.176	0.176
BMDS Radars (Sustainment) GBR-P Caretaker MD11	SS/CPAF	Raytheon:CA	1.112	-		-		-		-	0.000	1.112	1.112
UEWR (Beale, Fylingdales, Thule) & COBRA DANE Sustainment COBRA DANE Upgrade Sustainment MD11	SS/FFP	Raytheon:MA	5.267	7.900	Jan 2011	-		-		-	0.000	13.167	7.900
UEWR (Beale, Fylingdales, Thule) & COBRA DANE Sustainment UEWR-CD Common Mission Software Sustainment MD11	SS/CPAF	Raytheon:MA	7.792	7.184	Jan 2011	-		-		-	0.000	14.976	7.184
UEWR (Beale, Fylingdales, Thule) & COBRA DANE Sustainment UEWR-CD Program Office Support MD11	MIPR	Hanscom AFB:MA	6.591	7.577	Jan 2011	-		-		-	34.106	48.274	49.202
UEWR (Beale, Fylingdales, Thule) & COBRA DANE Sustainment Thule Sustainment MD11	SS/CPAF	Raytheon:MA	1.000	-		-		-		-	0.000	1.000	1.000
BMDS Radars Communications (Sustainment) AN/TPY-2 Comms Sustainment MD11	SS/CPAF	Lockheed Martin Team, DISA:VA	13.067	13.782	Oct 2010	-		-		-	0.000	26.849	27.683
		Subtotal	107.074	151.482		-		-		-	866.827	1,125.383	1,278.302

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT MD11: *BMDS Radars*	

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract

Remarks

In FY 2012, operations and sustainment of UEWR/CD and AN/TPY-2 Radars (CLS) move to O&M appropriation.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BMDS Level Testing AN/ TPY-2 FT & GT MD11	SS/CPAF	Raytheon:MA	23.907	23.052	Dec 2010	24.715	Dec 2011	-		24.715	186.639	258.313	244.936
BMDS Level Testing UEWR/ CD FT & GT MD11	SS/CPAF	Raytheon, Boeing:MA,AL	5.347	10.313	Dec 2010	15.500	Dec 2011	-		15.500	122.539	153.699	155.189
BMDS Level Testing Thule Upgrade FT & GT MD11	SS/CPAF	Raytheon, Boeing:MA/ AL	4.370	2.260	Dec 2010	1.120	Dec 2011	-		1.120	5.331	13.081	8.881
BMDS Level Testing SBX FT & GT MD11	SS/CPAF	Raytheon, Boeing:MA/ AL	12.630	15.445	Dec 2010	6.328	Dec 2011	-		6.328	27.753	62.156	50.483
BMDS Level Testing External Sensors Lab FT & GT Support MD11	SS/CPAF	NG, MDIOC:CA, CO	-	1.248	Dec 2010	0.977	Dec 2011	-		0.977	5.106	7.331	7.479
BMDS Level Testing Digital Signal Injection MD11	SS/CPAF	Raytheon:MA	12.898	-		-		-		-	0.000	12.898	12.898
BMDS Level Testing Warfighter Exercises MD11	SS/CPAF	Raytheon:MA	1.317	-		-		-		-	0.000	1.317	1.317
BMDS Level Testing Thule CTTO Infrastructure MD11	SS/CPAF	Boeing:AL	8.781	-		-		-		-	0.000	8.781	8.781
BMDS Level Testing UEWR CTTO Infrastructure MD11	SS/CPAF	Boeing:AL	4.037	-		-		-		-	0.000	4.037	10.537
BMDS Level Testing X-Band Simulator Tester MD11	SS/CPAF	Raytheon :MA	5.180	-		-		-		-	0.000	5.180	5.180
BMDS Level Testing SBX Infrastructure MD11	SS/CPAF	Raytheon:MA	4.390	-		-		-		-	0.000	4.390	4.390
Element Test and Infrastructure TPY-2 SSF	SS/CPAF	Raytheon:MA	-	6.368	Dec 2010	7.382	Dec 2011	-		7.382	43.228	56.978	57.937

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT MD11: *BMDS Radars*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Integration & Infrastructure, Sys Test Lab MD11													
Element Test and Infrastructure UEWR/CD SSF Integration & Infrastructure, Sys Test Lab MD11	SS/CPAF	Boeing, Raytheon:AL, MA	-	1.170	Nov 2010	4.215	Nov 2011	-		4.215	27.090	32.475	33.022
Element Test and Infrastructure ESL SSF Integration MD11	MIPR	AFSPC:CO	-	0.646	Dec 2010	0.343	Dec 2011	-		0.343	1.709	2.698	2.742
Element Test and Infrastructure SBX SSF Integration & Infrastructure, Sys Test Lab MD11	SS/CPAF	Boeing:AL	-	6.431	Dec 2010	2.660	Dec 2011	-		2.660	11.426	20.517	20.862
Element Test and Infrastructure Thule SSF Integration & Sys Test Lab MD11	SS/CPAF	Boeing:AL	-	1.500	Dec 2010	0.598	Dec 2011	-		0.598	2.473	4.571	4.649
BMDS Radars Concurrent Test, Training & Operations (CTTO) Infrastructure AN/TPY-2 SSF/CTTO/RDSIS Upgrade MD11	SS/CPAF	Raytheon:MA	-	29.860	Jan 2011	-		-		-	5.587	35.447	39.962
BMDS Radars Concurrent Test, Training & Operations (CTTO) Infrastructure X-Band Simulator Tester (XST) MD11	SS/CPAF	Raytheon:MA	-	6.000	Jan 2011	-		-		-	53.761	59.761	59.761
		Subtotal	82.857	104.293		63.838		-		63.838	492.642	743.630	729.006

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT MD11: *BMDS Radars*

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	483.496	440.023		211.981		-		211.981			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603884C: *Ballistic Missile Defense Sensors*	**PROJECT** MD11: *BMDS Radars*

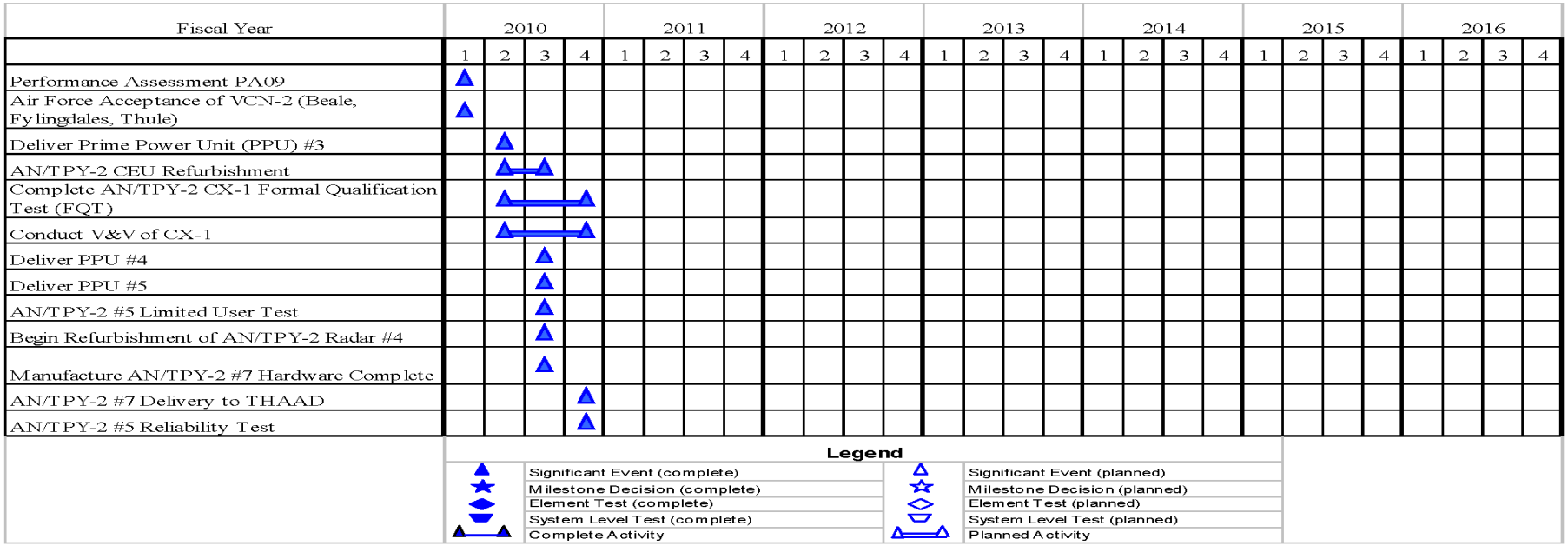

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603884C: *Ballistic Missile Defense Sensors*	**PROJECT** MD11: *BMDS Radars*

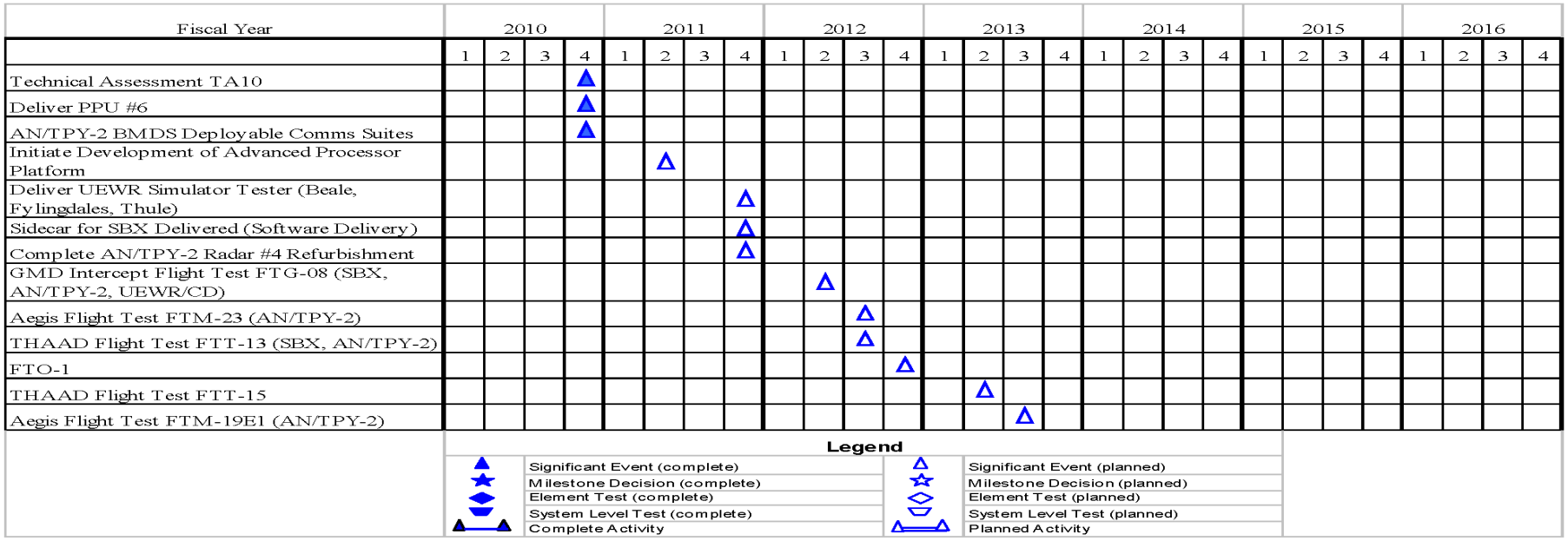

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603884C: *Ballistic Missile Defense Sensors*	**PROJECT** MD11: *BMDS Radars*

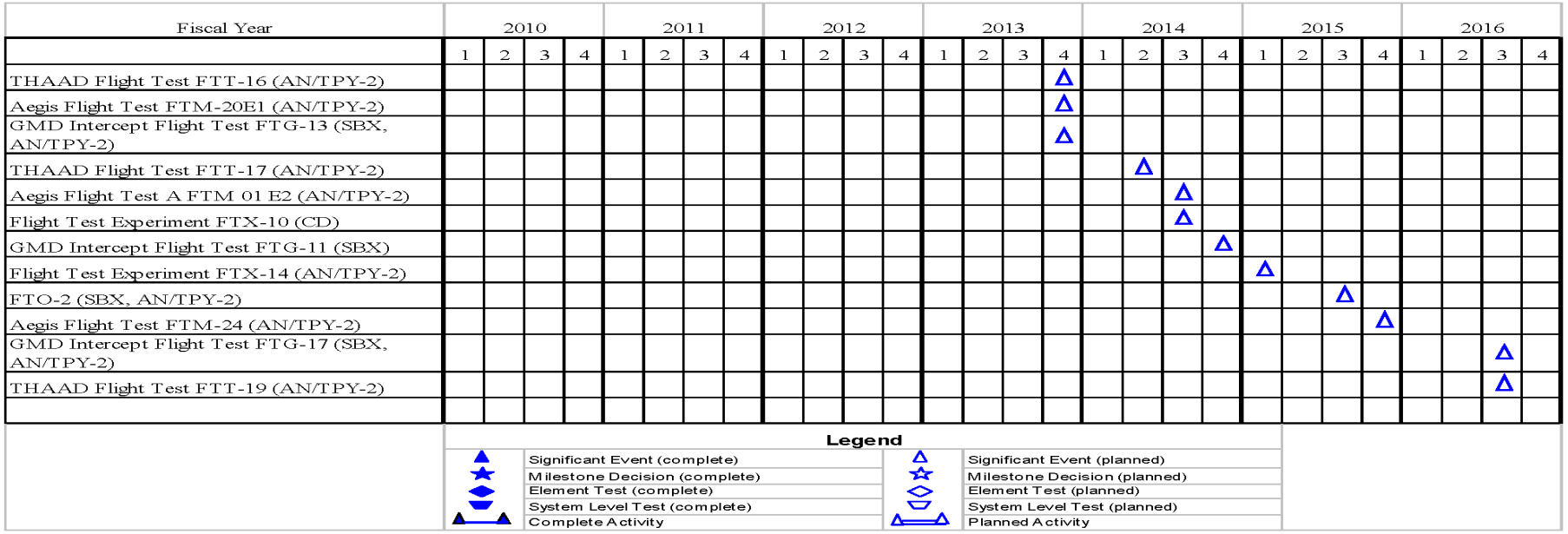

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603884C: *Ballistic Missile Defense Sensors*	**PROJECT** MD11: *BMDS Radars*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Performance Assessment PA09	1	2010	1	2010
Air Force Acceptance of VCN-2 (Beale, Fylingdales, Thule)	1	2010	1	2010
Deliver Prime Power Unit (PPU) #3	2	2010	2	2010
AN/TPY-2 CEU Refurbishment	2	2010	3	2010
Complete AN/TPY-2 CX-1 Formal Qualification Test (FQT)	2	2010	4	2010
Conduct V&V of CX-1	2	2010	4	2010
Deliver PPU #4	3	2010	3	2010
Deliver PPU #5	3	2010	3	2010
AN/TPY-2 #5 Limited User Test	3	2010	3	2010
Begin Refurbishment of AN/TPY-2 Radar #4	3	2010	3	2010
Manufacture AN/TPY-2 #7 Hardware Complete	3	2010	3	2010
AN/TPY-2 #7 Delivery to THAAD	4	2010	4	2010
AN/TPY-2 #5 Reliability Test	4	2010	4	2010
Technical Assessment TA10	4	2010	4	2010
Deliver PPU #6	4	2010	4	2010
AN/TPY-2 BMDS Deployable Comms Suites	4	2010	4	2010
Initiate Development of Advanced Processor Platform	2	2011	2	2011
Deliver UEWR Simulator Tester (Beale, Fylingdales, Thule)	4	2011	4	2011
Sidecar for SBX Delivered (Software Delivery)	4	2011	4	2011
Complete AN/TPY-2 Radar #4 Refurbishment	4	2011	4	2011
GMD Intercept Flight Test FTG-08 (SBX, AN/TPY-2, UEWR/CD)	2	2012	2	2012
Aegis Flight Test FTM-23 (AN/TPY-2)	3	2012	3	2012

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603884C: *Ballistic Missile Defense Sensors*	**PROJECT** MD11: *BMDS Radars*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
THAAD Flight Test FTT-13 (SBX, AN/TPY-2)	3	2012	3	2012
FTO-1	4	2012	4	2012
THAAD Flight Test FTT-15	2	2013	2	2013
Aegis Flight Test FTM-19E1 (AN/TPY-2)	3	2013	3	2013
THAAD Flight Test FTT-16 (AN/TPY-2)	4	2013	4	2013
Aegis Flight Test FTM-20E1 (AN/TPY-2)	4	2013	4	2013
GMD Intercept Flight Test FTG-13 (SBX, AN/TPY-2)	4	2013	4	2013
THAAD Flight Test FTT-17 (AN/TPY-2)	2	2014	2	2014
Aegis Flight Test A FTM 01 E2 (AN/TPY-2)	3	2014	3	2014
Flight Test Experiment FTX-10 (CD)	3	2014	3	2014
GMD Intercept Flight Test FTG-11 (SBX)	4	2014	4	2014
Flight Test Experiment FTX-14 (AN/TPY-2)	1	2015	1	2015
FTO-2 (SBX, AN/TPY-2)	3	2015	3	2015
Aegis Flight Test FTM-24 (AN/TPY-2)	4	2015	4	2015
GMD Intercept Flight Test FTG-17 (SBX, AN/TPY-2)	3	2016	3	2016
THAAD Flight Test FTT-19 (AN/TPY-2)	3	2016	3	2016

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT ZX40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
ZX40: *Program-Wide Support*	55.681	-	-	-	-	-	-	-	-	0.000	55.681
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project ZX40 has been transferred project MD40.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	55.681	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	55.681	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603884C: *Ballistic Missile Defense Sensors*	PROJECT MD40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	14.836	10.393	-	10.393	14.964	15.098	13.613	14.874	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). Includes Government Civilians, Advisory and Assistance Services, and Federally Funded Research and Development Contracts (FFRDC) providing integrity and oversight of the BMDS as well as supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2 after FY 2011), such as physical and technical security, legal services, travel and agency training, office and equipment leases, rents and utilities, data and unified communications support, supplies and maintenance, and similar operating expenses. Also includes legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.
In keeping with congressional intent, PWS is allocated among the PEs on a pro-rata basis and therefore fluctuates by year based on the total MDA budget and the individual PE`s budget amount.

Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($56,621).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	-	14.836	10.393
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($56,621).			
FY 2011 Plans: See paragraph A, Mission Description and Budget Item Justification			
FY 2012 Plans: See paragraph A, Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	14.836	10.393

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603884C: *Ballistic Missile Defense Sensors*	**PROJECT** MD40: *Program-Wide Support*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0603888C: *Ballistic Missile Defense Test and Targets*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	737.863	1,113.425	1,071.039	-	1,071.039	898.680	790.906	787.113	878.215	Continuing	Continuing
WX04: *Test & Evaluation Capability Development*	3.618	-	-	-	-	-	-	-	-	0.000	3.618
XX04: *Concurrent, Test, Training & Ops (CTTO)*	33.514	-	-	-	-	-	-	-	-	0.000	33.514
YX04: *Test & Evaluation*	339.515	-	-	-	-	-	-	-	-	0.000	339.515
MD04: *Test Program*	-	559.133	455.993	-	455.993	466.694	383.940	406.262	351.721	Continuing	Continuing
MX04: *BMD Test & Targets Development Support*	-	-	32.389	-	32.389	31.337	23.549	25.237	27.123	0.000	139.635
YX05: *Targets and Countermeasures Core*	338.168	-	-	-	-	-	-	-	-	0.000	338.168
MD05: *Targets Program*	-	517.065	540.689	-	540.689	363.009	347.933	321.954	461.937	Continuing	Continuing
ZX40: *Program-Wide Support*	23.048	-	-	-	-	-	-	-	-	0.000	23.048
MD40: *Program-Wide Support*	-	37.227	41.968	-	41.968	37.640	35.484	33.660	37.434	Continuing	Continuing

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Projects AX04, CX04, DX04, EX04, WX04, XX04, and YX04 for FY 2010 is now captured in Project MD04. The content previously planned in Projects BX05, CX05, EX05, WX05, and YX05 for FY 2010 is now captured in Project MD05.

A. Mission Description and Budget Item Justification

As part of the total Ballistic Missile Defense System (BMDS), the Test and Targets Program Element (PE) brings the BMDS elements capabilities together by providing resources that includes targets and countermeasures development and procurement for an integrated system-level test approach. Based on the systems engineering assessments of realistic threat scenarios, the targets and countermeasures program develops, builds, and supports the launch of Short Range Ballistic Missile (SRBM) targets, Medium Range Ballistic Missile (MRBM) targets, Intermediate Range Ballistic Missile (IRBM) targets, Intercontinental Ballistic Missile (ICBM) targets, and common payloads and components to test, verify, and validate the performance of the BMDS. The Targets and Countermeasures (TC) program provides a cost effective and reliable inventory of targets which are threat representative and demonstrate capability of the evolving layered missile defense system in a simultaneous test and operations operating environment.

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603888C: *Ballistic Missile Defense Test and Targets*

The Missile Defense Agency (MDA) initiated a systematic review of BMDS testing that establishes a convention for setting test objectives that go beyond simply exercising newly delivered elements of the system. The BMDS Test Program establishes and documents in the Integrated Master Test Plan (IMTP) the test requirements for the BMDS with specific focus on collecting the data needed for the Verification, Validation and Accreditation (VV&A) of the BMDS models and simulations (M&S). 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.

Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs) are the conditions and events which define or describe the data to be obtained from flight and ground tests in order to anchor models and simulations. CECs and EMEs are utilized to design a test engagement to further advance the understanding and confidence of the modeling and simulation associated with all possible engagements.

MDA testing is based on an integrated, comprehensive, and phased test program. The MDA Test Program incorporates the Phased Adaptive Approach (PAA) which is based on an assessment of missile threats, and a commitment to deploy technology that is proven, cost-effective, and adaptable to an evolving security environment. The Missile Defense Agency, in full collaboration with Combatant Commands; Service Operational Test Agencies; Director, Operational Test & Evaluation; and Director, Developmental Test and Evaluation developed and approved the Integrated Master Test Plan (IMTP) v10.2 which aligns the Ballistic Missile Defense Test Program to the PAA phases for proven capability delivery. MDA ground tests emulate the quality of service (that is, data of sufficient accuracy and low enough latency) of C2BMC and sensors. Testing Element systems, subsystems, and components early in the development is necessary prior to conducting BMD-System level testing. The Element Level testing is funded as part of an Element developmental program and contained in their respective Program Element (PE) submissions. This PE provides consolidated MDA-wide capabilities and resources for the planning, design, execution, provision of infrastructure, and management of BMD System testing. This PE also provides funding to the Targets and Countermeasures (TC) program office for the development and procurement of ballistic targets and countermeasures for the BMDS in support of the MDA flight test program. Target requirements are derived from the Agency`s IMTP. This PE also provides funding to the Operational Test Agencies (OTA) which are active in all phases of test planning, execution and post-test analysis, to include the development of the IMTP. This PE also provides funding to the Targets and Countermeasures (TC) program office for the development and procurements of ballistic missile targets and countermeasures for the Ballistic Missile Defense System (BMDS) in support of the MDA flight test program. Target requirements are derived from the CECs and EMEs and are documented in the Agency`s Integrated Master Test Plan.

The Test and Targets Program Element is grouped into two major areas: Test and Evaluation, and Targets and Countermeasures. This program element also includes the test related program content: Concurrent, Test, Training, and Operations (CTTO); Engineering Test Analysis; Facilities, Siting, and Environmental Management; and Fielding and Integration.

BMDS Test Program Functions:

- Guide the testing required to verify, validate, and accredit (VV&A) MDA`s modeling and simulation (M&S).
- The Directorate for Test centralizes authority, control, and responsibility for all BMDS testing and performs the following functions:

- Plans tests according to BMDS and Element objectives.
- Provides test ranges, instrumentation, and infrastructure.
- Develops MDA test policy.
- Plans and executes BMDS ground and flight tests.
- Demonstrates through test events integrated BMDS capability.
- Ensures appropriate data is collected at the necessary fidelity for growth and capability.
- Collects data for BMDS analysis and manages MDA data centers.
- Provides documentation of BMDS and Element performance results for use by: MDA; the Operational Test Agencies; the Combatant Commander`s; OSD; Director, Operational Test & Evaluation (DOT&E); and senior decision makers.
- Provides data and information to anchor the models and simulations used to verify BMDS capabilities and to support BMDS characterization and assessment.
- Provides final target system integration, target mission logistics and launch execution for BMDS test target systems.

Test Program Contribution to the BMDS:

- Plan and conduct testing for evaluation of the BMDS CECs and EMEs** developed by Systems Engineering.

Collect and provide test data in order to support the effectiveness, suitability, survivability, and interoperability assessments of the BMDS.

- Provide test infrastructure necessary to support increasingly complex tests.
- Provide risk reduction for the BMDS through flight testing to include technology demonstration, algorithm and model validation, and threat characterization.
- Develop Missile Defense Agency (MDA) BMDS testing policy with common, repeatable processes.

** Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs) are the conditions and events which define or describe the data to be Obtained from flight and ground tests in order to anchor system models and simulations.

Major Test Program Goals:

- Improve test execution and discipline for on-time, successful testing.
- Provide leadership and guidance for the planning, execution, analysis, and reporting of BMD system test events to support system verification.
- Establish single BMD system test processes that reflect the best practices of existing Element processes.
- Integrate Element test processes into BMDS processes.

- Develop Element Lessons Learned and Best Practices to support BMDS test design processes.
- Provide required infrastructure and environmental compliance for robust BMD system testing.
- Ensure test readiness, realism, and accuracy and improve the quality of execution in test programs.

BMDS Targets and Countermeasures Functions:

The Targets and Countermeasures program office is responsible for executing the development and procurement of targets to support testing of the BMDS. The multiple targets (3 types) provided by TC are across four target classes: Short Range Ballistic Missiles (SRBM), Medium Range Ballistic Missiles (MRBM), Intermediate Range Ballistic Missiles (IRBM), and Intercontinental Ballistic Missiles (ICBM). It provides threat representative targets for use in BMDS testing to verify models and simulations, as well as to verify BMDS performance across a broad range of operational conditions.

MDA Element testing is based on an integrated, comprehensive, and phased test program. Element systems, sub-systems, and components are tested early in development and are necessary prior to conducting BMD-system level testing. Targets and Countermeasures element level testing is funded as part of a developmental program and reflected in this Program Element (PE) submission. This PE also provides Targets and Countermeasures participation in the consolidated MDA-wide System Test Program and the resources for the planning, design, execution, and management of Targets and Countermeasures in BMD System testing in accordance with the BMDS Test Policy. This applies to all Flight, Integrated, Ground, and Distributed Ground Tests and Post-Test Analysis and reconstructions listed in the Integrated Master Test Plan.

Targets and Countermeasures Contribution to the BMDS:

- Target Types

- Type-1 Targets are simple, baseline configurations
- Type-2 Targets have increased capability or complexity
- Type-3 Targets are one of a kind design/development or launch activity
- Provides the BMDS risk reduction through measurements of flight testing to include technology demonstration algorithms, model validation, and threat and countermeasures characterization.
- Collects and provides test data in order to support effectiveness, suitability, and interoperability assessments.

Major Targets and Countermeasures Goals:

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603888C: *Ballistic Missile Defense Test and Targets*

- Provide cost effective, reliable, threat representative all-up-round targets, target performance planning, and BMDS modeling and simulation to the MDA test and engineering community.

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	823.333	1,113.425	1,105.959	-	1,105.959
Current President's Budget	737.863	1,113.425	1,071.039	-	1,071.039
Total Adjustments	-85.470	-	-34.920	-	-34.920
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-2.588	-			
• SBIR/STTR Transfer	-15.842	-			
• Other Adjustment Detail	-67.040	-	-34.920	-	-34.920

Change Summary Explanation

The FY 2012 $34.920 million dollar decrease in this program element is the result primarily of efficiency savings estimates. The test program has realized $19.857 million in efficiency savings. The targets program has realized $23.300 million in efficiency savings. Other adjustments include MDA programmatic changes.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603888C: *Ballistic Missile Defense Test and Targets*	PROJECT WX04: *Test & Evaluation Capability Development*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
WX04: *Test & Evaluation Capability Development*	3.618	-	-	-	-	-	-	-	-	0.000	3.618
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content planned in Project WX04 in FY 2010 is captured in Project MD04 in FY 2011-FY 2015.

A. Mission Description and Budget Item Justification

Project WX04 has been transferred to Project MD04

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD04 for FY 2010 Accomplishments	3.618	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	3.618	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603888C: *Ballistic Missile Defense Test and Targets*	PROJECT XX04: *Concurrent, Test, Training & Ops (CTTO)*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
XX04: *Concurrent, Test, Training & Ops (CTTO)*	33.514	-	-	-	-	-	-	-	-	0.000	33.514
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content planned in Project XX04 in FY 2010 is captured in Project MD04 in FY 2011-FY 2015.

A. Mission Description and Budget Item Justification

Project XX04 has been transferred to Project MD04

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD04 for FY 2010 Accomplishments	33.514	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	33.514	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603888C: *Ballistic Missile Defense Test and Targets*	PROJECT YX04: *Test & Evaluation*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
YX04: *Test & Evaluation*	339.515	-	-	-	-	-	-	-	-	0.000	339.515
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content planned in Project YX04 in FY 2010 is captured in Project MD04 in FY 2011-FY 2015.

A. Mission Description and Budget Item Justification

Project YX04 has been transferred to Project MD04

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD04 for FY 2010 Accomplishments	339.515	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	339.515	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603888C: *Ballistic Missile Defense Test and Targets*	PROJECT MD04: *Test Program*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD04: *Test Program*	-	559.133	455.993	-	455.993	466.694	383.940	406.262	351.721	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Projects WX04, XX04, and YX04 for FY 2010 is now captured in Project MD04.

A. Mission Description and Budget Item Justification

The Test Program provides consolidated Missile Defense Agency (MDA) capabilities and resources to support the management and execution of Ballistic Missile Defense System (BMDS) and Element-level testing. With the evolution of the BMDS, testing needs have expanded beyond those of the individual Elements to include testing of BMDS Critical Engagement Conditions (CEC) and Empirical Measurement Events (EME) to anchor modeling and simulations.

The Directorate for Test is responsible for all BMDS testing. The Directorate for Test relies on BMD Systems Engineering to provide the system test objectives to define the test architecture. The Directorate for Test plans and executes BMD system test events. The Directorate for Test also develops the necessary test policy, test plans, and test infrastructure to conduct an effective test program.

Activities are grouped into four major areas: 1) Support to Operations, which provides for the Test Functional Management Office, flight and ground testing support, target launch operations, and Operational Test Agency assessments; 2) Infrastructure Support to Flight Test and Ground Test Programs, which develops, sustains, and modernizes the core infrastructure assets required to support the BMDS System and Element-level flight and ground testing; 3) Flight Test and Ground Test Infrastructure Development, which provides for Integrated Master Test Plan infrastructure development, auxiliary sensors development, and component ground test lab development; and 4) Common Test Support, which provides for test planning and design, test data management, ground test lab support, test readiness and training, and the Pacific Range Support Team (PRST).

Other test related program content involving engineering test analysis; concurrent test, training, and operations; fielding and integration; and facilities, siting, and environmental management, are also included within this project.

The goals of this budgetary objective are to support and improve a robust testing program, and to enhance modeling and simulation efforts to provide, in conjunction with flight and ground testing, confidence to the Combatant Commanders that the missile defense system works.

The MDA test program, along with the Army, Navy, Air Force, and Operational Test Agencies, conducts a rigorous review of BMDS models and simulations (M&S) to determine the data needed to verify, validate, and accredit the models and simulations. Working with the Services, Operational Test Agencies (OTA), and with the support of the Director of Operational Test and Evaluation (DOT&E), the test program was restructured to improve confidence in the missile defense capabilities under development and ensure the capabilities transferred to the Warfighter are operationally effective, suitable, and survivable.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603888C: *Ballistic Missile Defense Test and Targets*	**PROJECT** MD04: *Test Program*

Additional Test Program Content

Test Engineering supports the analysis process by providing event leadership, tools, and processes to conduct pre- and post-mission system level analysis for all BMD system flight and ground test events. Analysis is performed and reported using the Joint Analysis Team (JAT) process. Pre-mission analysis provides essential risk reduction analysis used to optimize conditions for successful accomplishment of the primary mission objectives. Post-mission analysis is performed to assess the primary and secondary test objectives, and to identify mission-specific performance enhancements or anomalies that were observed. The Ballistic Missile Defense System performance assessment strategy is to develop models and simulations of the Ballistic Missile Defense System and compare their predictions to empirical data collected through comprehensive flight and ground testing to validate model and simulation accuracy, rather than physically testing all possible combinations of Ballistic Missile Defense System configurations, engagement conditions, and target phenomena.

FY12 budget request recognizes that historical execution rates will result in FY11 funds available to support the FY12 program. The planned accomplishments reflect the use of the FY11 funding in addition to the FY12 request.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: 1.0 Support to Operations and Testing	-	135.135	200.027
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: (FY 2010 Budget $102,284) -Completed detailed test planning and executed FY10 BMDS Flight Test events: JFTM-03 (Aegis Simulated Flight Test) , FTX-06 (Aegis Flight Test), FTT-11 (THAAD Intercept Flight Test), FTG-06 (GM Intercept Flight Test), FEL-01A (ALTB Flight Experiment), BVT-01 (GM Flight Test), FTT-14 (THAAD Intercept Flight Test), FEL-01B (ALTB Flight Experiment); Targets of Opportunity HTV-2a, FTX-07/GT-200, GT-201, and GT-202 (Glory Trips), PATRIOT 7-2A, PATRIOT 6.5-2. -Completed detailed test planning and executed FY10 BMDS System Ground Test events: FCE-C HWIL, FCE-C Distributed, GTX-04a (BMDS Focused Ground Test), and GTI-04b (BMDS Integrated HWIL Ground Test). -Conducted test planning in FY10 for the following FY11 BMDS Flight and Ground Test events: GTD-04b (BMDS Distributed Ground Test), GTI-04d (BMDS Integrated HWIL Ground Test), GTD-04d (BMDS Distributed Ground Test), JFTM-04 (Aegis Simulated Intercept Flight Test), FTG-06A (GM Intercept Flight Test), Caravan-2 USFT-4, FTM-16 (Aegis Flight test), FTM-15 (Aegis Intercept Flight Test), and FTX-11/GT-203 (Glory Trip). -Completed Phase 1 Hardware/Software Benchmark testing, supported Ground Test Integration of SSF, and integrated hardware into SSF Development Lab.			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603888C: *Ballistic Missile Defense Test and Targets*	PROJECT MD04: *Test Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Initiated detailed test planning for BMDS flight and ground test events listed in the IMTP and depicted in R-4 schedule profile. -Continued the development and implementation of test policy, standards, directives, and procedures for creating unified BMD test processes. Drafted and completed numerous guides and policies including: Test Career Guide, Directive 3000.04 BMDS Joint Engineering and Test IMTP Development, Restrictions on the Use of Ballistic Targets, International Test Policy, MDA Directive 3002.03 BMDS Test Policy, MDA Test Event Notification Policy, Test Event Viewing Policy. Continued to integrate mission assurance and best practices and lessons learned into test policy, processes, procedures and training and certification plans. -Developed, delivered, and briefed Quick Look Brief (QLB), Executive QLB (EQLB), Mission Data Review (MDR), and Executive MDR (EMDR) for BMDS test events listed in the IMTP. -Incorporated software changes to Modular Analysis and Reporting Suite (MARS) to enhance analyst efficiency and capability. Continued to populate the MARS Analysis Database with most current test data to support analysis and capability assessments. -The BMDS Capability Assessment team (BCA) team conducted non-advocate assessments of the BMDS readiness and investigated BMDS performance issues and proposed mitigation plans. -Supported MDA System Engineering and Warfighter requirements, integration of multiple Elements, OTA and test support team into BMDS system flight and ground tests.			
FY 2011 Plans: -Integrate mission assurance and best practices and lessons learned. -Develop and implement test policy, standards, directives, and procedures for creating unified BMD test processes. -Coordinate budget planning and execution activities, as well as Test Functional Area (TFA) manpower activities. -Communicate and interact with the Ballistic Missile Defense System (BMDS) development community and Operational Test Agencies (OTA). -Complete detailed test planning, mission management, and integration for FY 2011 Ballistic Missile Defense System (BMDS) level and other test events. -Support BMDS Elements in planning and integration of their program specific flight and ground tests. -Support planning and execution of BMDS Contingency Operations. -Prepare and conduct all phase test readiness reviews and schedule all executive test reviews. -Perform BMDS test configuration control and asset management. -Complete BMDS daily test status reports and integrate flight and ground test scheduling and deconfliction. -Support end-to-end test cost oversight on flight and ground tests from the Integrated Master Test Plan. -Integrate and support all Associated Operations on flight and ground test events. -Integrate, develop, and execute all test event viewing plans and conduct all test event viewing. -Support BMDS System Engineering and Warfighter requirements and integration of multiple Elements, Operational Test Agency (OTA) and test support teams into BMDS system flight and ground test events.			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603888C: *Ballistic Missile Defense Test and Targets*	PROJECT MD04: *Test Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Refine scenario designs for BMDS flight tests to support Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs) identified in BMDS Integrated Master Test Plan (IMTP). -Initiate planning for FY 2012 BMDS system level and other test events. ***FY 2012 Plans:*** -Integrate mission assurance, best practices, and lessons learned. -Develop and implement test policy, standards, directives, and procedures for creating unified BMD test processes. -Coordinate budget planning and execution activities, as well as Test Functional Area (TFA) manpower activities. -Communicate and interact with the Ballistic Missile Defense System (BMDS) development community and Operational Test Agencies (OTA). -Complete detailed test planning, mission management, and integration for FY 2012 Ballistic Missile Defense (BM) system level and other test events. -Support BMDS Elements in planning and integration of their program specific flight and ground tests. -Support planning and execution of BMDS Contingency Operations. -Prepare and conduct all phase test readiness reviews and schedule all executive test reviews. -Perform BMDS test configuration control and asset management. -Complete BMDS daily test status and integrate flight and ground test scheduling and deconfliction. -Support end-to-end test cost oversight on flight and ground tests from the Integrated Master Test Plan. -Integrate and support all Associated Operations on flight and ground test events. -Integrate, develop, and execute test event viewing plans and conduct all test event viewing. -Support BMDS System Engineering and Warfighter requirements and integration of multiple Elements, Operational Test Agency (OTA) and test support teams into BMDS system flight and ground test events. -Refine scenario designs for BMDS flight tests to support Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs) identified in BMDS Integrated Master Test Plan (IMTP). -Initiate planning for FY 2013 BMDS system level and other test events. -Conduct mission planning and range coordination activities, execute target missions, and collect and analyze target system data. (Funding for this effort in FY 2010 and FY 2011 is captured in MD05)			
Title: 2.0 Infrastructure Support to Flight Test and Ground Test	-	96.539	118.511
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: (FY 2010 Budget $128,796)			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provided O&M of MDA dedicated test range infrastructure at Pacific Missile Range Facility (PMRF), Reagan Test Site (RTS), Vandenberg Air Force Base (VAFB), White Sands Missile Range (WSMR), Pt Mugu, and Kauai Test Facility (KTF) to support on-going MDA Integrated Master Test Plan (IMTP) flight test requirements. -Provided O&M of MDA dedicated ground test and hardware in the loop (HWIL) infrastructure at various CONUS locations (AL, CA, CO, FL, MD, TN and VA) to support on-going MDA IMTP ground test requirements and advanced technology development. -Provided development, upgrades and O&M of both flight test (FT) and ground test (GT) infrastructure to support IMTP testing requirements not supportable by current capabilities. Major efforts include: GT 2nd String; which increased numbers of HWIL representations of all BMDS elements to support increased test capacity demands; GT fidelity enhancements to support increased realism and test increased BMDS functionalities; FT ranges and auxiliary sensors, to support longer range engagements and larger scale complex operational test (OT) events. [This is where most of the new test infrastructure capability deliveries will occur over 20 specific projects]. -Completed development and provided O&M to the MDA dedicated Pacific Tracker and XTR-1 radar and completed integration and testing of the system to achieve IOC by 2QFY11 to support on-going MDA IMTP flight test requirements and advanced technology development. -Provided O&M to the MDA dedicated test resource scheduling tools, test support communications, real-time test data transport and situational awareness, and time/space/position information (TSPI) systems over a CONUS/Pacific distributed test architecture to support on-going MDA IMTP flight test requirements and advanced technology development. -Operated High Altitude Observatory -I and -II (HALO-I and HALO-II) and Wide-body Airborne Sensor Program (WASP) for data collection services on BMDS flight tests. Operated High Altitude Observatory -III (HALO-III) as an Airborne Diagnostic Target (ADT) for Airborne Laser Test Bed (ALTB). -Continued coordination with the Targets Program to develop and qualify common Flight Termination and Range Tracking Systems that will simplify target integration at the ranges. -Provided centralized data management, archival, and distribution services to support BMDS evaluation and program assessments. The Data Centers comprise MDA`s official archive for all MDA mission related scientific and technical data. Sustained the Pacific Collector Telemetry Instrumentation Ship to support off-range BMDS testing and increasingly complex test scenarios. Assessed the viability of adding a range safety capability to support more complex flight testing. Operated two Transportable Telemetry Systems (TTS) that provide long range missile telemetry acquisition, processing, and archiving capability. -Developed a third TTS to support larger range additional telemetry collection requirements. ***FY 2011 Plans:***			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Develop, maintain, and upgrade as needed MDA unique range facilities and instrumentation at the following ranges in accordance with the DoD Financial Management Regulation and Test Resource Management Center Policy: White Sands Missile Range (WSMR), Naval Air Warfare Center (NAWC), Kauai Test Facility (KTF), Wake Island, Pacific Missile Range Facility (PMRF), Reagan Test Site (RTS), Vandenberg Air Force Base (VAFB), and other test sites as required. -Continue efforts to transition KTF from the Department of Energy (DoE) to the Navy. -Operate, maintain, and upgrade as needed the Kwajalein Mobile Range Safety System (KMRSS) and PMRF MRSS to support BMDS flight testing. -Operate High Altitude Observatory -I (HALO-I) and HALO-II to support optical data collection requirements on Ballistic Missile Defense (BMD) flight tests. Operate HALO-III to serve as an Airborne Diagnostic Target for the Airborne Laser Test Bed (ALTB) technology program. Operate the Wide-body Airborne Sensor Platform (WASP) to support optical data collection requirements and provide captive carry capability for MDA sensor programs. -Maintain and upgrade MDA unique ground test facilities to support all BMDS developmental program hardware and software testing. These facilities provide hardware in the loop (HWIL) capability, threat signature measurement capability, and sensor calibration standards. -Maintain and upgrade MDA unique ground test facilities to support BMDS system-level ground tests, including basic ground test control as well as some Element representations. -Continue coordination with the Targets Program to develop and qualify common Flight Termination and Range Tracking Systems that will simplify target integration at the ranges. -Sustain the Pacific Collector Telemetry Instrumentation Ship to support off-range BMDS testing and increasingly complex test scenarios. -Operate and maintain three Transportable Telemetry System (TTS) that provide long range missile telemetry acquisition, processing, and archiving capability. -Support the Test and Evaluation Data Analysis Capability (TEDAC) Enterprise to provide test communications among the MDA ranges and test situational awareness to MDA. -Continue development of a range safety capability for the Pacific Collector Telemetry Instrumentation Ship. ***FY 2012 Plans:*** -Develop, maintain, and upgrade as needed MDA unique range facilities and instrumentation at the following ranges in accordance with the DoD Financial Management Regulation and Test Resource Management Center Policy: White Sands Missile Range (WSMR), Naval Air Warfare Center (NAWC), Kauai Test Facility (KTF), Wake Island, Pacific Missile Range Facility (PMRF), Reagan Test Site (RTS), Vandenberg Air Force Base (VAFB), and other test sites as required. -Continue efforts to transition KTF from Department of Energy (DoE) to the Navy.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Operate, maintain, and upgrade as needed the Kwajalein Mobile Range Safety System (KMRSS) and PMRF MRSS to support BMDS flight testing. -Operate High Altitude Observatory-I (HALO-I) and HALO-II to support optical data collection requirements on Ballistic Missile Defense (BMD) flight tests. Operate HALO-III to serve as an Airborne Diagnostic Target for the Airborne Laser Test Bed technology (ALTB) program. Operate the Wide-body Airborne Sensor Platform (WASP) to support optical data collection requirements and provide captive carry capability for MDA sensor programs. -Maintain and upgrade MDA unique ground test facilities to support all BMDS developmental program hardware and software testing. These facilities provide hardware in the loop (HWIL) capability, threat signature measurement capability, and sensor calibration standards. -Maintain and upgrade MDA unique ground test facilities to support BMDS system-level ground tests, including basic ground test control as well as some Element representations. -Continue coordination with the Targets Program to develop and qualify common Flight Termination and Range Tracking Systems that will simplify target integration at the ranges. -Sustain the Pacific Collector Telemetry Instrumentation Ship to support off-range BMDS testing and increasingly complex test scenarios. -Operate and maintain three Transportable Telemetry System (TTS) that provide long range missile telemetry acquisition, processing, and archiving capability. -Support the Test and Evaluation Data Analysis Capability (TEDAC) Enterprise to provide test communications among the MDA ranges and test situational awareness to MDA. -Continue development of a range safety capability for the Pacific Collector Telemetry Instrumentation Ship.			
Title: 3.0 Flight Test and Ground Test Infrastructure Development	-	163.087	48.473
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** (N/A) ***FY 2011 Plans:*** -Continue development of a 2nd suite of hardware in the loop (HWIL) equipment including the acquisition of additional hardware and digital element representations to support concurrent ground testing of current BMDS capability and that under development. -Identify and execute focused investments in the BMDS test infrastructure to support the IMTP. -Add hardware and digital element representations to support expansion of the existing HWIL capability as the BMDS evolves.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Complete development of the Pacific Tracker Radar / Telemetry Instrumentation Ship to support off-range BMDS testing and increasingly complex test scenarios. -Develop additional telemetry and instrumentation assets to support GMD salvo testing and increasingly complex flight test scenarios. -Develop dedicated C2BMC regional test bed and communication nodes to support IMTP test program. -Continue sustainment and development of the Kinetic HWIL facility to support next generation scene development efforts. ***FY 2012 Plans:*** -Identify and execute focused investments in the BMDS test infrastructure to support the IMTP. -Continue development of a 2nd suite of HWIL equipment including the acquisition of additional hardware and digital element representations to support concurrent ground testing of current BMDS capability and that under development. -Add hardware and digital element representations to support expansion of the existing HWIL capability as the BMDS evolves. -Operate and maintain the Pacific Tracker Radar / Telemetry Instrumentation Ship to support off-range BMDS testing and increasingly complex test scenarios. -Continue development of additional telemetry and instrumentation assets to support GMD salvo testing and increasingly complex flight test scenarios. -Continue development of a dedicated C2BMC regional test bed and communication nodes to support IMTP test program. -Continue sustainment and development of the Kinetic HWIL facility to support next generation scene development efforts.			
Title: 4.0 Common Test Support	-	60.303	52.343
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** (FY 2010 Budget $31,256) -Developed and delivered to Congress two semiannual builds of the Integrated Master Test Plan. These plans established the BMDS test baseline and focused on collecting data to provide confidence in the BMDS models and simulations (M&S) that accurately characterizes the integrated operational system performance. In addition, improvements to the operational realism of test events were realized by incorporating Combatant Commander (Warfighter) and Operational Test Agencies (OTA) critical operational issues. -Provided test scenario designs for the IMTP, defined requirements for long-range test architecture, and completed operational comparison analysis for MDA. -Managed the BMDS test baseline, reassessing schedule and budget as necessary to incorporate fact of life changes.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Provided flight test planning and design of the following test events: FTG-06 (GM Intercept Flight Test), FTG-06a (GM Intercept Flight Test), FTO-01 (Aegis/THAAD/Patriot Multiple Intercept Flight Test), FTT-14 (THAAD Intercept Flight Test), FTX-17 (Air Launched Target Return To Flight) , JFTM-4 (Aegis Simulated Intercept Flight Test), BVT-01 (GM Flight Test), and FTT-24 (THAAD Intercept Flight Test). This encompassed defining test scenarios and initial test plans, validating feasibility and executability of test events, conducting flight safety, trajectory, threat, collision avoidance, and mobile asset analysis, as well as sensor planning. -Provided detailed ground test planning and design support for the GT-04 test campaign. This included development and design of ground test scenarios, initial test architectures and configurations along with feasibility studies and analysis. -Supported MDA System Engineering and Warfighter requirements, and the integration of multiple Elements, the OTA, and test support teams into BMDS system flight and ground tests. -Provided system-level range support, mission assurance, logistics support, test specific support personnel, test specific communication, support equipment, and permission analysis and studies. -Completed Phase-1 Hardware/Software Benchmark testing, supported Ground Test Integration of Single Stimulation Framework (SSF), and integrate hardware into SSF Development Lab. -Developed, integrate, test, train, deploy, and operate spiral releases of software tools. -Supported Phase-1 activities associated with BMDS Capability Deliveries and critical factor analysis.			
FY 2011 Plans: -Plan and manage the Test Baseline by coordinating, revising, and providing regular semi-annual revisions to the Integrated Master Test Plan (IMTP) to support planning and execution of the Phased Adaptive Approach. Establish the BMDS test baseline focusing on collecting data to provide confidence in the BMDS M&S that accurately characterizes the integrated operational system performance. Improve operational realism of test events by incorporating Warfighter and Operational Test Agencies (OTA) critical operational issues. Provide test scenario designs for the IMTP, requirements for long-range test architecture, and operational comparison analysis for MDA. Manage the test baseline, reassessing schedule and budget as necessary to incorporate fact of life changes. -Provide flight test planning support for increased operational realism by partnering closely with the Warfighter and OTA. Define test scenarios and initial test plans. Validate feasibility and executability of test events. Conduct flight safety, trajectory, threat, collision avoidance, and mobile asset analysis, as well as sensor planning. -Provide ground test planning support for BMDS tests. Develop and design ground test scenarios and feasibility. Develop initial test architectures and configurations. -Manage the MDA Data Center Program (DCP), develop, modernize, and sustain the library, operations, and infrastructure providing centralized data management, archival, and distribution services to reduce the risks and costs of BMDS development and fielding.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Develop and maintain Information Assurance (IA) documentation, perform as IA manager for test data management networks and infrastructure and interface with MDA Information Management & Technology Operations team to coordinate and maintain test data management network operations capabilities. -Use the Pacific Range Support Team (PRST) to provide efficient planning, coordination, and management of range resources and infrastructure in support of BMDS flight testing throughout the Pacific Test bed. -Continue coordinating with the Targets Program to develop and qualify common Flight Termination and Range Tracking Systems that will simplify target integration at the ranges. -Develop Truth Data Requirements Documents (TDRD) and deliver multiple Truth Data Packages (TDP) that include Best Estimate Trajectory (BETs), environmental data, optical data, radar cross section (RCS) data, and analysis documentation. -Provide on-site truth-quick-look product development support for each flight and ground test event supporting analysis requirements for modeling and simulation validation and accreditation. -Develop and publish the Integrated Data Management Plans (IDMPs) and Data Handling Plans (DHPs) that capture and satisfy Element and System level analysis data collection requirements. -Support Phase-I (Engineering) activities associated with determining critical factors, data points, and EMEs and CECs required to support Verification, Validation, and Accreditation (VV&A) of Modeling and Simulations (M&S). -Provide System Mission Managers to lead Integrated Event Test Team mission management and readiness activities across all five test event phases for System and Element flight and ground tests, and contingency operations. -Develop MDA test program Risk Management Standardization and support risk assessment and mitigation of the BMDS test program. Establish test lessons learned process to enable organizational learning. -Develop and codify test training materials to support test operations (trainers, evaluators, and operators/crews) and data management (data managers, element data managers, and data requestors) areas -Provide lab development, integration and event execution support to the IMTP-defined ground test campaign events. ***FY 2012 Plans:*** -Plan and manage the Test Baseline by coordinating, revising, and providing regular semiannual builds to the Integrated Master Test Plan (IMTP) to support planning and execution of the Phased Adaptive Approach. Establish the BMDS Test Baseline focusing on collecting data to provide confidence in the BMDS M&S to accurately characterizes the integrated operational system performance. Improve operational realism of test events by incorporating Warfighter and Operational Test Agencies (OTA) critical operational issues. Provide test scenario designs for the IMTP, requirements for long-range test architecture, and operational comparison analysis for MDA. Manage the test baseline, reassessing schedule and budget as necessary to incorporate fact of life changes.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provide flight test planning support for increased operational realism by partnering closely with the Warfighter and OTA. Define test scenarios and initial test plans. Validate feasibility and executability of test events. Conduct flight safety, trajectory, threat, collision avoidance, and mobile asset analysis, as well as sensor planning. -Provide ground test planning support for BMDS tests. Develop and design ground test scenarios and feasibility. Develop initial test architectures and configurations. -Manage the MDA Data Center Program (DCP); develop, modernize, and sustain the library, operations, and infrastructure; providing centralized data management, archival and distribution services to reduce the risks and costs of BMDS development and fielding. -Develop and maintain Information Assurance (IA) documentation, perform as IAM for Test Data Management networks and infrastructure and interface with MDA Information Management & Technology Operations team to coordinate and maintain Test Data Management network operations capabilities. -Use the Pacific Range Support Team (PRST) to provide efficient planning, coordination, and management of range resources and infrastructure in support of BMDS flight testing throughout the Pacific test bed. -Continue coordinating with the Targets Program to develop and qualify common Flight Termination and Range Tracking Systems that will simplify target integration at the ranges. -Develop Truth Data Requirements Documents (TDRD) and deliver multiple Truth Data Packages (TDP) that include Best Estimate Trajectory (BETs), environmental data, optical data, radar cross section (RCS) data, and analysis documentation. -Provide on-site truth-quick-look product development support for each flight and ground test event supporting analysis requirements for modeling and simulation validation and accreditation. -Develop and publish the Integrated Data Management Plans (IDMPs) and Data Handling Plans (DHPs) that capture and satisfy Element and System level analysis data collection requirements. -Support Phase-I (Engineering) activities associated with determining critical factors, data points, and EMEs and CECs required to support Verification, Validation, and Accreditation (VV&A) of Modeling and Simulations (M&S). -Provide System Mission Managers to lead Integrated Event Test Team mission management and readiness activities across all five test event phases for System and Element flight and ground tests and contingency operations. -Develop MDA test program Risk Management Standardization and support risk assessment and mitigation of the BMDS test program. Establish test lessons learned process to enable organizational learning. -Develop and codify test training materials supporting test operations (trainers, evaluators, and operators/crews) and data management (data managers, element data managers, data requestors) areas. -Provide lab development, integration and event execution support to the IMTP-defined ground test campaign events.			
Title: Engineering Test Analysis	-	39.639	29.384
Articles:	0	0	0

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Description: See Description Below ***FY 2010 Accomplishments:*** (FY 2010 Budget $70,172) -Developed, integrated, and tested a common BMDS hardware in the loop (HWIL) stimulation framework with the Elements for the GTI-04, GTD-04 ground tests. -Conducted BMDS HWIL stimulation framework verification and validation(V&V) for BMDS GTI-04 and GTD-04 ground tests. -Built enhancements to the SSF required for execution of the GT05 campaign to include identification of interdependencies required for execution. -Integrated Single Stem Framework (SSF) interfaces with the Cobra Dane Upgraded Early Warning Radar. -Integrated SSF interfaces with the GMD fielded assets. -Provided integrated Verification, Validation, and Accreditation (VV&A) of MDA models and simulations (M&S) at the system-level for ground tests that support BMDS fielding decisions, and tier one COCOM exercises. -Conducted System-level V&V to include threat trajectory and signature V&V throughout the System; end-to-end environmental implementation is consistent and correct; communications and architecture behave properly; and interoperability is adequately addressed [Conduct System-level post flight reconstruction for validation of BMDS performance assessment M&S]. -Worked closely with Elements, Test Community, System Engineering, and OTA and ensured M&S for events met intended uses and objectives, and had proper VV&A documentation and evidence to include benchmarking/anchoring pedigree. ***FY 2011 Plans:*** -Perform System-level analysis and interoperability analysis on BMDS test events listed in the IMTP. -Develop Analysis Execution Plans (AEP) and final Test Analysis Reports (TAR) for BMDS test events listed in the IMTP. -Lead Joint Analysis Teams (JAT) for BMDS test events listed in the IMTP. -Develop, deliver, and brief Quick Look Brief (QLB), Executive QLB (EQLB), Mission Data Review (MDR), and Executive MDR (EMDR) for BMDS test events listed in the IMTP. -Incorporate software changes to Modular Analysis and Reporting Suite (MARS) to enhance analyst efficiency and capability. -Continue to populate the MARS Analysis Database with most current test data to support analysis and capability assessments. -Develop assessments for the MDA Director and the Director of Engineering: Defense of Homeland Against L/IRBMs, Organic Aegis BMD, Defense of Israel. -Provide SE&I test configuration management, risk assessment, and anomaly and test incident report review, assessment and closure to enable execution of the ground and flight test program. -Allocate and track Critical Engagement Condition (CEC) and Empirical Measurement Events (EME) data requirements and sufficiency for ground and flight tests in accordance with the Integrated Master Test Plan.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Define test objectives and evaluation criteria for all system level test events. -Design and certify scenarios for ground test events to meet required data collection and satisfy SE&I, Operational Test Agencies and Warfighter objectives. ***FY 2012 Plans:*** -Perform System-level analysis and interoperability analysis on BMDS test events listed in the IMTP. -Develop Analysis Execution Plans (AEP) and final Test Analysis Reports (TAR) for BMDS test events listed in the IMTP. -Lead Joint Analysis Teams (JAT) for BMDS test events listed in the IMTP. -Develop, deliver, and brief Quick Look Brief (QLB), Executive QLB (EQLB), Mission Data Review (MDR), and Executive MDR (EMDR) for BMDS test events listed in the IMTP. -Incorporate software changes to Modular Analysis and Reporting Suite (MARS) to enhance analyst efficiency and capability. -Continue to populate the MARS Analysis Database with most current test data to support analysis and capability assessments. -Provide SE&I test configuration management, risk assessment, and anomaly and test incident report review, assessment and closure to enable execution of the ground and flight test program. -Allocate and track Critical Engagement Condition (CEC) and Empirical Measurement Events (EME) data requirements and sufficiency for ground and flight tests in accordance with the Integrated Master Test Plan. -Define test objectives and evaluation criteria for all System level test events. -Design and certify scenarios for ground test events to meet required data collection and satisfy SE&I, Operational Test Agencies and Warfighter objectives. -Produce threat data required to enable Ballistic Missile Defense System Ground Tests, Ballistic Missile Defense System Performance Assessment, as documented in the Ballistic Missile Defense System Integrated Master Test Plan.			
Title: Concurrent Test, Training and Operations ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** (FY 2010 Budget $33,514) -Demonstrated initial network architecture and network enhancements, C2BMC Network Interface Processor Plus (CNIP+) and BMDS Element and Activity Monitor with representations of Element (BEAM) interactions. -Operated and Sustained DMETS training and exercise suites and associated hardware and software at 80 hours per week. -Continued providing BMD training events across the Unified Combatant Commands while maintaining the existing architecture.	- 0	51.419 0	- 0

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603888C: *Ballistic Missile Defense Test and Targets*	PROJECT MD04: *Test Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Coordinated and integrated BMDS CTTO Element-level activities and capabilities for the Change Notice to implement CTTO content into the technical baseline. -As an initial implementation, planned, architected, designed, and deployed, a Regional Test Network to support Agency integration of its Integrated Master Test Plan. ***FY 2011 Plans:*** -Increase confidence in the BMDS through rigorous concurrent test, training, and operations. -Enable BMDS testing and training in the field without degrading protection capability. -Sustain Unified Combatant Commanders BMDS operations while simultaneously supporting concurrent BMDS systems development and acquisition to defend the United States, its deployed forces, friends, and allies. -Safely inject consistent high fidelity test and evaluation threat data on operational equipment to exercise all phases of the kill chain using all sensor/shooter combinations. -Aid in Aegis Ballistic Missile Defense, Terminal High Altitude Area Defense, Ground-based Midcourse Defense, Sensors, and Fire Control standardization evaluation and certification for all BMDS personnel and ensures all crews are highly qualified to perform their mission-specific tasks by conducting exercises and wargames executed from actual equipment and networked configurations. -The Distributed Multi-Echelon Training System (DMETS) will specifically address the high priority Unified Combatant Commanders requirement to conduct distributed, high fidelity, and end-to-end strategic and operational training for missile defense operations that incorporates missile warning activity in any or all of the BMDS Elements. The system will allow for scalable testing of the BMDS over the operational architecture as well as allow operators to train where they fight using a parallel architecture either physically separated or logically separated from the operational one; training will be scalable as well; from individual BMD assets to regional BMDS capabilities to the full BMDS global community. -Begin integration of Element delivered implementations. -Monitor and coordinate the execution of Agency Modeling and Simulation development efforts (key dependencies for the successful execution of CTTO). -Operate and sustain Distributed Multi-Echelon System (DMETS) training and exercise suites and associated hardware and software at 80 hours per week. -Continue providing BMD training events across the Unified Combatant Commands while maintaining the existing architecture. -Continue to upgrade DMETS to mirror the deployed systems. Includes technical refresh. Expand training enhancements (e.g. dynamic scenarios emulating enemy mobile launchers, constructive (manned) element simulations, and initial crew assessment tools) and cross mission training. -Continue to expand training audience to include regional and theater training.			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Improve training operations tools which provide better training system reliability and automated asset management. ***FY 2012 Plans:*** This effort moves to MX04 in FY2012 -Continue integration of element delivered implementations. -Monitor and coordinate the execution of Agency Modeling and Simulation development efforts; key dependencies for the successful execution of CTTO. -Operate and sustain Distributed Multi-Echelon System (DMETS) training and exercise suites and associated hardware and software at 80 hours per week. -Continue providing BMD training events across the Unified Combatant Commands while maintaining the existing architecture. -Continue to upgrade DMETS to mirror the deployed systems. Includes technical refresh. Expand training enhancements (e.g. dynamic scenarios emulating enemy mobile launchers, constructive (manned) element simulations, and initial crew assessment tools) and cross mission training. -Implement and Deploy distributed regional training solutions.			
Title: Fielding and Integration ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** (FY 2010 Budget $6,824) -Coordinated synchronization of System Engineering and Test and Evaluation processes. -Supported BMDS Common Work Breakdown Structure development and implementation. -Supported Decision Support System acquisition activities and initial implementation. -Updated the BMDS Master Plan. -Updated BMDS program documentation (SAMP, PAC). -Coordinated capability delivery process execution with CD-03. -Continued conducting integrated BMDS integration planning and execution. -Continued to execute the BMDS Change Management process. ***FY 2011 Plans:*** -Continue Ballistic Missile Defense System (BMDS) integration planning and capability delivery execution (CD-04).	- 0	9.110 0	7.255 0

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Manage BMDS Schedule Baseline. -Update BMDS Technical Baseline documentation. -Support Decision Support System acquisition activities and implementation. -Continue to execute the BMDS Change Management process. ***FY 2012 Plans:*** -Continue Ballistic Missile Defense System (BMDS) integration planning and capability delivery execution (CD-04). -Manage BMDS Schedule Baseline. -Update BMDS Baseline documentation. -Support Decision Support System acquisition activities and implementation. -Continue to execute the BMDS Change Management process.			
Title: Facilities Siting, and Environmental	-	3.901	-
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** (FY 2010 Budget $3,801) -Supported MDA MILCON planning and programming for FY2010 and 2011 and reported MDA`s environmental quality expenditures via the PB-28 Budget Exhibit. -Provided oversight for real property acquisition of the MILCON 2005 BRAC and RDT&E construction programs. -Continued support operations and maintenance of MDA-assigned facilities at test and operational locations worldwide, including the ongoing transfer of Kauai Test Facility from Department of Energy to the Department of Defense. Supported construction for scheduled BMDS test campaigns, to include Reagan Test Site (RTS), Pacific Missile Range Facility (PMRF), Vandenberg, Pt. Mugu, and Wake Island. -Supported site survey and bed-down approval process, launch facilities designs, and award of construction contracts. Used MDA`s Strategic Plan for Environmental Management to manage and execute MDA`s environmental activities and assets in a proactive and environmentally sound manner. -Relied on MDA`s Environmental Management System (EMS) to ensure environmental compliance with all applicable U.S. laws and regulations, DoD and Service regulations and policies, Executive Orders, binding international agreements, host-nation requirements, and other requirements that seek to preserve, protect, or enhance human health and/or the environment across all MDA operations and activities. -Planned, programmed, and budgeted to achieve, monitor, and maintain compliance IAW environmental laws.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Integrated environmental factors, issues, and values in MDA`s acquisition decision-making process to mitigate risk to cost, schedule, and performance while protecting the environment. -Promoted awareness and understanding of environmental management in all phases of MDA`s acquisition mission and provided appropriate training to all MDA personnel. -Conducted required Agency reporting on environmental liabilities and environmental expenditures. ***FY 2011 Plans:*** -Support MDA MILCON planning and programming and reporting of environmental quality expenditures via the PB-28 Exhibit. -Provide oversight for real property acquisition of the MILCON 2005 BRAC and RDT&E construction programs. -Continue support operations and maintenance of MDA-assigned facilities at test and operational locations worldwide, to include Aegis Ashore and the transfer of Kauai Test Facility from Department of Energy to the Department of Defense. -Support construction for scheduled BMDS test campaigns, to include Reagan Test Site (RTS), PMRF, Vandenberg, Pt. Mugu, and Wake Island. -Support site survey and bed-down approval process, launch facilities designs, and award of construction contracts. -Use MDA`s Strategic Plan for Environmental Management to manage and execute MDA`s environmental activities and assets in a proactive and environmentally sound manner. -Rely on MDA`s EMS to ensure environmental compliance with all applicable U.S. laws and regulations, DoD and Service regulations and policies, Executive Orders, binding international agreements, host-nation requirements, and other requirements that seek to preserve, protect, or enhance human health and/or the environment across all MDA operations and activities. -Plan, program, and budget to achieve, monitor, and maintain compliance IAW environmental laws. -Integrate environmental factors, issues, and values in MDA`s acquisition decision-making process to mitigate risk to cost, schedule, and performance while protecting the environment. -Promote awareness and understanding of environmental management in all phases of MDA`s acquisition mission and provide appropriate training to all MDA personnel. -Conduct required Agency reporting on environmental liabilities and environmental expenditures. ***FY 2012 Plans:*** -Support MDA Military Construction (MILCON) planning and programming and reporting of environmental quality expenditures. -Provide oversight for real property acquisition of the MILCON and RDT&E construction programs. -Continue support operations and maintenance of MDA-assigned facilities at test and operational locations worldwide, including Aegis Ashore, the new ICBM launch facility, as future sites throughout Europe. -Support construction for scheduled Ballistic Missile Defense System (BMDS) test campaigns, to include Reagan Test Site, Pacific Missile Range Facility (PMRF), Vandenberg Air Force Base (VAFB), Pt. Mugu, and Wake Island. -Support site survey and bed-down approval process, launch facilities designs, and award of construction contracts.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Use MDA`s Strategic Plan for Environmental Management to manage and execute MDA`s environmental activities and assets in a proactive and environmentally sound manner. -Ensure environmental compliance with all applicable U.S. laws and regulations, DoD and Service regulations and policies, Executive Orders, binding international agreements, host-nation requirements, and other requirements that seek to preserve, protect, or enhance human health and/or the environment across all MDA operations and activities. -Plan, program, and budget to achieve, monitor, and maintain compliance in accordance with environmental laws. -Integrate environmental factors, issues, and values in MDA`s acquisition decision-making process to mitigate risk to cost, schedule, and performance while protecting the environment. -Promote awareness and understanding of environmental management in all phases of MDA`s acquisition mission and provide appropriate training to all MDA personnel. -Conduct required Agency reporting on environmental liabilities and environmental expenditures.			
Accomplishments/Planned Programs Subtotals	-	559.133	455.993

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603896C: *BMD C2BMC*	327.074	342.625	364.103		364.103	330.337	353.081	338.835	304.217	Continuing	Continuing

D. Acquisition Strategy

The Directorate for Test acquisition strategy is consistent with the MDA capabilities based acquisition strategy that emphasizes testing, evolutionary acquisition, and knowledge based funding. The Directorate for Test directs a team of various internal staff (Government and Scientific, Engineering and Technical Assistance support), executing agents, including DoD agencies, Service Organizations, Laboratories and Program Offices, a Federally Funded Research and Development Center (FFRDC), and other MDA programs to execute the various diverse efforts within the Ballistic Missile Defense System (BMDS) test program through competition. When a specific effort/activity being conducted, acquired, or maintained, requires the use of an executing agent the acquisition strategy that conforms to their respective headquarters regulations are used. This combination of organizations forms an integrated team to accomplish the necessary testing for BMDS.

The CTTO systems design and acquisition will follow the MDA`s capability-based acquisition strategy that emphasizes fielding capabilities that address particular threats. The design and development of the BMDS CTTO capability is a collaborative effort. The government is the task manager to integrate the technical effort and manage the contracting efforts. The government, using existing competitively awarded contract structures, established a CTTO Project Office; determined BMDS CTTO requirements and standardization; determined BMDS Core Protocol and Standards; upgrades, technology insertion points, and synchronize BMDS Element level activities; training exercises and events and capabilities. The long term acquisition strategy is to normalize CTTO requirements into existing contract structures. The intent is to develop a fully capable CTTO capability that provides comprehensive, in-place, geographically dispersed test, training, and evaluation of the complete BMDS. The CTTO approach supports evolutionary development, continuously building upon demonstrated capabilities to advance the BMDS capabilities.

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E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Engineering Test Analysis Threat Engineering MD04	Various	Various:NJ, CO, MD, VA	1.555	1.013	Oct 2010	0.472		-		0.472	Continuing	Continuing	Continuing
Engineering Test Analysis DEV IMTP Engineering MD04	Various	USASMDC:Huntsville, AL	48.214	13.381	Oct 2010	11.528		-		11.528	Continuing	Continuing	Continuing
Engineering Test Analysis Joint Analysis Team IMTP Engineering MD04	Various	Various:Various	20.413	25.245	Oct 2010	17.384		-		17.384	Continuing	Continuing	Continuing
Concurrent Test, Training and Operations DMETS MD04	C/CPAF	Various:Various	23.091	27.766	Oct 2010	-		-		-	Continuing	Continuing	Continuing
Concurrent Test, Training and Operations Test/Training Enhancements MD04	C/CPAF	Various:Various	26.460	23.653	Oct 2010	-		-		-	Continuing	Continuing	Continuing
Fielding and Integration Support Contracts MD04	C/CPAF	Computer Sciences Corp.:Falls Church, VA	6.824	9.110	Oct 2010	7.255		-		7.255	Continuing	Continuing	Continuing
Facilities Siting, and Environmental Support Contracts MD04	Various	Various:Various	3.801	3.901	Oct 2010	-		-		-	Continuing	Continuing	Continuing
		Subtotal	130.358	104.069		36.639		-		36.639			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
1.0 Support to Operations and Testing Support to Operations and Testing MD04	Various	Various:Various	102.824	135.135	Oct 2010	200.027		-		200.027	Continuing	Continuing	Continuing
2.0 Infrastructure Support to Flight Test and Ground Test Infrastructure Support to Flight Test and Ground Test MD04	Various	Various:Various	128.786	96.539	Oct 2010	118.511		-		118.511	Continuing	Continuing	Continuing
3.0 Flight Test and Ground Test Infrastructure Development Flight Test and Ground Test Infrastructure Development MD04	Various	Various:Various	-	163.087	Oct 2010	48.473		-		48.473	Continuing	Continuing	Continuing
4.0 Common Test Support Common Test Support MD04	Various	Various:Various	25.286	60.303	Oct 2010	52.343		-		52.343	Continuing	Continuing	Continuing
		Subtotal	256.896	455.064		419.354		-		419.354			

Remarks

FY 2012 Support to Operations and Testing includes target launch operations which was previously funded in MD05.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	387.254	559.133		455.993		-		455.993			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
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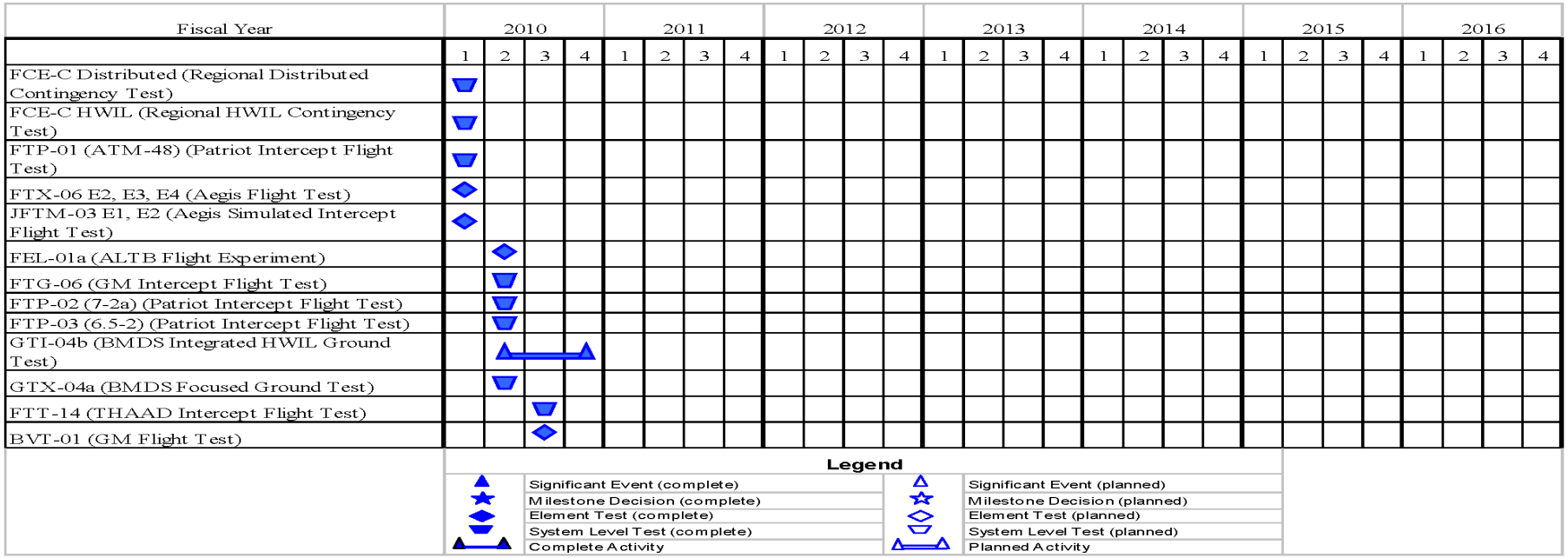

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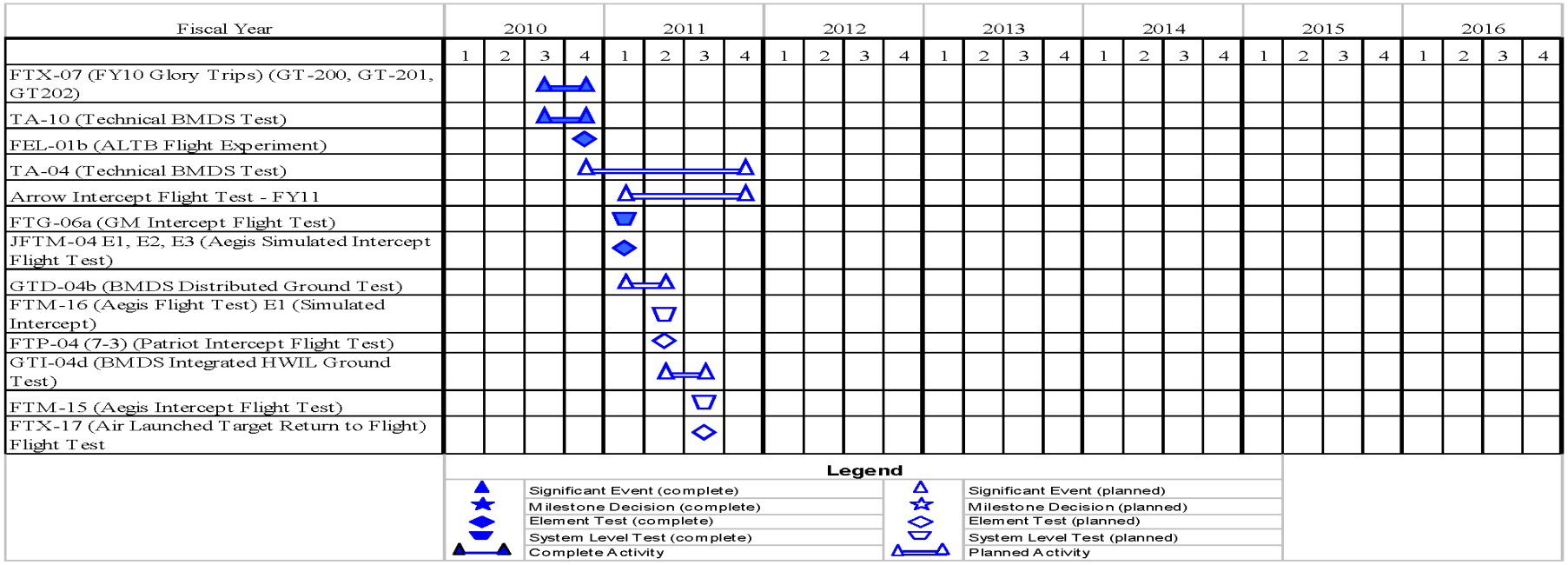

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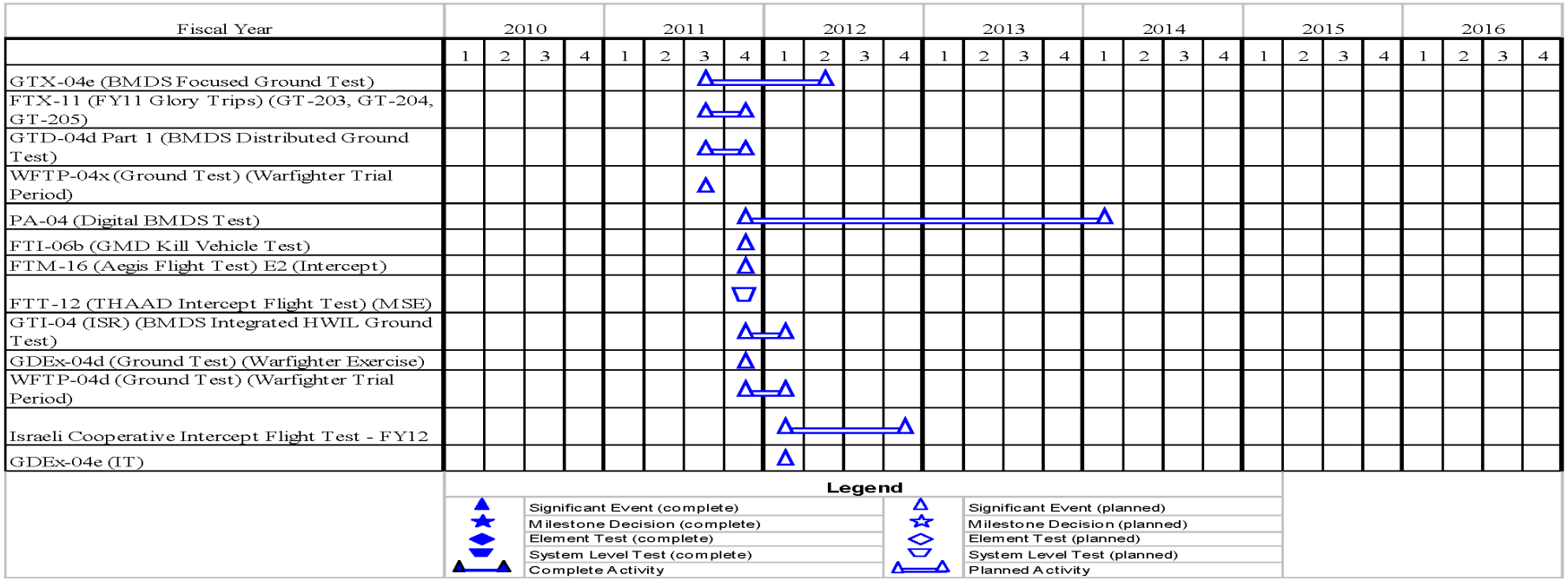

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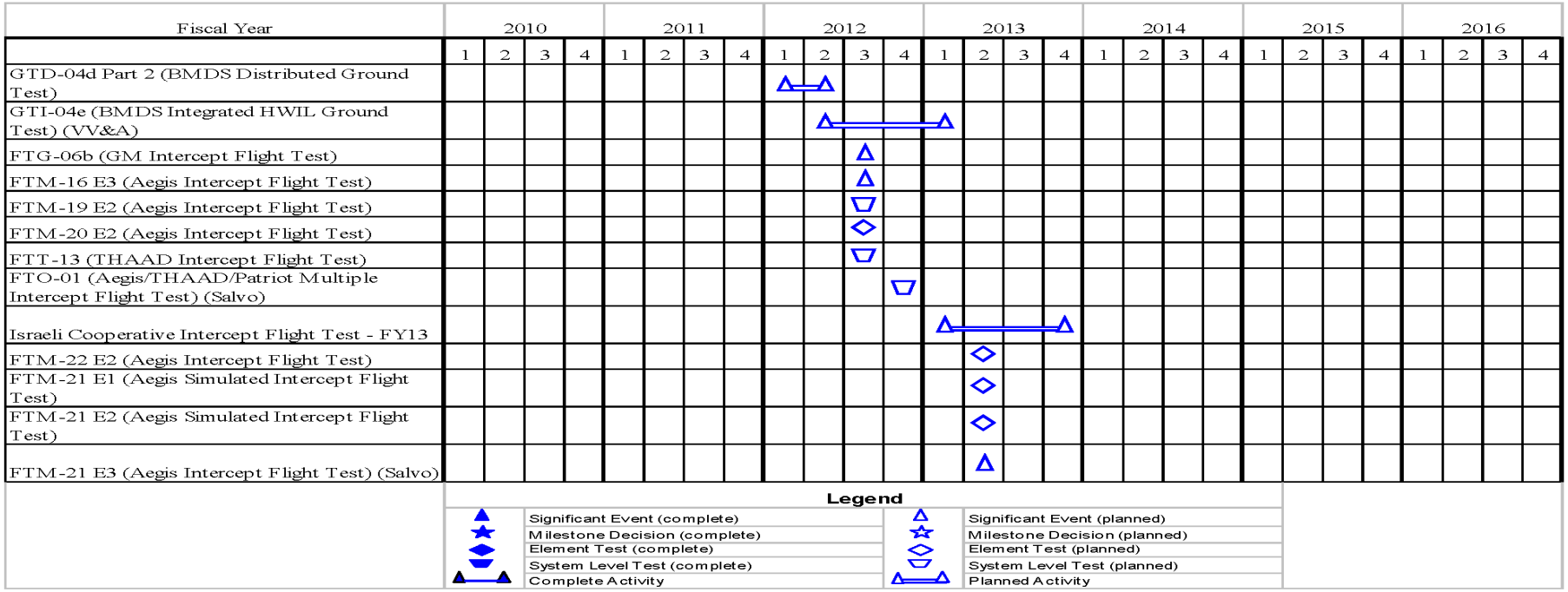

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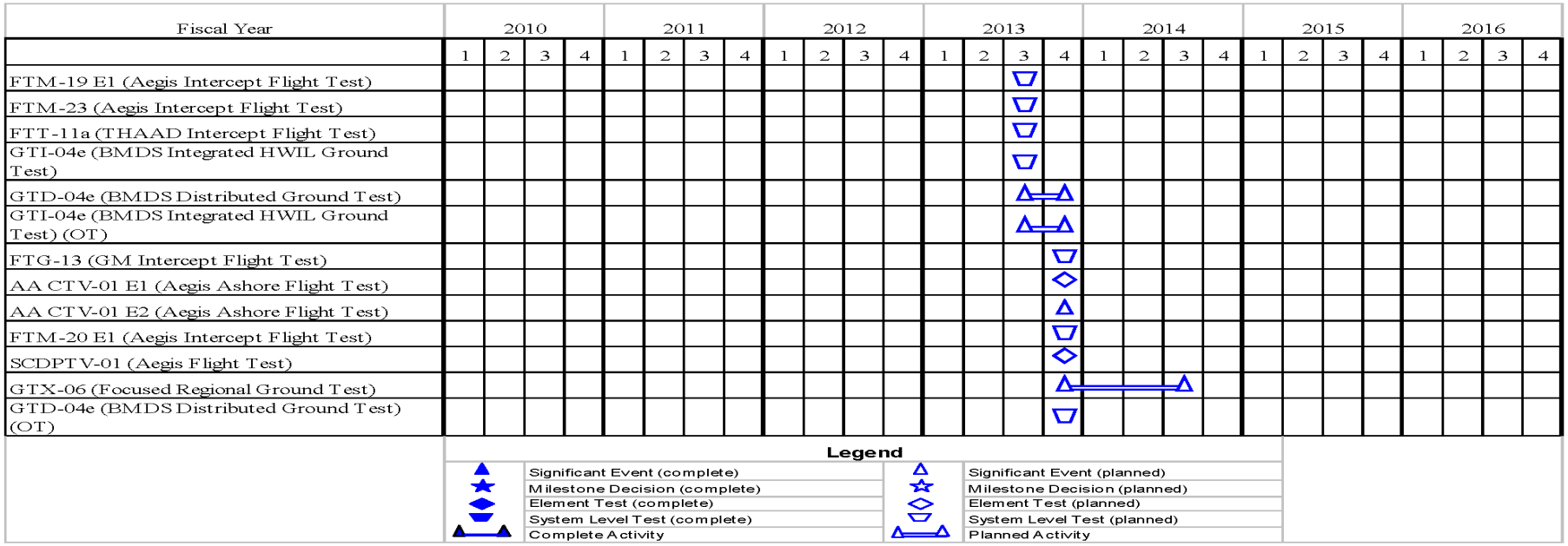

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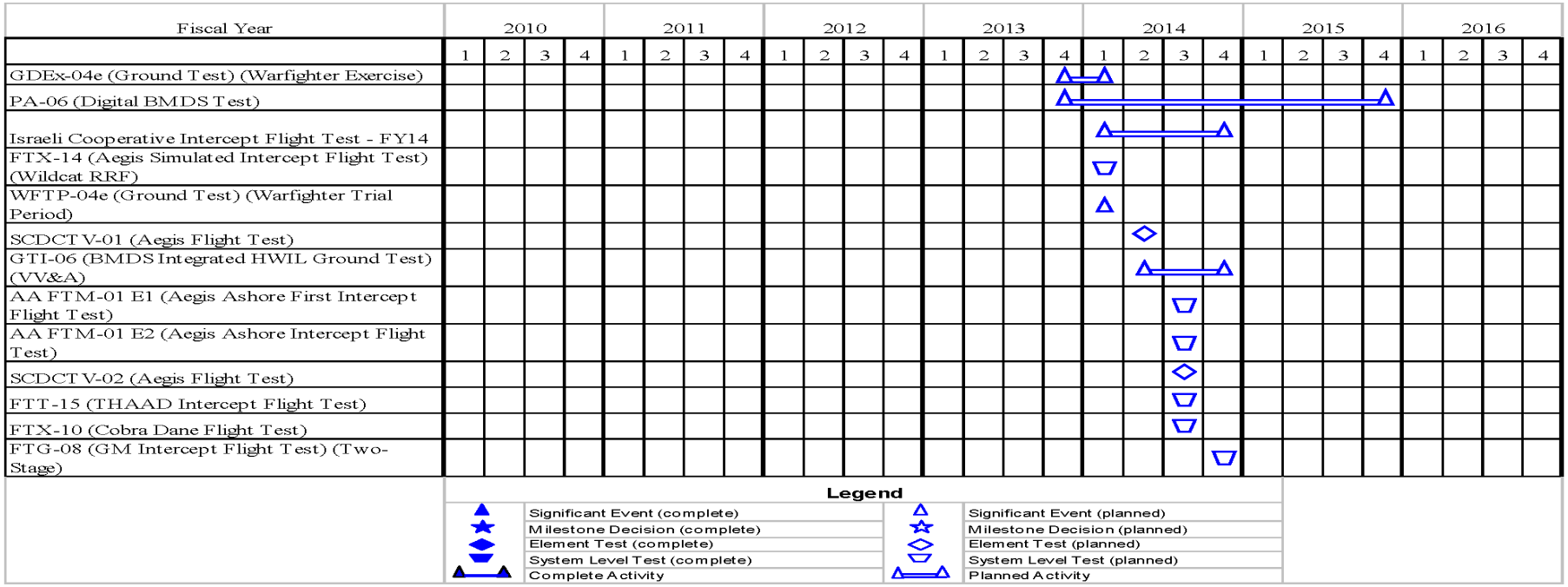

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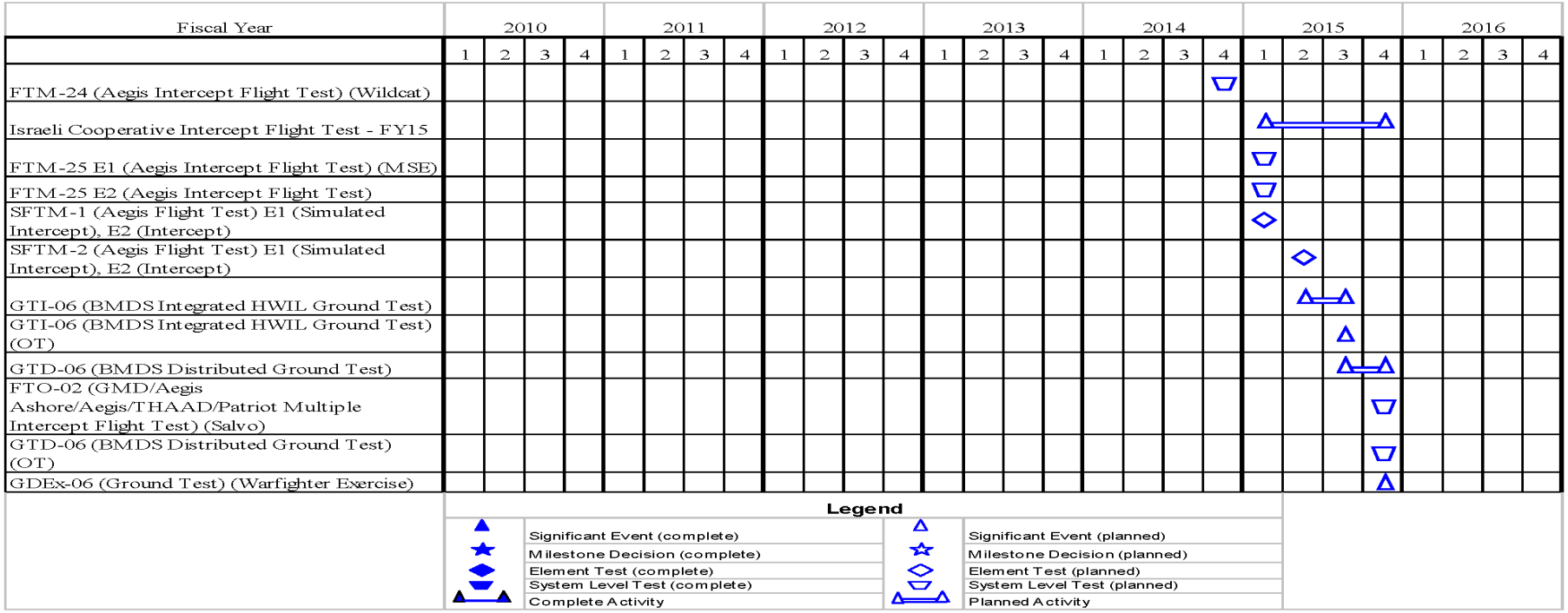

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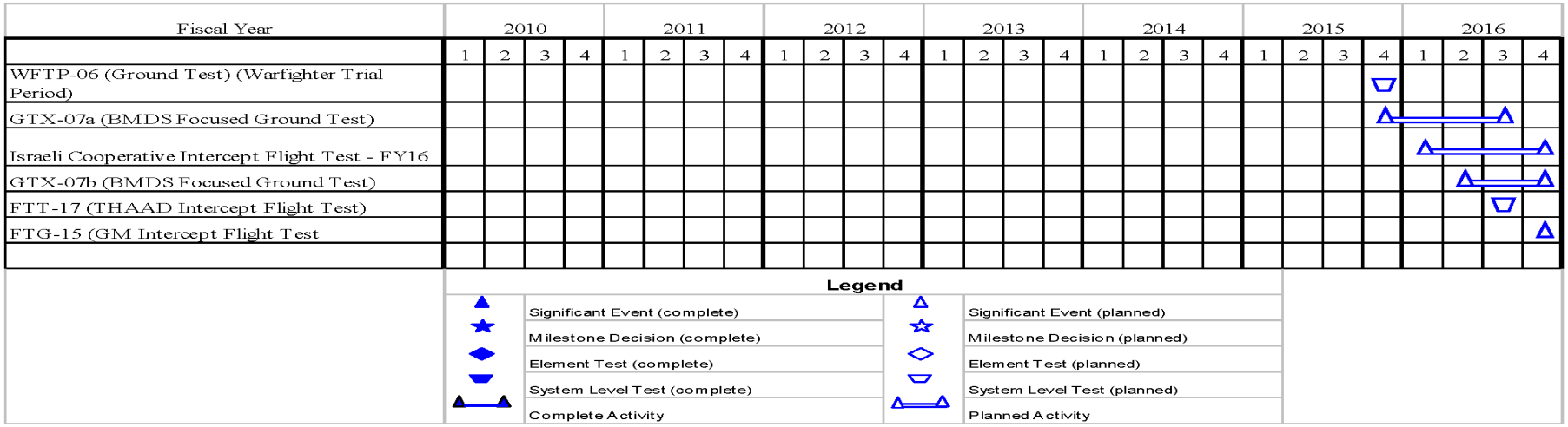

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Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FCE-C Distributed (Regional Distributed Contingency Test)	1	2010	1	2010
FCE-C HWIL (Regional HWIL Contingency Test)	1	2010	1	2010
FTP-01 (ATM-48) (Patriot Intercept Flight Test)	1	2010	1	2010
FTX-06 E2, E3, E4 (Aegis Flight Test)	1	2010	1	2010
JFTM-03 E1, E2 (Aegis Simulated Intercept Flight Test)	1	2010	1	2010
FEL-01a (ALTB Flight Experiment)	2	2010	2	2010
FTG-06 (GM Intercept Flight Test)	2	2010	2	2010
FTP-02 (7-2a) (Patriot Intercept Flight Test)	2	2010	2	2010
FTP-03 (6.5-2) (Patriot Intercept Flight Test)	2	2010	2	2010
GTI-04b (BMDS Integrated HWIL Ground Test)	2	2010	4	2010
GTX-04a (BMDS Focused Ground Test)	2	2010	2	2010
FTT-14 (THAAD Intercept Flight Test)	3	2010	3	2010
BVT-01 (GM Flight Test)	3	2010	3	2010
FTX-07 (FY10 Glory Trips) (GT-200, GT-201, GT202)	3	2010	4	2010
TA-10 (Technical BMDS Test)	3	2010	4	2010
FEL-01b (ALTB Flight Experiment)	4	2010	4	2010
TA-04 (Technical BMDS Test)	4	2010	4	2011
Arrow Intercept Flight Test - FY11	1	2011	4	2011
FTG-06a (GM Intercept Flight Test)	1	2011	1	2011
JFTM-04 E1, E2, E3 (Aegis Simulated Intercept Flight Test)	1	2011	1	2011
GTD-04b (BMDS Distributed Ground Test)	1	2011	2	2011
FTM-16 (Aegis Flight Test) E1 (Simulated Intercept)	2	2011	2	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FTP-04 (7-3) (Patriot Intercept Flight Test)	2	2011	2	2011
GTI-04d (BMDS Integrated HWIL Ground Test)	2	2011	3	2011
FTM-15 (Aegis Intercept Flight Test)	3	2011	3	2011
FTX-17 (Air Launched Target Return to Flight) Flight Test	3	2011	3	2011
GTX-04e (BMDS Focused Ground Test)	3	2011	2	2012
FTX-11 (FY11 Glory Trips) (GT-203, GT-204, GT-205)	3	2011	4	2011
GTD-04d Part 1 (BMDS Distributed Ground Test)	3	2011	4	2011
WFTP-04x (Ground Test) (Warfighter Trial Period)	3	2011	3	2011
PA-04 (Digital BMDS Test)	4	2011	1	2014
FTI-06b (GMD Kill Vehicle Test)	4	2011	4	2011
FTM-16 (Aegis Flight Test) E2 (Intercept)	4	2011	4	2011
FTT-12 (THAAD Intercept Flight Test) (MSE)	4	2011	4	2011
GTI-04 (ISR) (BMDS Integrated HWIL Ground Test)	4	2011	1	2012
GDEx-04d (Ground Test) (Warfighter Exercise)	4	2011	4	2011
WFTP-04d (Ground Test) (Warfighter Trial Period)	4	2011	1	2012
Israeli Cooperative Intercept Flight Test - FY12	1	2012	4	2012
GDEx-04e (IT)	1	2012	1	2012
GTD-04d Part 2 (BMDS Distributed Ground Test)	1	2012	2	2012
GTI-04e (BMDS Integrated HWIL Ground Test) (VV&A)	2	2012	1	2013
FTG-06b (GM Intercept Flight Test)	3	2012	3	2012
FTM-16 E3 (Aegis Intercept Flight Test)	3	2012	3	2012
FTM-19 E2 (Aegis Intercept Flight Test)	3	2012	3	2012
FTM-20 E2 (Aegis Intercept Flight Test)	3	2012	3	2012
FTT-13 (THAAD Intercept Flight Test)	3	2012	3	2012

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603888C: *Ballistic Missile Defense Test and Targets*	**PROJECT** MD04: *Test Program*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FTO-01 (Aegis/THAAD/Patriot Multiple Intercept Flight Test) (Salvo)	4	2012	4	2012
Israeli Cooperative Intercept Flight Test - FY13	1	2013	4	2013
FTM-22 E2 (Aegis Intercept Flight Test)	2	2013	2	2013
FTM-21 E1 (Aegis Simulated Intercept Flight Test)	2	2013	2	2013
FTM-21 E2 (Aegis Simulated Intercept Flight Test)	2	2013	2	2013
FTM-21 E3 (Aegis Intercept Flight Test) (Salvo)	2	2013	2	2013
FTM-19 E1 (Aegis Intercept Flight Test)	3	2013	3	2013
FTM-23 (Aegis Intercept Flight Test)	3	2013	3	2013
FTT-11a (THAAD Intercept Flight Test)	3	2013	3	2013
GTI-04e (BMDS Integrated HWIL Ground Test)	3	2013	3	2013
GTD-04e (BMDS Distributed Ground Test)	3	2013	4	2013
GTI-04e (BMDS Integrated HWIL Ground Test) (OT)	3	2013	4	2013
FTG-13 (GM Intercept Flight Test)	4	2013	4	2013
AA CTV-01 E1 (Aegis Ashore Flight Test)	4	2013	4	2013
AA CTV-01 E2 (Aegis Ashore Flight Test)	4	2013	4	2013
FTM-20 E1 (Aegis Intercept Flight Test)	4	2013	4	2013
SCDPTV-01 (Aegis Flight Test)	4	2013	4	2013
GTX-06 (Focused Regional Ground Test)	4	2013	3	2014
GTD-04e (BMDS Distributed Ground Test) (OT)	4	2013	4	2013
GDEx-04e (Ground Test) (Warfighter Exercise)	4	2013	1	2014
PA-06 (Digital BMDS Test)	4	2013	4	2015
Israeli Cooperative Intercept Flight Test - FY14	1	2014	4	2014
FTX-14 (Aegis Simulated Intercept Flight Test) (Wildcat RRF)	1	2014	1	2014
WFTP-04e (Ground Test) (Warfighter Trial Period)	1	2014	1	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603888C: *Ballistic Missile Defense Test and Targets*	**PROJECT** MD04: *Test Program*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
SCDCTV-01 (Aegis Flight Test)	2	2014	2	2014
GTI-06 (BMDS Integrated HWIL Ground Test) (VV&A)	2	2014	4	2014
AA FTM-01 E1 (Aegis Ashore First Intercept Flight Test)	3	2014	3	2014
AA FTM-01 E2 (Aegis Ashore Intercept Flight Test)	3	2014	3	2014
SCDCTV-02 (Aegis Flight Test)	3	2014	3	2014
FTT-15 (THAAD Intercept Flight Test)	3	2014	3	2014
FTX-10 (Cobra Dane Flight Test)	3	2014	3	2014
FTG-08 (GM Intercept Flight Test) (Two-Stage)	4	2014	4	2014
FTM-24 (Aegis Intercept Flight Test) (Wildcat)	4	2014	4	2014
Israeli Cooperative Intercept Flight Test - FY15	1	2015	4	2015
FTM-25 E1 (Aegis Intercept Flight Test) (MSE)	1	2015	1	2015
FTM-25 E2 (Aegis Intercept Flight Test)	1	2015	1	2015
SFTM-1 (Aegis Flight Test) E1 (Simulated Intercept), E2 (Intercept)	1	2015	1	2015
SFTM-2 (Aegis Flight Test) E1 (Simulated Intercept), E2 (Intercept)	2	2015	2	2015
GTI-06 (BMDS Integrated HWIL Ground Test)	2	2015	3	2015
GTI-06 (BMDS Integrated HWIL Ground Test) (OT)	3	2015	3	2015
GTD-06 (BMDS Distributed Ground Test)	3	2015	4	2015
FTO-02 (GMD/Aegis Ashore/Aegis/THAAD/Patriot Multiple Intercept Flight Test) (Salvo)	4	2015	4	2015
GTD-06 (BMDS Distributed Ground Test) (OT)	4	2015	4	2015
GDEx-06 (Ground Test) (Warfighter Exercise)	4	2015	4	2015
WFTP-06 (Ground Test) (Warfighter Trial Period)	4	2015	4	2015
GTX-07a (BMDS Focused Ground Test)	4	2015	3	2016
Israeli Cooperative Intercept Flight Test - FY16	1	2016	4	2016
GTX-07b (BMDS Focused Ground Test)	2	2016	4	2016

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FTT-17 (THAAD Intercept Flight Test)	3	2016	3	2016
FTG-15 (GM Intercept Flight Test	4	2016	4	2016

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603888C: *Ballistic Missile Defense Test and Targets*	PROJECT MX04: *BMD Test & Targets Development Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MX04: *BMD Test & Targets Development Support*	-	-	32.389	-	32.389	31.337	23.549	25.237	27.123	0.000	139.635
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Ballistic Missile Defense System (BMDS) Concurrent Test, Training, and Operations (CTTO) effort provides for comprehensive, in-place, geographically dispersed upgrades, testing, training, and sustainment while maintaining operational readiness across the complete Ballistic Missile Defense System (BMDS) Enterprise. This CTTO capability will enable simultaneous cross-element training events in the field during BMDS incremental and spiral development testing and sustained operational readiness conditions without degrading protection capability. The BMDS CTTO capability is formally documented as a requirement in the War Fighter`s Prioritized Capabilities List (PCL) and Modifications Requirement List (MRL).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Concurrent Test, Training and Operations	-	-	32.389
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: (FY 2010 Budget $33,514) -Demonstrated initial network architecture and network enhancements, C2BMC Network Interface Processor Plus (CNIP+) and BMDS Element and Activity Monitor with representations of Element (BEAM) interactions. -Operated and Sustained DMETS training and exercise suites and associated hardware and software at 80 hours per week. -Continued providing BMD training events across the Unified Combatant Commands while maintaining the existing architecture. -Coordinated and integrated BMDS CTTO Element-level activities and capabilities for the Change Notice to implement CTTO content into the technical baseline. -As an initial implementation, planned, architected, designed, and deployed, a Regional Test Network to support Agency integration of its Integrated Master Test Plan.			
FY 2011 Plans: -Increase confidence in the BMDS through rigorous concurrent test, training, and operations. -Enable BMDS testing and training in the field without degrading protection capability. -Sustain Unified Combatant Commanders BMDS operations while simultaneously supporting concurrent BMDS systems development and acquisition to defend the United States, its deployed forces, friends, and allies.			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603888C: *Ballistic Missile Defense Test and Targets*	**PROJECT** MX04: *BMD Test & Targets Development Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Safely inject consistent high fidelity test and evaluation threat data on operational equipment to exercise all phases of the kill chain using all sensor/shooter combinations. -Aid in Aegis Ballistic Missile Defense, Terminal High Altitude Area Defense, Ground-based Midcourse Defense, Sensors, and Fire Control standardization evaluation and certification for all BMDS personnel and ensures all crews are highly qualified to perform their mission-specific tasks by conducting exercises and wargames executed from actual equipment and networked configurations. -The Distributed Multi-Echelon Training System (DMETS) will specifically address the high priority Unified Combatant Commanders requirement to conduct distributed, high fidelity, and end-to-end strategic and operational training for missile defense operations that incorporates missile warning activity in any or all of the BMDS Elements. The system will allow for scalable testing of the BMDS over the operational architecture as well as allow operators to train where they fight using a parallel architecture either physically separated or logically separated from the operational one; training will be scalable as well; from individual BMD assets to regional BMDS capabilities to the full BMDS global community. -Begin integration of Element delivered implementations. -Monitor and coordinate the execution of Agency Modeling and Simulation development efforts (key dependencies for the successful execution of CTTO). -Operate and sustain Distributed Multi-Echelon System (DMETS) training and exercise suites and associated hardware and software at 80 hours per week. -Continue providing BMD training events across the Unified Combatant Commands while maintaining the existing architecture. -Continue to upgrade DMETS to mirror the deployed systems. Includes technical refresh. Expand training enhancements (e.g. dynamic scenarios emulating enemy mobile launchers, constructive (manned) element simulations, and initial crew assessment tools) and cross mission training. -Continue to expand training audience to include regional and theater training. -Improve training operations tools which provide better training system reliability and automated asset management. ***FY 2012 Plans:*** -Continue integration of element delivered implementations. -Monitor and coordinate the execution of Agency Modeling and Simulation development efforts; key dependencies for the successful execution of CTTO. -Operate and sustain Distributed Multi-Echelon System (DMETS) training and exercise suites and associated hardware and software at 80 hours per week. -Continue providing BMD training events across the Unified Combatant Commands while maintaining the existing architecture.			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603888C: *Ballistic Missile Defense Test and Targets*	PROJECT MX04: *BMD Test & Targets Development Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continue to upgrade DMETS to mirror the deployed systems. Includes technical refresh. Expand training enhancements (e.g. dynamic scenarios emulating enemy mobile launchers, constructive (manned) element simulations, and initial crew assessment tools) and cross mission training. -Implement and Deploy distributed regional training solutions.			
Accomplishments/Planned Programs Subtotals	-	-	32.389

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The CTTO systems design and acquisition will follow the MDA`s capability-based acquisition strategy that emphasizes fielding capabilities that address particular threats. The design and development of the BMDS CTTO capability is a collaborative effort. The government is the task manager to integrate the technical effort and manage the contracting efforts. The government, using existing competitively awarded contract structures, established a CTTO Project Office; determined BMDS CTTO requirements and standardization; determined BMDS Core Protocol and Standards; upgrades, technology insertion points, and synchronize BMDS Element level activities; training exercises and events and capabilities. The long term acquisition strategy is to normalize CTTO requirements into existing contract structures. The intent is to develop a fully capable CTTO capability that provides comprehensive, in-place, geographically dispersed test, training, and evaluation of the complete BMDS. The CTTO approach supports evolutionary development, continuously building upon demonstrated capabilities to advance the BMDS capabilities.

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Concurrent Test, Training and Operations DMETS MX04	C/CPAF	Various:Various	-	-	Oct 2010	8.309		-		8.309	Continuing	Continuing	Continuing
Concurrent Test, Training and Operations Test/Training Enhancements MX04	C/CPAF	Various:Various	-	-	Oct 2010	23.432		-		23.432	Continuing	Continuing	Continuing
Concurrent Test, Training and Operations FFRDC MX04	SS/FFP	MITRE:Various	-	-		0.648		-		0.648	Continuing	Continuing	Continuing
		Subtotal	-	-		32.389		-		32.389			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Project Cost Totals	-	-		32.389		-		32.389			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603888C: *Ballistic Missile Defense Test and Targets*	PROJECT MX04: *BMD Test & Targets Development Support*	

	Total Prior Years Cost	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603888C: *Ballistic Missile Defense Test and Targets*	PROJECT YX05: *Targets and Countermeasures Core*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
YX05: *Targets and Countermeasures Core*	338.168	-	-	-	-	-	-	-	-	0.000	338.168
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

All Project YX05 funds supported BMDS-Level Testing.

A. Mission Description and Budget Item Justification

Project YX05 has been transferred to Project MD05.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD05 for FY 2010 Accomplishments	338.168	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: See Project MD05 for FY 2010 Accomplishments.			
Accomplishments/Planned Programs Subtotals	338.168	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603888C: *Ballistic Missile Defense Test and Targets*	PROJECT MD05: *Targets Program*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD05: *Targets Program*	-	517.065	540.689	-	540.689	363.009	347.933	321.954	461.937	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project YX05 for FY 2010 is now captured in Project MD05.

All Project MD05 funds support BMDS-Level Testing.

A. Mission Description and Budget Item Justification

The goal of the Missile Defense Agency (MDA) Targets and Countermeasures (TC) program is to provide a cost effective and reliable inventory of targets that are threat representative and demonstrate capability of the evolving layered missile defense system in a simultaneous test and operations operating environment. Based on the systems engineering assessments of realistic threat scenarios, the targets and countermeasures program develops, builds, and supports the launch of Short Range Ballistic Missile (SRBM) targets, Medium Range Ballistic Missile (MRBM) targets, Intermediate Range Ballistic Missile (IRBM) targets, Intercontinental Ballistic Missile (ICBM) targets, including the common payloads and components program office to test, verify, and validate the performance of the BMDS.

Funding for the TC program supports the continuation of the target program`s source activities which include the requirements, design, build, and test of BMDS targets, associated payloads, and flight missions. It also supports the maintenance, aging surveillance, refurbishment, and routine testing of existing government furnished equipment (GFE) boosters and target components, as well as the purchase of long lead material assets and asset management items for short, medium, intermediate, and long-range target components.

The Targets and Countermeasures Program consists of three major areas: Program Operations, Target Support, and Target Hardware.

Program Operations consists of the government, contractor and Federally Funded Research and Development Center (FFRDC) workforce that manages the overall TC program, to include engineering, logistics, program management, business management, acquisition, contract administration, and quality assurance.

Target Support consists of three sub-elements. These are Systems Engineering/Program Management, Logistics, and Support Equipment.

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System engineering/program management effort includes activities by TC prime contractors as well as non-prime systems engineering efforts. This effort provides target program technical direction to meet program requirements while balancing cost, schedule, performance, and risk. This effort utilizes the spiral development process for long-range plans initiating new developments. It conducts functional requirements allocation to product lines, defines product line specifications/interfaces, and follows guidelines for design reviews. It performs target system analysis to verify system performance, defines target program baselines, controls flight test configurations, and conducts pre and post-flight analysis. It identifies treaty and environmental issues and develops plans for issue resolution. Efforts not on the prime contracts in support of the TC program include Single Stimulation Framework (SSF) compatible Modeling and Simulation (M&S) execution and improvements to evolve TC M&S capability; trajectory analyses; signature analyses and characterization; studies to assess alternative target and platform solutions; assessments of risk and mission assurance; and design approval of government furnished equipment (GFE).

TC Logistics efforts provide the Missile Defense Agency (MDA) with target storage, aging surveillance, and transportation of Targets and Countermeasures (TC) hardware in support of Ballistic Missile Defense System (BMDS) testing. These efforts are essential in providing a dependable and reliable target system that enables the Missile Defense Agency to build more operational realistic targets to emulate known threats or potential threats. This effort includes integrated logistics support for all TC material including facilities, inventory maintenance, spare parts, aging surveillance, disposal, and special testing for Government Furnished Equipment (GFE) target rocket motor propellants and other hazardous material handling. This task provides for management and execution of the Consolidated Missile Asset Reuse for Targets (CMART) Program and provides all required facilities and monitoring for explosive storage and Foreign Materiel Acquisition (FMA).

Support equipment effort provides for the development and build of common support equipment for launch vehicles, re-entry vehicles, associated objects, and all up integrated target rounds. It also supports launch site activations through the transportation of support equipment to various test sites.

Target Hardware is the third and final area of Targets and Countermeasures. In short, it includes the design and build of Short Range Ballistic Missile (SRBM) targets, Medium Range Ballistic Missile (MRBM) targets, Intermediate Range Ballistic Missile (IRBM) targets, Intercontinental Ballistic Missile (ICBM) targets, and common payloads and components. It also provides for support of specific flight tests in the areas of pre-mission and post-mission analysis. Effective 2011, MDA`s Test Directorate is responsible for all target launch operations to include range coordination and use, transportation of equipment and target hardware to the range, and launch execution.

Specifically, target development effort provides for the non-recurring engineering (NRE) development of SRBM, MRBM, IRBM, and ICBM launch vehicle, reentry vehicle, and associated object systems to support BMDS flight testing. It includes short, medium, intermediate and long range target systems with air, sea, and ground launch capabilities as well as enhancements to legacy target systems for cost effective target solutions. Efforts include requirements decomposition, design, qualification testing, and characterization. It includes ensuring boosters, inter-stages, avionics systems, reentry vehicles, payload deployment modules, and associated objects adhere to interface specifications and meet reliability, mission assurance, and cost goals. Efforts address target producibility, manufacturing maturity, and

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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affordability. Supporting this objective are the necessary modeling and simulation efforts, analyses, configuration management, technical interchange meetings, and design reviews resulting in designs that meet BMDS requirements.

The manufacturing of target hardware includes the development of full up targets and target components for SRBM, MRBM, IRBM, and ICBM assets. It includes integrated or component ballistic missile flight test hardware (launch vehicles, reentry vehicles, associated objects, and kits); target characterization; quality and mission assurance; government furnished equipment and services; and transportation and logistics support.

Target requirements are delineated in the MDA Integrated Master Test Plan (IMTP). Any revisions to the IMTP will affect target types and quantities noted in the Planned Accomplishments.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Program Operations	-	84.079	74.109
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY2010 accomplishments are reported in prior year budget project YX05 ($60,850). -Provided government, contractor, and Federally Funded Research and Development Center (FFRDC) program staff (salary and travel) for the overall management of the program including the following functions: systems engineering, test and evaluation, logistics, program management and acquisition, scheduling, business management, financial management, contract administration, earned value management, cost estimation and analysis, data management, security, quality assurance, mission assurance, and safety			
FY 2011 Plans: -Provide government, contractor, and Federally Funded Research and Development Center (FFRDC)/University Affiliated Research Center (UARC) program staff for the overall management of the Targets and Countermeasures program as follows: -Contractor Support Services pending Missile Defense Agency Engineering and Support Services (MiDAESS) task order awards -MDA Civilians in the following functional areas: Acquisition Management; Business and Financial Management; Contracts; Administrative Services; Engineering; Readiness; Safety, Quality and Mission Assurance; Security; and Test -FFRDCs, Intergovernmental Personnel Act (IPAs), UARCs, Detailees, and Liaisons including personnel from Johns Hopkins University Applied Physics Lab to support the TC program office in Engineering			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Other Government Agency (OGA) Civilians including personnel at Army Aviation and Missile Command, Army Aviation and Missile Research Development and Engineering Center, and Naval Sea Warfare Center Crane Division to support the TC program office in Logistics; Safety, Quality and Mission Assurance -MiDAESS contractor support in the following functional areas: Acquisition Management; Business and Financial Management; Contracts; Administrative Services; Engineering; Readiness; Safety, Quality, and Mission Assurance; Security; and Test -Travel for Government Civilians -Operations support to include Change of Station requirements and Student Loan Repayments ***FY 2012 Plans:*** -Provide government, contractor, and Federally Funded Research and Development Center (FFRDC)/University Affiliated Research Center (UARC) program staff for the overall management of the Targets and Countermeasures program as follows: -MDA Civilians in the following functional areas: Acquisition Management; Business and Financial Management; Contracts; Administrative Services; Engineering; Readiness, Safety, Quality, Mission Assurance, and Source Selection activity; Security; and Test -FFRDCs, Intergovernmental Personnel Act (IPAs), UARCs, Detailees, and Liaisons including personnel from Johns Hopkins University Applied Physics Lab to support the TC program office in Engineering -Other Government Agency (OGA) Civilians including personnel from Army Aviation and Missile Command, Army Aviation and Missile Research Development and Engineering Center, and Naval Sea Warfare Center Crane Division to support the TC program office in Logistics; Safety, Quality and Mission Assurance -MiDAESS contractor support in the following functional areas: Acquisition Management; Business and Financial Management; Contracts; Administrative Services; Engineering; Readiness, Safety, Quality, and Mission Assurance; Security; and Test -Travel for Government Civilians -Operations support to include Change of Station requirements and Student Loan Repayments Variance Analysis: FY 2011budget increases from FY 2010 are due to additional Civilian salaries and Contractor Support Services levels as a result of the TC Directorate establishing and staffing a new organization to meet the requirements of the MDA Integrated Master Test Plan, the common payloads and components program office. In addition to the new organization in Targets and Countermeasures			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
the volume of work, in terms of numbers and types of targets, has increased across the entire Targets and Countermeasures organization. FY 2012 budget decreases from FY 2011 are due to Test functions associated with Targets & Countermeasures being transferred to the MDA Test Directorate. As a result of this transfer, the Test functional area is zeroed out and the Government Travel for those personnel is decreased accordingly. As part of the Department of Defense reform agenda, eliminated full-time equivalent positions to maintain staffing levels to meet Targets & Countermeasures requirements to meet the Integrated Master Test Plan schedule.			
Title: Target Support	-	100.772	83.997
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** Funding for these FY2010 accomplishments are reported in prior year budget project YX05 ($88,625). -Performed prime contractor program management and systems engineering functions including: specialty and production engineering; acquisition, production, logistics management; modeling and simulation; and tests -Performed studies/analyses of future target Launch Vehicles, launch platforms, and Associated Objects -Continued planning, coordinating, and developing characterization test plans and deliverables for Launch and Re-entry Vehicles -Conducted Independent Review Assessments of target development programs -Conducted risk and mission assurance assessments -Updated target modeling and simulation for current threat scenarios; to establish formal validation documentation process and configuration management of all models; to incorporate detailed models for navigation error, thrust vector control errors, and missile bending effects in trajectory tools; and to further develop models for selected phenomenology and matter -Completed Forward Exit Ring Crack /static fire analysis to characterize the risk of the forward exit ring crack on C-4 first stage motors. -Continued inventory, storage, maintenance, disposal, and aging surveillance program for MDA`s rocket motors, ground/launch support equipment and associated hardware -Continued maintenance of existing support equipment and facilities at Redstone Arsenal, Camp Navajo, Eglin AFB, Hawthorne Western Ammunition Depot, White Sands Missile Range, Pacific Missile Range Facility, Hill AFB (Oasis), and Tooele Army Depot -Maintained Single Integration Capability (SIC), Courtland, Alabama			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603888C: *Ballistic Missile Defense Test and Targets*	PROJECT MD05: *Targets Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Transported assets, hazardous material, and rocket motors -Continued Government Furnished Equipment tracking, administration and property management -Continued closeout of the Strategic Targets Systems/Generic Rest of World (STARS/GROW) program -Procured Communications Security (COMSEC) equipment and encryptors -Provided transportation, sparing, and logistics support of equipment to support mission execution -Provided LV-2 support equipment to include motor handling ground pallets, pressure measurement transducers, and an umbilical retract system			
FY 2011 Plans: -System Engineering and Program Management -Non-Prime -Continue Program Management and Business Operations for target components -Continue Information Technology support for Other Government Agencies (OGAs) -Continue Special Studies and associated analyses of future target Launch Vehicles, Re-Entry Vehicles, and launch platforms -Continue Source Selection Support; Exploitation Information; Inertial Instruments; and Documentation Transfer -Continue Quality/Mission Assurance to include Pedigree Reviews -Continue include information technology and classified network support -Continue Software Independent Verification and Validation (IV&V) for targets including the Extended Medium Range Ballistic Missile (eMRBM) and Launch Vehicle-2 (LV-2) -Continue MDA Engineering Directorate targets and countermeasures requirements support -Perform prime contractor program management and systems engineering functions including: specialty and production engineering; acquisition, production, logistics management; modeling and simulation; and tests -Logistics and Sustainment			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provide Non-Prime efforts in the areas of maintenance, transportation, utilities, storage, license fees, aging surveillance, disposal and material handling for targets, target components, re-entry rebuilds, associated objects, and support equipment to include: -C4 Motors - Storage, disposal, transportation, aging surveillance, and static fire costs -Castor IVA - Transportation costs -Castor IVB - Storage costs -GEM-40 - Desiccant baffles and forward dome inspection costs -Lance - Missile sustainment, telemetry van sustainment and facilities sustainment costs -M-57 - Storage, disposal, transportation, and aging surveillance -Orbus 1A - Propellant testing and qualification testing costs -SR19 - Storage, disposal, transportation, aging surveillance, and static fire costs -STARS - Close out costs -Multi-Class Consolidated Missile Assets for Re-use for Targets (CMART) - Inventory storage, aging surveillance, and transportation costs -Multi-Class Other - Vehicle support, ordnance inventory reduction planning, small ordnance, x-ray, refurbishment, transportation, and modification costs -Perform prime contractor logistics management to include maintenance of the Single Integration Capability (SIC)			
FY 2012 Plans: -System Engineering and Program Management -Non-Prime -Continue Program Management and Business Operations for target components -Continue Information Technology support for Other Government Agencies (OGAs) -Continue Special Studies and associated analyses of future target Launch Vehicles, Re-Entry Vehicles, and launch platforms -Continue Quality/Mission Assurance to include Pedigree Reviews -Continue information technology and classified network support -Continue Software Independent Verification and Validation (IV&V) for targets including the Extended Medium Range Ballistic Missile (eMRBM) and Launch Vehicle-2 (LV-2) -Continue MDA Engineering Directorate targets and countermeasures requirements support			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Perform prime contractor program management and systems engineering functions including: specialty and production engineering; acquisition, production, logistics management; modeling and simulation; and tests -Logistics and Sustainment -Provide Non-Prime efforts in the areas of maintenance, transportation, utilities, storage, license fees, aging surveillance, disposal and material handling for targets, target components, re-entry rebuilds, associated objects, and support equipment to include: -C4 Motors - Storage, disposal, transportation, aging surveillance, and static fire costs -Castor IVA - Transportation costs -Castor IVB - Storage costs -GEM-40 - Desiccant baffles and forward dome inspection costs -Lance - Missile sustainment, telemetry van sustainment and facilities sustainment costs -M-57 - Storage, disposal, transportation, and aging surveillance -Orbus 1A - Missile sustainment -SR19 - Storage, disposal, transportation, aging surveillance, and static fire costs -Multi-Class Consolidated Missile Assets for Re-use for Targets (CMART) - Inventory storage, aging surveillance, and transportation costs -Multi-Class Other - Vehicle support, ordnance inventory reduction planning, small ordnance, x-ray, refurbishment, transportation, and modification costs -Perform prime contractor logistics management to include maintenance of the Single Integration Capability (SIC) Variance Analysis: FY 2011 budget increases from FY 2010 due to the mix of targets scheduled in FY 2011 as well as additional Pedigree Reviews. FY 2012 budget decreases from FY 2011 due to the following: mix of targets in FY 2012 requires fewer Pedigree Reviews; additional Target Support costs previously incurred by the Government separately have been integrated into the new Targets acquisition contracts; TC will have completed its IRBM source selection reducing those staffs; and Orbus 1A graduation testing will			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
be completed. Additionally as part of the Department of Defense reform agenda, this effort reflects a reduction in the number of technical studies and pre-test mission delivery date finalization analyses.			
Title: Target Hardware	-	332.214	382.583
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY2010 accomplishments are reported in prior year budget project YX05 ($188,693). Develop, build, and support the launch of the following target types enabling BMDS testing and validating BMDS weapon system performance: -Short Range Ballistic Missiles (SRBM) -Completed target hardware build and integration for the following target types: -1 Aegis Readiness Assessment Vehicle-C (ARAV-C) -3 Foreign Materiel Acquisition-1 (FMA-1) -2 Foreign Materiel Acquisition-2 (FMA-2) -1 Short Range Air Launched Target (SRALT) -1 Medium Range Target (MRT) -Conducted target performance planning and range coordination activities, executed target missions, and collected and analyzed target system data for the following missions: -FTX-06 E2, E3, and E4 -JFTM-3 -ATM-48 -Initiated and/or continued target hardware development, target integration, target performance planning, and range coordination for future missions of the following target types: -3 ARAV-Cs -2 FMA-1			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-1 FMA Spare -1 SRALT-3 -2 ARAV-B -Medium Range Ballistic Missile (MRBM) -Continued Enhanced Long Range Air Launched Target (E-LRALT) non-recurring development -Initiated and/or continued target hardware development, target integration, target performance planning, and range coordination for future missions of the following target types: -2 Enhanced Long Range Air Launch Target (E-LRALT) -3 Medium Range Targets (MRT) -Intermediate Range Ballistic Missile (IRBM) -Completed Launch Vehicle-2 (LV-2) development -Completed target hardware build and integration for the following target types: -1 Launch Vehicle-2 (LV-2) -Conducted target performance planning and range coordination activities, executed target missions, and collected and analyzed target system data -Initiated and/or continued target hardware development, target integration, target performance planning, and range coordination for future missions of the following target types: -5 Launch Vehicle-2 (LV-2) -Target Common Payloads and Components -Completed development of Modified Ballistic Re-Entry Vehicle (MBRV)-2 -Initiated RV-7 Reentry Vehicle development -Modified existing Family 1 countermeasures hardware for use in future flight tests -Initiated Critical Design Review (CDR) level design for the United Kingdom payload concept -Provided Quality Assurance and Mission Assurance compliance with Agency requirements for design, test, manufacturing, quality, safety, and reliability			
FY 2011 Plans:			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Develop, build, and support the launch of the following target types to enable BMDS testing and the validation of BMDS weapon system performance: -Multi-Class Components -Re-entry Vehicle (RV) -Continue Matching Ballistic Re-entry Vehicle (MBRV-7) development -Associated Object (AO) -Continue Family 1C development resulting in critical design review -Continue Family 1F development -Continue Family 1G development -Other Counter Measure/Associate Object Non-Recurring Engineering to include the United Kingdom Project Agreement -Motors -Continue production of SR19 Flexseals -Provide funding for Special Targets -Intermediate Range Ballistic Missile (IRBM) -Launch Vehicle 2 (LV-2) - Initiate/continue development of Ship Sets 3 thru 6 -IRBM Type 1/Type 2(T1/T2) - Initiate/continue development of Ship Sets 1 thru 8 -Medium Range Ballistic Missile (MRBM) -Extended Medium Range Ballistic Missile (eMRBM) - Initiate/continue development of Ship Sets 1 thru 5 -Enhanced Long Range Air Launch Target (ELRALT) - Initiate/continue development of Ship Sets 1 and 2 -Short Range Ballistic Missiles (SRBM) -Short Range Air Launched Target (SRALT) - Initiate/continue build of Ship Sets 2 and 3 -Aegis Readiness Assessment Vehicle-C (ARAV-C) - Initiate/continue build of Ship Sets 2 and 3 -Aegis Readiness Assessment Vehicle-B (ARAV-B) - Initiate/continue build of Ship Sets 6 thru 9 -Foreign Materiel Acquisition-2 (FMA-2) - Initiate/continue build of Ship Set 3 -Medium Range Target (MRT Air) - Initiate/continue build of Ship Set 7			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Strypi II - Conduct Product Acceptance Review (PAR) for Strypi II ***FY 2012 Plans:*** Develop, build, and support the launch of the following target types to enable BMDS testing and validation of BMDS weapon system performance: -Multi-Class Components -Re-entry Vehicle (RV) -Continue Matching Ballistic Re-entry Vehicle (MBRV-7) development -Associated Object (AO) -Continue Family 1G development -Other Counter Measures/Associated Objects Non-Recurring Engineering to include the United Kingdom Project Agreement -Motors -Continue production of SR19 Flexseals -Initiate/ continue development of all other Re-entry Vehicles, Associated Objects, and Motors in support of the current Integrated Master Test Plan. -Intermediate Range Ballistic Missile (IRBM) -Launch Vehicle 2 (LV-2) - Initiate/continue development of Ship Sets 4 thru 6 -IRBM T1/T2 - Initiate/continue development of Ship Sets 1 thru 18 -Initiate/continue development of all other IRBMs in support of the current Integrated Master Test Plan (IMTP) -Medium Range Ballistic Missile (MRBM) -Enhanced Medium Range Ballistic Missile (eMRBM) - Initiate/continue development of Ship Sets 1 thru 5 -Enhanced Long Range Air Launch Target (ELRALT) - Initiate/continue development of Ship Sets 1 and 2 -MRBM Type 3 (MRBM T3) - Initiate/continue development of Ship Sets 1 thru 3 -Initiate/continue development of all other MRBMs in support of the current IMTP -Short Range Ballistic Missiles (SRBM)			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Short Range Air Launched Target (SRALT) - Initiate/continue development of Ship Set 2 -Foreign Materiel Acquisition-1 (FMA-1) - Initiate/continue development of Ship Set 10 -Initiate/continue development of all other SRBMs in support of the current IMTP Variance Analysis: FY 2011 budget increase from FY 2010 is due to the mix of targets required to execute the Integrated Master Test Plans, to include the Intermediate Range Ballistic Missile contract award and development of the Enhanced Medium Range Ballistic Missile target. FY 2012 budget increase from FY 2011 is due to the mix of targets required to execute the Integrated Master Test Plan, to include the MRBM Type 1 contract award.			
Accomplishments/Planned Programs Subtotals	-	517.065	540.689

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The Missile Defense Agency`s (MDA) Targets and Countermeasures program office (TC) provides for the development and procurement of ballistic missile targets and countermeasures for the Ballistic Missile Defense System in support of the Missile Defense Agency`s flight test program. Target requirements are derived from the Agency`s Integrated Master Test Plan.

Based on the Acquisition Plan for Targets and Countermeasures Prime Contract (9 July, 2003), MDA competed and awarded a prime contract to Lockheed Martin Space Systems Company (LMSSC) on 9 December, 2003 for the development of the Flexible Target Family (FTF). Targets in the short, medium, and intermediate range as well as reentry vehicles are procured using this contract.

Based on the Targets and Countermeasures Medium Range Targets Acquisition Plan (6 June, 2008), the Targets and Countermeasures program office awarded a sole source firm fixed price contract to the Orbital Sciences Corporation ground launched MRT/RV targets in June 2008. This award was based upon the requirement for target consistency resulting in a unique target/RV configuration to support testing of the Aegis Weapon System. A total of three targets have been procured on this contract with one asset remaining in inventory.

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The Sounding Rocket Program 3 (SRP-3) contract is managed by the US Air Force Space and Missile Systems Center, Space Development and Test Wing at Kirtland AFB, NM to provide air launched target systems. The SRP-3 contract has 4 prequalified vendors (Orbital Sciences Corp, Alliant Tech Systems, L-3 Coleman Aerospace, and Space Vector Corp) that are able to compete for new task orders to develop targets on this contract. To date, L-3 Coleman is the only vendor that has been awarded task orders on this contract.

The Solid Rocket Motor Technical Services Contract was awarded to Alliant Tech Systems in May 2005 and provides aging and surveillance, refurbishment, transportation, testing, and sensitivity studies for MDA TC solid rocket motors to include A3, C4, Orbus 1/1A, GEM, and Castor IV variants. A follow-on contract is currently under development to continue this work.

The Aegis Readiness Assessment Vehicle (ARAV) target effort is managed by TC and the Naval Surface Warfare Center Port Hueneme Division White Sands (NSWC PHD WS). NSWC PHD WS has unique sounding rocket expertise and access to existing contracts managed by White Sands Missile Range that makes this a beneficial relationship for both parties. TC provides targets funding via Military Interdepartmental Purchase Orders that NSWC PHD WS expends on its hardware development and engineering contracts. In addition, TC provides funding to Sandia National Labs in support of the Attitude Control Module (ACM) development effort for the ARAV Group C target. NSWC PHD WS manages the integration of the ACM onto the launch vehicle. The MDA Test Directorate (DT) is responsible for funding all launch services of these targets in support of the IMTP.

TC is currently in various stages of planning or execution for procurement of ballistic missile targets by range class: Short Range (SRBM), Medium Range (MRBM), Intermediate Range (IRBM), and Intercontinental range (ICBM). These targets will be procured using a Target Performance Specification to support flight test requirements as identified in the Integrated Master Test Plan. Each target class will be solicited, evaluated, and awarded independently in IMTP ``need date`` priority order.
Within each target class, capabilities are further segregated and designated as a class type. Type 1, Type 2, and Type 3 capabilities are defined as follows:

Type 1: A Type 1 target is the baseline (simple) configuration for the class. A Type 1 target satisfies the minimum target requirements to provide the baseline capability for each target class. The baseline configuration represents the complete vehicle stack-up and includes: 1-n boosters, attitude control system, test object, flight termination system, housekeeping and environmental instrumentation, and telemetry. For example, the basic configuration of an LV-2 target is representative of a type 1 configuration in the intermediate range class.

Type 2: A Type 2 target requires more advanced or complex performance capabilities. Type 2 capabilities may be included in the baseline Type 1 configuration or provided as configuration kits that can be added to the baseline configuration. Type 2 kits may include the following: countermeasures and associated deployment capability, enhanced targeting and aimpoint accuracies, selectable booster and test object dynamics, tailored separation debris, temperature sensors, hit location and miss distance instrumentation, onboard sensors, deployable fly along sensors, and/or lethality payloads. For example, the LV-2 target with countermeasures or additional payloads is representative of a type 2 configuration in the intermediate range class.

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Type 3: A Type 3 target is a unique configuration procured in low unit quantities. Type 3 targets encompass unique threat characteristics or test conditions (i.e. Ground Based Midcourse Defense high velocity engagement scenario) not achievable with a type 1 or type 2 configuration. For example, a mobile launched ICBM type 1 or type 2 target is representative of a type 3 configuration in the intercontinental range class.

TC is in the process of transitioning from a ``just-in-time`` approach to delivering unique targets to meet specific flight test requirements to more of a production based strategy geared towards building an inventory of product lines able to meet multiple test requirements. Work under existing contracts/orders will run to completion rather than being transitioned to a new contractor(s).
All future targets will be procured under the new acquisition competitive Request for Proposals unless the new acquisitions would result in higher cost, delivery delays, or less capable targets. TC will procure pre and post mission planning, data products, support to modeling and simulation and ground test, inventory sustainment and management, and flight test execution.

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Operations Government Personnel and Travel MD05	MIPR	MDA:Washington, DC	26.288	24.265	Oct 2010	21.732	Oct 2011	-		21.732	Continuing	Continuing	Continuing
Program Operations Personnel Support - 1 MD05	C/FFP	Teledyne Solutions:Huntsville, AL	45.481	-		-		-		-	0.000	45.481	45.481
Program Operations Personnel Support - 2 MD05	C/FFP	Cobham, Inc.:Huntsville, AL	21.266	-		-		-		-	0.000	21.266	21.266
Program Operations Personnel Support - 3 MD05	C/FFP	Northrop Grumman:Albuquerque, NM	15.674	-		-		-		-	0.000	15.674	15.674
Program Operations Personnel Support - 4 MD05	C/FFP	Tecolote:Huntsville, AL	2.155	-		-		-		-	0.000	2.155	2.155
Program Operations Government Support - 1 MD05	MIPR	AMRDEC:Huntsville, AL	1.347	0.879	Jan 2011	0.890	Jan 2012	-		0.890	Continuing	Continuing	Continuing
Program Operations Personnel Support - 5 MD05	C/FFP	SRS:Huntsville, AL	1.571	-		-		-		-	0.000	1.571	1.571
Program Operations Personnel Support - 6 MD05	FFRDC	Johns Hopkins University Applied Physics Lab:Laurel, MD	1.793	1.262	Nov 2010	1.278	Nov 2011	-		1.278	Continuing	Continuing	Continuing
Program Operations Personnel Support - 7 MD05	MIPR	SMC US Air Force Space and Missile Systems Center:Kirtland AFB, NM	1.171	0.610	Nov 2010	0.621	Nov 2011	-		0.621	Continuing	Continuing	Continuing
Program Operations Personnel Support - 8 MD05	MIPR	US Army Aviation and Missile Command:Huntsville, AL	2.519	0.963	Dec 2010	0.976	Dec 2011	-		0.976	Continuing	Continuing	Continuing
Program Operations Personnel Support - 9 MD05	C/FFP	BAE Systems:Huntsville, AL	0.305	-		-		-		-	0.000	0.305	0.305
Program Operations Personnel Support - 10 MD05	C/CPFF	Paradigm Technologies:Arlington, VA	1.704	-		-		-		-	0.000	1.704	1.704

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Operations Personnel Support - 11 MD05	MIPR	US Army Space & Missile Defense Command:Huntsville, AL	16.330	-		-		-		-	0.000	16.330	16.330
Program Operations Personnel Support - 12 MD05	C/FFP	CACI:Huntsville, AL	0.400	-		-		-		-	0.000	0.400	0.400
Program Operations Personnel Support - 13 MD05	C/FFP	Computer Sciences Corp.:Huntsville, AL	0.712	-		-		-		-	0.000	0.712	0.712
Program Operations Personnel Support - 14 MD05	C/FFP	Coleman Technology, Inc.:Huntsville, AL	0.560	-		-		-		-	0.000	0.560	0.560
Program Operations Personnel Support - 15 MD05	C/FFP	Colsa Corporation:Huntsville, AL	-	0.523	Dec 2010	-		-		-	0.000	0.523	0.523
Program Operations Personnel Support - 16 MD05	C/CPAF	Targets MiDAESS Support:Huntsville, AL	-	55.577	Dec 2010	48.612	Mar 2012	-		48.612	Continuing	Continuing	Continuing
Target Support Sys Eng - 1 MD05	C/CPAF	Lockheed Martin Space Systems:Courtland, AL	82.868	33.867	Jan 2011	29.679	Jan 2012	-		29.679	Continuing	Continuing	Continuing
Target Support Sys Eng - 2 MD05	C/FFP	Northrop Grumman Space Systems:Albuquerque, NM	-	6.103	Dec 2010	4.270	Dec 2011	-		4.270	Continuing	Continuing	Continuing
Target Support Sys Eng - 3 MD05	C/FFP	Teledyne Solutions, Inc.:Huntsville, AL	8.052	0.040	Feb 2011	0.042	Mar 2012	-		0.042	Continuing	Continuing	Continuing
Target Support Sys Eng - 4 MD05	C/FFP	Wyle Laboratories:Huntsville, AL	-	1.915	Dec 2010	2.460	Dec 2011	-		2.460	Continuing	Continuing	Continuing
Target Support Sys Eng - 5 MD05	FFRDC	Johns Hopkins University Applied Physics Lab:Baltimore, MD	4.239	1.703	Nov 2010	1.791	Dec 2011	-		1.791	Continuing	Continuing	Continuing
Target Support Sys Eng - 6 MD05	MIPR	Aerospace Corporation:El Segundo, CA	-	3.191	Jan 2011	3.357	Jan 2012	-		3.357	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Target Support Sys Eng - 7 MD05	MIPR	Aviation & Missile Research, Dev & Eng Center:Huntsville, AL	-	7.726	Dec 2010	5.727	Dec 2011	-		5.727	Continuing	Continuing	Continuing
Target Support Sys Eng - 8 MD05	MIPR	Missile Defense Integration & Operations Center:Schriever AFB, CO	-	0.213	Dec 2010	-		-		-	0.000	0.213	0.213
Target Support Sys Eng - 9 MD05	MIPR	Space & Missile Systems Center:Kirtland AFB, NM	0.934	0.545	Nov 2010	0.581	Dec 2011	-		0.581	Continuing	Continuing	Continuing
Target Support Sys Eng - 10 MD05	MIPR	Sandia National Laboratories:Albuquerque, NM	-	0.861	Feb 2011	0.275	Feb 2012	-		0.275	Continuing	Continuing	Continuing
Target Support Log - 1 MD05	C/CPAF	Lockheed Martin Space Systems:Courtland, AL	17.565	12.361	Jan 2011	10.482	Jan 2012	-		10.482	Continuing	Continuing	Continuing
Target Support Log - 2 MD05	C/CPFF	Alliant Techsystems:Magna, UT	-	2.674	Dec 2010	2.108	Dec 2011	-		2.108	Continuing	Continuing	Continuing
Target Support Log - 3 MD05	C/FFP	Aerojet Corporation:Albuquerque, NM	1.845	0.511	Nov 2010	0.538	Nov 2011	-		0.538	Continuing	Continuing	Continuing
Target Support Log - 4 MD05	C/FFP	Alliant Techsystems:Magna, UT	15.307	3.085	Dec 2010	2.830	Dec 2011	-		2.830	Continuing	Continuing	Continuing
Target Support Log - 5 MD05	MIPR	Defense Energy Support Center:San Antonio, TX	-	-		0.242	Jan 2012	-		0.242	Continuing	Continuing	Continuing
Target Support Log - 6 MD05	MIPR	Alliant Techsystems:Magna, UT	-	1.543	Jan 2011	0.798	Dec 2011	-		0.798	Continuing	Continuing	Continuing
Target Support Log - 7 MD05	MIPR		0.180	0.112	Feb 2011	0.137	Jan 2012	-		0.137	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603888C: *Ballistic Missile Defense Test and Targets*	PROJECT MD05: *Targets Program*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Aviation & Missile Research, Dev & Eng Center:Huntsville, AL											
Target Support Log - 8 MD05	MIPR	Army Communications Electronics Command:Eglin AFB, FL	0.159	0.064	May 2011	-		-		-	0.000	0.223	0.223
Target Support Log - 9 MD05	MIPR	Hill Air Force Base:Ogden, UT	2.156	1.427	Mar 2011	1.501	Mar 2012	-		1.501	Continuing	Continuing	Continuing
Target Support Log - 10 MD05	MIPR	Naval Air Warfare Center Weapons Division:China Lake, CA	3.643	-		1.700	Dec 2011	-		1.700	Continuing	Continuing	Continuing
Target Support Log - 11 MD05	MIPR	Northrop Grumman Space Systems:Albuquerque, NM	1.089	0.716	Dec 2010	0.753	Dec 2011	-		0.753	Continuing	Continuing	Continuing
Target Support Log - 12 MD05	MIPR	New Mexico State Univ. Physical Sciences Lab:Las Cruces, NM	1.702	0.647	Mar 2011	0.681	Feb 2012	-		0.681	Continuing	Continuing	Continuing
Target Support Log - 13 MD05	MIPR	Naval Surface Warfare Center:Crane, IN	6.553	7.555	Jan 2011	5.046	Feb 2012	-		5.046	Continuing	Continuing	Continuing
Target Support Log - 14 MD05	MIPR	Redstone Arsenal Garrison:Huntsville, AL	6.044	1.644	Nov 2010	1.730	Dec 2011	-		1.730	Continuing	Continuing	Continuing
Target Support Log - 15 MD05	MIPR	Redstone Technical Test Center:Huntsville, AL	-	0.809	Jan 2011	-		-		-	0.000	0.809	0.809
Target Support Log -16 MD05	MIPR	Army Joint Munitions Command:Hawthorne Army Depot, NV	1.070	1.650	Dec 2010	1.158	Feb 2012	-		1.158	Continuing	Continuing	Continuing
Target Support Log - 17 MD05	MIPR	US Naval Weapons Stations:Earl, NJ	-	0.040	Feb 2011	0.043	Feb 2012	-		0.043	Continuing	Continuing	Continuing
Target Support Log - 18 MD05	MIPR		5.844	2.152	Mar 2011	2.264	Feb 2012	-		2.264	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		United States Property & Fiscal Office for Arizona:Phoenix, AZ											
Target Support Log - 19 MD05	MIPR	White Sands Missile Range:White Sands, NM	-	0.153	Jan 2011	0.161	Jan 2012	-		0.161	Continuing	Continuing	Continuing
Target Support Log - 20 MD05	MIPR	Defense Finance and Accounting Service:Indianapolis, IN	3.514	0.545	Dec 2010	0.573	Dec 2011	-		0.573	Continuing	Continuing	Continuing
Target Support Sys Eng -11 MD05	MIPR	Naval Surface Warfare Center, Crane:Crane, IN	-	0.213	Dec 2010	-		-		-	0.000	0.213	0.213
Target Support Sys Eng - 12 MD05	MIPR	Defense Financial Accounting System:Indianapolis, IN	-	0.478	Oct 2010	0.464	Oct 2011	-		0.464	Continuing	Continuing	Continuing
Target Support Sys Eng - 13 MD05	MIPR	Missile Defense Agency:Arlington, VA	-	6.016	Oct 2010	2.276	Oct 2011	-		2.276	Continuing	Continuing	Continuing
Target Support Log - 21 MD05	MIPR	Army Space & Missile Defense Command:Huntsville, AL	-	0.213	Dec 2010	0.330	Dec 2011	-		0.330	Continuing	Continuing	Continuing
Target Hardware SRBM - 1 MD05	C/CPAF	Lockheed Martin Space Systems:Courtland, AL	22.373	17.345	Jan 2011	0.622	Jan 2012	-		0.622	Continuing	Continuing	Continuing
Target Hardware SRBM - 2 MD05	MIPR	Naval Surface Warfare Center, Port Hueneme Detach:White Sands, NM	31.665	25.926	Feb 2011	23.311	Dec 2011	-		23.311	Continuing	Continuing	Continuing
Target Hardware SRBM - 3 MD05	C/CPIF	Lockheed Martin Space Systems:Courtland, AL	-	-		0.008	Jan 2012	-		0.008	Continuing	Continuing	Continuing
Target Hardware SRBM - 4 MD05	MIPR	US Army White Sands Missile Range:White Sands, NM	0.690	0.980	Dec 2010	-		-		-	0.000	1.670	1.670
Target Hardware MRBM - 1 MD05	C/CPAF	Lockheed Martin Space Systems:Courtland, AL	-	77.328	Jan 2011	147.560	Jan 2012	-		147.560	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603888C: *Ballistic Missile Defense Test and Targets*	PROJECT MD05: *Targets Program*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Target Hardware MRBM - 2 MD05	C/CPIF	Alliant Technical Systems:Magna, UT	-	-		6.670	Dec 2011	-		6.670	Continuing	Continuing	Continuing
Target Hardware MRBM - 3 MD05	C/CPIF	Coleman Aerospace:Orlando, FL	71.531	43.931	Dec 2010	24.605	Dec 2011	-		24.605	Continuing	Continuing	Continuing
Target Hardware MRBM - 4 MD05	MIPR	Coleman Aerospace:Orlando, FL	-	2.128	Dec 2010	-		-		-	0.000	2.128	2.128
Target Hardware IRBM - 1 MD05	C/CPAF	Lockheed Martin Space Systems:Courtland, AL	50.112	51.180	Jan 2011	19.343	Jan 2012	-		19.343	Continuing	Continuing	Continuing
Target Hardware IRBM - 2 MD05	C/CPAF	Massachusetts Institute of Technology/Lincoln Labs:Lexington, MA	-	0.420	Jan 2011	5.081	Feb 2012	-		5.081	Continuing	Continuing	Continuing
Target Hardware IRBM - 3 MD05	MIPR	Sandia National Labs:Albuquerque, NM	4.720	4.237	Mar 2011	-		-		-	0.000	8.957	4.237
Target Hardware IRBM - 4 MD05	C/CPIF	Lockheed Martin Space Systems:Courtland, AL	-	10.572	Jan 2011	1.297	Jan 2012	-		1.297	Continuing	Continuing	Continuing
Target Hardware IRBM - 5 MD05	C/FFP	Teledyne Solutions, Inc.:Huntsville, AL	-	2.390	Dec 2010	1.338	Dec 2011	-		1.338	Continuing	Continuing	Continuing
Target Hardware IRBM - 6 MD05	C/FFP	Northrop Grumman Space Systems:Albuquerque, NM	-	0.128	Dec 2010	-		-		-	0.000	0.128	0.128
Target Hardware Multi-Class - 1 MD05	C/CPAF	Lockheed Martin Space Systems:United Kingdom	-	1.862	Jan 2011	1.927	Jan 2012	-		1.927	Continuing	Continuing	Continuing
Target Hardware Multi-Class - 2 MD05	MIPR	Sandia National Labs:Albuquerque, NM	-	3.263	Mar 2011	-		-		-	0.000	3.263	3.263
Target Hardware Multi-Class-3 MD05	C/CPAF	Gray Research:Huntsville, AL	-	0.223	Dec 2010	-		-		-	0.000	0.223	0.223
Target Hardware Multi-Class-4 MD05	C/FFP	Aerojet Coorporation:Albequerque, NM	-	3.603	Nov 2010	3.790	Nov 2011	-		3.790	Continuing	Continuing	Continuing
Target Hardware SRBM-5 MD05	C/CPIF	Coleman Aerospace:Orlando, FL	10.944	25.016	Dec 2010	0.703	Dec 2011	-		0.703	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603888C: *Ballistic Missile Defense Test and Targets*	PROJECT MD05: *Targets Program*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Target Hardware SRBM-6 MD05	C/FFP	Coleman Aerospace:Orlando, FL	-	0.532	Dec 2010	-		-		-	0.000	0.532	0.532
Target Hardware SRBM-7 MD05	MIPR	Naval Air Warfare Center:Patuxent River, MD	-	2.818	Dec 2010	-		-		-	0.000	2.818	2.818
Target Hardware SRBM-8 MD05	MIPR	Pacific Missile Range Facility:Barking Sands, HI	-	1.325	Dec 2010	-		-		-	0.000	1.325	1.325
Target Hardware IRBM-7 MD05	MIPR	Pacific Missile Range Facility:Barking Sands, HI	0.320	0.183	Dec 2010	-		-		-	0.000	0.503	0.183
Target Hardware IRBM - 8 MD05	MIPR	Defense Finance & Accounting Service:Indianapolis, IN	0.531	1.044	Dec 2010	-		-		-	0.000	1.575	1.575
Target Hardware IRBM - 9 MD05	C/CPAF	US Army Kwajalein Atoll:Marshall Islands	1.575	5.725	Dec 2010	-		-		-	0.000	7.300	7.300
Target Hardware IRBM - 10 MD05	C/CPAF	New IRBM RFP:New IRBM RFP	-	23.673	Jun 2011	121.503	Apr 2012	-		121.503	Continuing	Continuing	Continuing
Target Hardware IRBM - 11 MD05	C/CPIF	New IRBM RFP:New IRBM RFP	-	-		5.791	Apr 2012	-		5.791	Continuing	Continuing	Continuing
Target Hardware IRBM - 12 MD05	C/FFP	New IRBM RFP:New IRBM RFP	-	0.096	May 2011	2.414	Apr 2012	-		2.414	Continuing	Continuing	Continuing
Target Hardware SRBM - 9 MD05	MIPR	Defense Finance and Accounting Service:Indianapolis, IN	8.240	4.209	Jan 2011	-		-		-	0.000	12.449	12.449
Target Hardware SRBM - 10 MD05	MIPR	Coleman Aerospace:Orlando, CA	-	0.532	Dec 2010	-		-		-	0.000	0.532	0.532
Target Hardware SRBM - 11 MD05	MIPR	Sandia National Labs:Albuquerque, NM	-	0.044	Mar 2011	0.678	Jan 2012	-		0.678	Continuing	Continuing	Continuing
Target Hardware SRBM - 12 MD05	MIPR	SRBM RFP:SRBM RFP	-	0.087	Jun 2011	-		-		-	0.000	0.087	0.087
Target Hardware Multi-Class - 5 MD05	C/CPAF	Lockheed Martin Space Systems:Courtland, AL	-	9.755	Jan 2011	1.401	Jan 2012	-		1.401	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Target Hardware Multi-Class - 6 MD05	MIPR	Edwards Air Force Base:Los Angeles, CA	-	0.340	Dec 2010	-		-		-	0.000	0.340	0.340
Target Hardware Multi-Class - 7 MD05	MIPR	Interstate Battery Systems:Albuquerque, NM	-	0.021	Dec 2010	-		-		-	0.000	0.021	0.021
Target Hardware Multi-Class - 8 MD05	MIPR	Massachusetts Institute of Technology:Lexington, MA	-	3.414	Dec 2010	0.897	Dec 2011	-		0.897	Continuing	Continuing	Continuing
Target Hardware Multi-Class - 9 MD05	MIPR	National Security Agency:Albuquerque, NM	-	0.033	Dec 2010	-		-		-	0.000	0.033	0.033
Target Hardware Multi-Class - 10 MD05	MIPR	Missile Defense Agency:Huntsville, AL	-	5.320	Nov 2010	-		-		-	0.000	5.320	5.320
Target Hardware SRBM - 13 MD05	MIPR	Air Force Mobility Command:Scott AFB, IL	-	2.531	Dec 2010	-		-		-	0.000	2.531	2.531
Target Hardware SRBM - 14 MD05	C/FFP	Orbital Sciences Corporation:Chandler, AZ	-	-		4.909	Jan 2012	-		4.909	Continuing	Continuing	Continuing
Target Hardware SRBM - 15 MD05	MIPR	MDA Israeli Cooperative Program Office:Huntsville, AL	-	-		4.845	Dec 2011	-		4.845	Continuing	Continuing	Continuing
Target Hardware MRBM - 5 MD05	C/CPAF	Orbital Sciences Corporation:Chandler, AZ	-	-		1.452	Jan 2012	-		1.452	Continuing	Continuing	Continuing
Target Hardware MRBM - 6 MD05	C/CPAF	New MRBM RFP:New MRBM RFP	-	-		2.438	Mar 2012	-		2.438	Continuing	Continuing	Continuing
		Subtotal	504.741	517.065		540.689		-		540.689			

Remarks

Increases to Civilian salaries and Contractor Support Services levels in FY 2011 and FY 2012 are the result of the TC Directorate establishing and staffing a new organization to meet the requirements of the MDA Integrated Master Test Plan, including the common payloads and components program office. In addition to the new organization in Targets and

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Countermeasures and the complexity involved with both, the volume of work, in terms of numbers and types of targets, has increased across the entire Targets and Countermeasures organization. All Project MD05 funds support BMDS-Level Testing.													

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	504.741	517.065		540.689		-		540.689			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603888C: *Ballistic Missile Defense Test and Targets*	**PROJECT** MD05: *Targets Program*

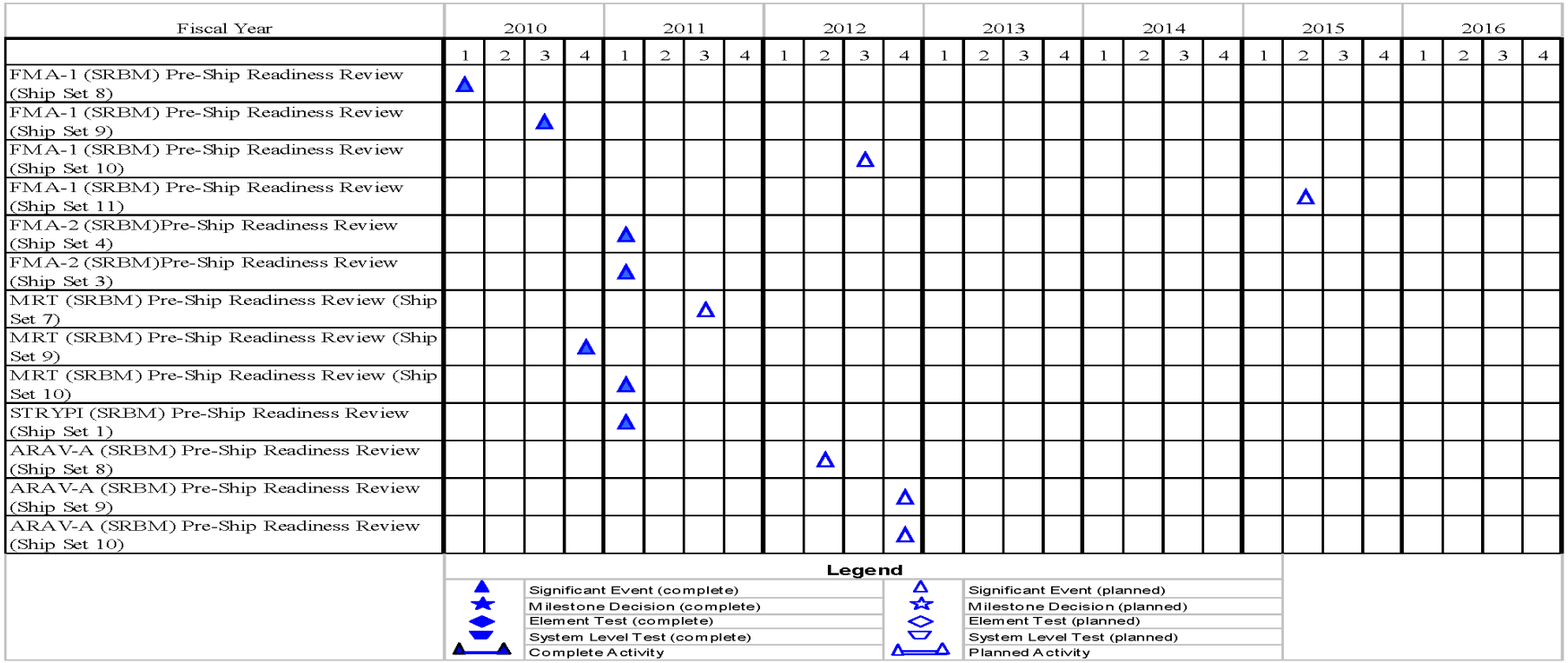

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		**DATE:** February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603888C: *Ballistic Missile Defense Test and Targets*	**PROJECT** MD05: *Targets Program*

Fiscal Year	2010				2011				2012				2013				2014				2015				2016			
	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
ARAV-A (SRBM) Pre-Ship Readiness Review (Ship Set 11)												△																
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 8)						△																						
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 9)						△																						
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 10)												△																
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 11)												△																
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ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 14)																				△								
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 15)																				△								
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 16)																				△								
ARAV-C Critical Design Review (NRE)			▲																									
ARAV-C (SRBM) Pre-Ship Readiness Review (Ship Set 3)						△																						
ARAV-C (SRBM) Pre-Ship Readiness Review (Ship Set 4)						△																						

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

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
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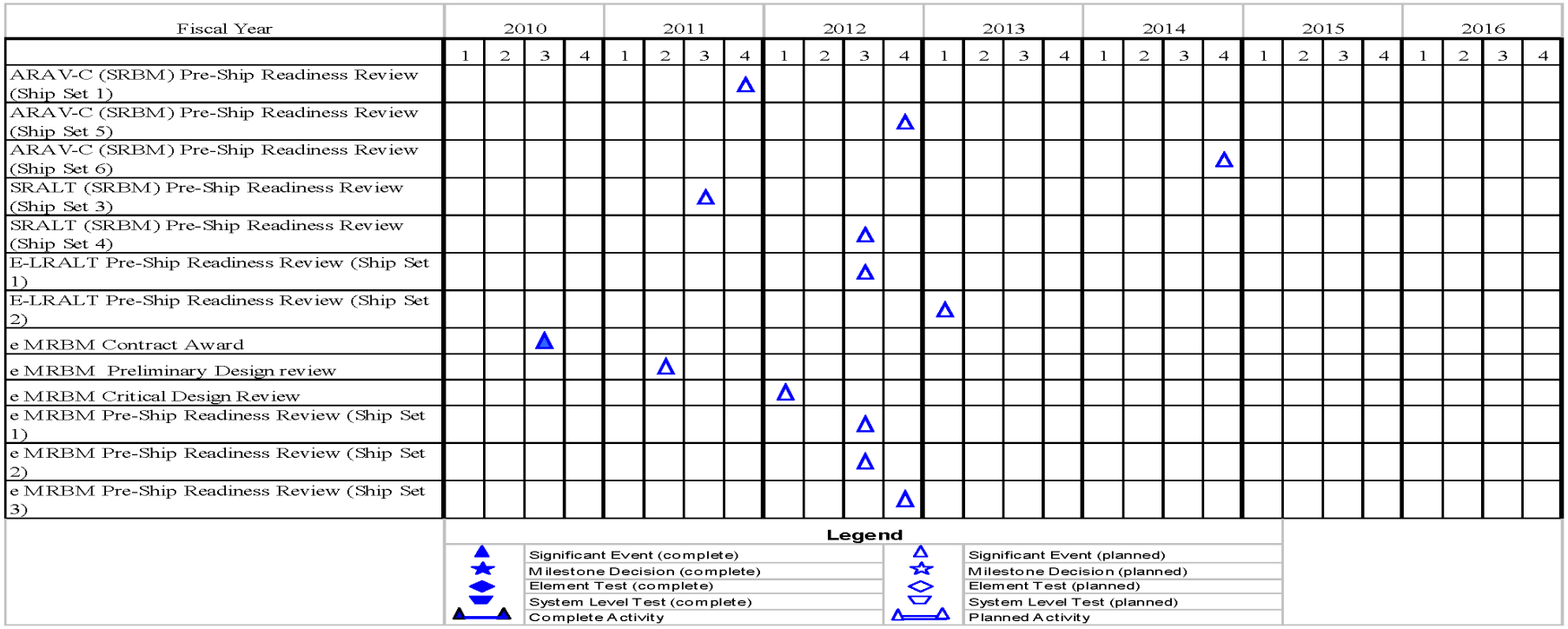

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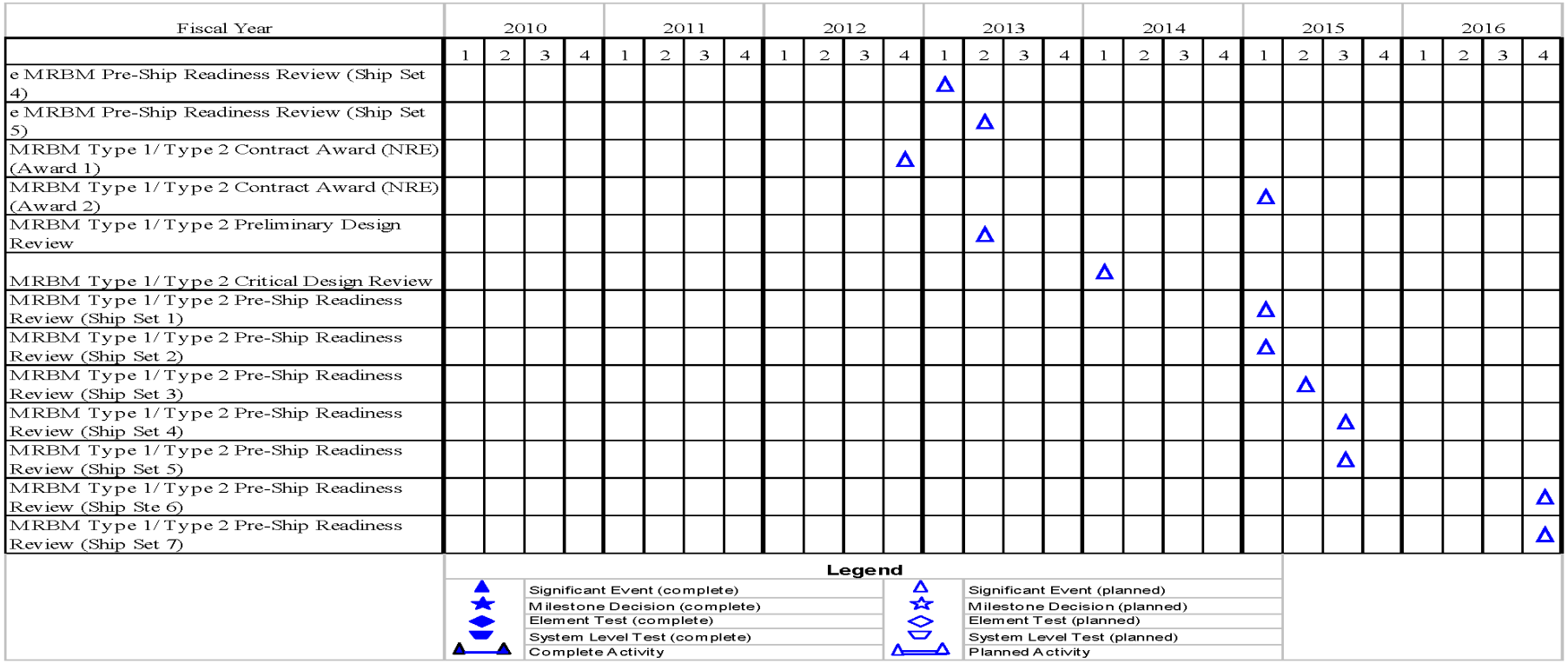

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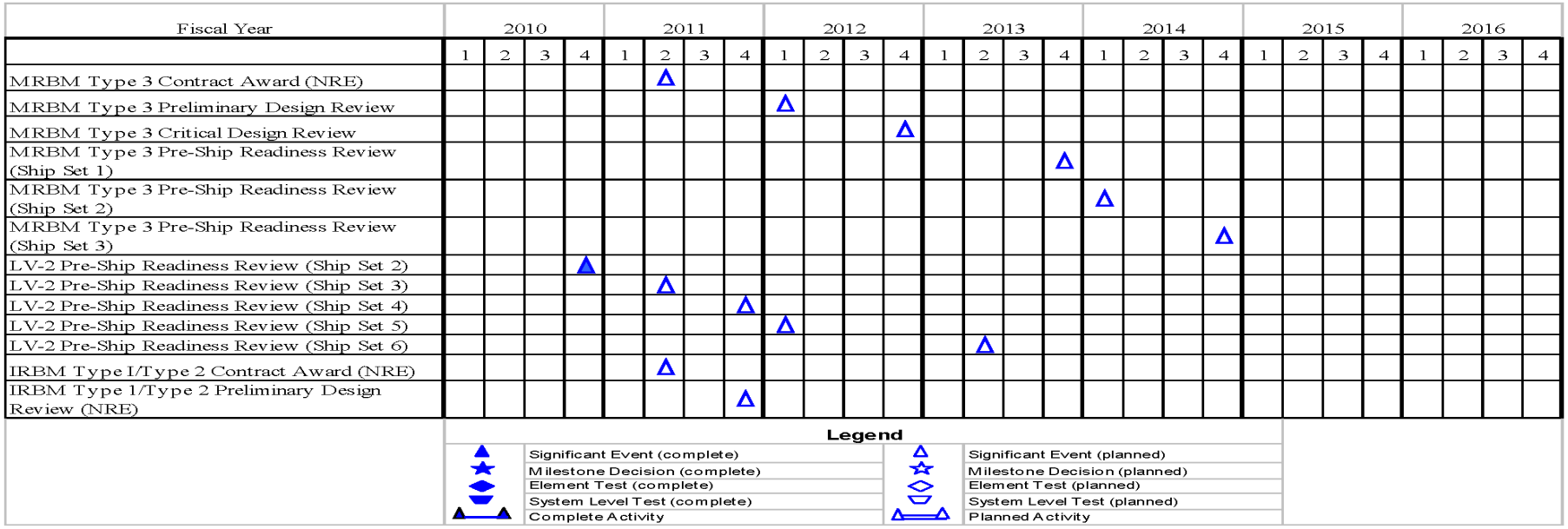

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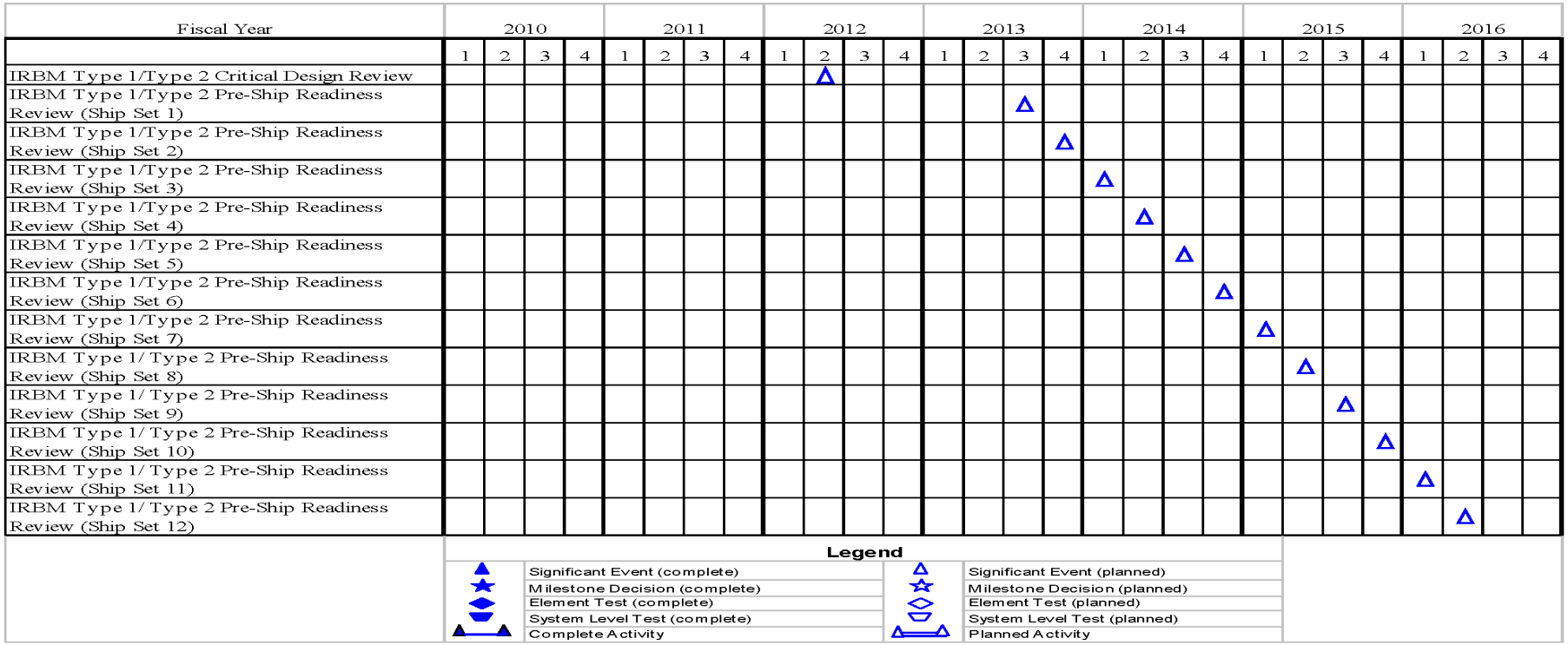

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
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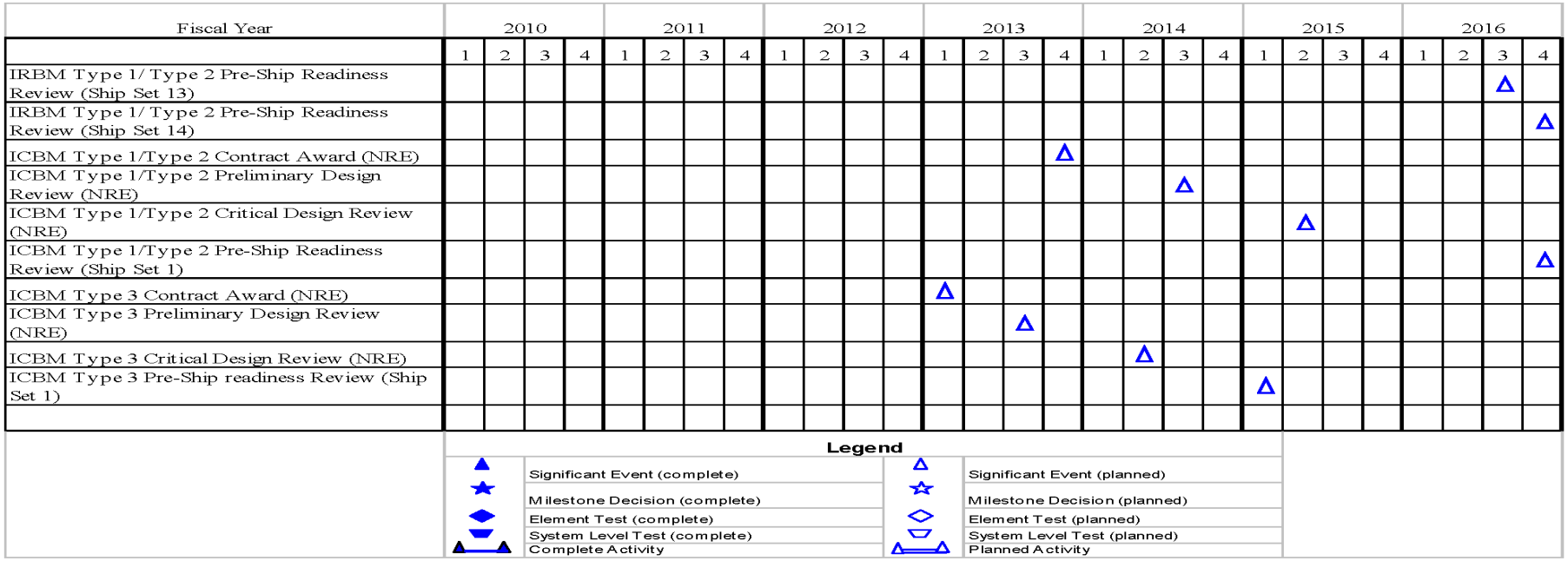

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603888C: *Ballistic Missile Defense Test and Targets*	**PROJECT** MD05: *Targets Program*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FMA-1 (SRBM) Pre-Ship Readiness Review (Ship Set 8)	1	2010	1	2010
FMA-1 (SRBM) Pre-Ship Readiness Review (Ship Set 9)	3	2010	3	2010
FMA-1 (SRBM) Pre-Ship Readiness Review (Ship Set 10)	3	2012	3	2012
FMA-1 (SRBM) Pre-Ship Readiness Review (Ship Set 11)	2	2015	2	2015
FMA-2 (SRBM)Pre-Ship Readiness Review (Ship Set 4)	1	2011	1	2011
FMA-2 (SRBM)Pre-Ship Readiness Review (Ship Set 3)	1	2011	1	2011
MRT (SRBM) Pre-Ship Readiness Review (Ship Set 7)	3	2011	3	2011
MRT (SRBM) Pre-Ship Readiness Review (Ship Set 9)	4	2010	4	2010
MRT (SRBM) Pre-Ship Readiness Review (Ship Set 10)	1	2011	1	2011
STRYPI (SRBM) Pre-Ship Readiness Review (Ship Set 1)	1	2011	1	2011
ARAV-A (SRBM) Pre-Ship Readiness Review (Ship Set 8)	2	2012	2	2012
ARAV-A (SRBM) Pre-Ship Readiness Review (Ship Set 9)	4	2012	4	2012
ARAV-A (SRBM) Pre-Ship Readiness Review (Ship Set 10)	4	2012	4	2012
ARAV-A (SRBM) Pre-Ship Readiness Review (Ship Set 11)	4	2012	4	2012
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 8)	2	2011	2	2011
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 9)	2	2011	2	2011
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 10)	4	2012	4	2012
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 11)	4	2012	4	2012
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 12)	4	2012	4	2012
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 13)	4	2014	4	2014
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 14)	4	2014	4	2014
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 15)	4	2014	4	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603888C: *Ballistic Missile Defense Test and Targets*	**PROJECT** MD05: *Targets Program*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ARAV-B (SRBM) Pre-Ship Readiness Review (Ship Set 16)	4	2014	4	2014
ARAV-C Critical Design Review (NRE)	3	2010	3	2010
ARAV-C (SRBM) Pre-Ship Readiness Review (Ship Set 3)	2	2011	2	2011
ARAV-C (SRBM) Pre-Ship Readiness Review (Ship Set 4)	2	2011	2	2011
ARAV-C (SRBM) Pre-Ship Readiness Review (Ship Set 1)	4	2011	4	2011
ARAV-C (SRBM) Pre-Ship Readiness Review (Ship Set 5)	4	2012	4	2012
ARAV-C (SRBM) Pre-Ship Readiness Review (Ship Set 6)	4	2014	4	2014
SRALT (SRBM) Pre-Ship Readiness Review (Ship Set 3)	3	2011	3	2011
SRALT (SRBM) Pre-Ship Readiness Review (Ship Set 4)	3	2012	3	2012
E-LRALT Pre-Ship Readiness Review (Ship Set 1)	3	2012	3	2012
E-LRALT Pre-Ship Readiness Review (Ship Set 2)	1	2013	1	2013
e MRBM Contract Award	3	2010	3	2010
e MRBM Preliminary Design review	2	2011	2	2011
e MRBM Critical Design Review	1	2012	1	2012
e MRBM Pre-Ship Readiness Review (Ship Set 1)	3	2012	3	2012
e MRBM Pre-Ship Readiness Review (Ship Set 2)	3	2012	3	2012
e MRBM Pre-Ship Readiness Review (Ship Set 3)	4	2012	4	2012
e MRBM Pre-Ship Readiness Review (Ship Set 4)	1	2013	1	2013
e MRBM Pre-Ship Readiness Review (Ship Set 5)	2	2013	2	2013
MRBM Type 1/ Type 2 Contract Award (NRE) (Award 1)	4	2012	4	2012
MRBM Type 1/ Type 2 Contract Award (NRE) (Award 2)	1	2015	1	2015
MRBM Type 1/ Type 2 Preliminary Design Review	2	2013	2	2013
MRBM Type 1/ Type 2 Critical Design Review	1	2014	1	2014
MRBM Type 1/ Type 2 Pre-Ship Readiness Review (Ship Set 1)	1	2015	1	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603888C: *Ballistic Missile Defense Test and Targets*	**PROJECT** MD05: *Targets Program*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MRBM Type 1/ Type 2 Pre-Ship Readiness Review (Ship Set 2)	1	2015	1	2015
MRBM Type 1/ Type 2 Pre-Ship Readiness Review (Ship Set 3)	2	2015	2	2015
MRBM Type 1/ Type 2 Pre-Ship Readiness Review (Ship Set 4)	3	2015	3	2015
MRBM Type 1/ Type 2 Pre-Ship Readiness Review (Ship Set 5)	3	2015	3	2015
MRBM Type 1/ Type 2 Pre-Ship Readiness Review (Ship Ste 6)	4	2016	4	2016
MRBM Type 1/ Type 2 Pre-Ship Readiness Review (Ship Set 7)	4	2016	4	2016
MRBM Type 3 Contract Award (NRE)	2	2011	2	2011
MRBM Type 3 Preliminary Design Review	1	2012	1	2012
MRBM Type 3 Critical Design Review	4	2012	4	2012
MRBM Type 3 Pre-Ship Readiness Review (Ship Set 1)	4	2013	4	2013
MRBM Type 3 Pre-Ship Readiness Review (Ship Set 2)	1	2014	1	2014
MRBM Type 3 Pre-Ship Readiness Review (Ship Set 3)	4	2014	4	2014
LV-2 Pre-Ship Readiness Review (Ship Set 2)	4	2010	4	2010
LV-2 Pre-Ship Readiness Review (Ship Set 3)	2	2011	2	2011
LV-2 Pre-Ship Readiness Review (Ship Set 4)	4	2011	4	2011
LV-2 Pre-Ship Readiness Review (Ship Set 5)	1	2012	1	2012
LV-2 Pre-Ship Readiness Review (Ship Set 6)	2	2013	2	2013
IRBM Type I/Type 2 Contract Award (NRE)	2	2011	2	2011
IRBM Type 1/Type 2 Preliminary Design Review (NRE)	4	2011	4	2011
IRBM Type 1/Type 2 Critical Design Review	2	2012	2	2012
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 1)	3	2013	3	2013
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 2)	4	2013	4	2013
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 3)	1	2014	1	2014
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 4)	2	2014	2	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603888C: *Ballistic Missile Defense Test and Targets*	**PROJECT** MD05: *Targets Program*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 5)	3	2014	3	2014
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 6)	4	2014	4	2014
IRBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 7)	1	2015	1	2015
IRBM Type 1/ Type 2 Pre-Ship Readiness Review (Ship Set 8)	2	2015	2	2015
IRBM Type 1/ Type 2 Pre-Ship Readiness Review (Ship Set 9)	3	2015	3	2015
IRBM Type 1/ Type 2 Pre-Ship Readiness Review (Ship Set 10)	4	2015	4	2015
IRBM Type 1/ Type 2 Pre-Ship Readiness Review (Ship Set 11)	1	2016	1	2016
IRBM Type 1/ Type 2 Pre-Ship Readiness Review (Ship Set 12)	2	2016	2	2016
IRBM Type 1/ Type 2 Pre-Ship Readiness Review (Ship Set 13)	3	2016	3	2016
IRBM Type 1/ Type 2 Pre-Ship Readiness Review (Ship Set 14)	4	2016	4	2016
ICBM Type 1/Type 2 Contract Award (NRE)	4	2013	4	2013
ICBM Type 1/Type 2 Preliminary Design Review (NRE)	3	2014	3	2014
ICBM Type 1/Type 2 Critical Design Review (NRE)	2	2015	2	2015
ICBM Type 1/Type 2 Pre-Ship Readiness Review (Ship Set 1)	4	2016	4	2016
ICBM Type 3 Contract Award (NRE)	1	2013	1	2013
ICBM Type 3 Preliminary Design Review (NRE)	3	2013	3	2013
ICBM Type 3 Critical Design Review (NRE)	2	2014	2	2014
ICBM Type 3 Pre-Ship readiness Review (Ship Set 1)	1	2015	1	2015

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603888C: *Ballistic Missile Defense Test and Targets*	PROJECT ZX40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
ZX40: *Program-Wide Support*	23.048	-	-	-	-	-	-	-	-	0.000	23.048
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11

A. Mission Description and Budget Item Justification

Project ZX40 has been transferred project MD40.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	23.048	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	23.048	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603888C: *Ballistic Missile Defense Test and Targets*	PROJECT MD40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	37.227	41.968	-	41.968	37.640	35.484	33.660	37.434	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). Includes Government Civilians, Advisory and Assistance Services, and Federally Funded Research and Development Contracts (FFRDC) providing integrity and oversight of the BMDS as well as supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2 after FY 2011), such as physical and technical security, legal services, travel and agency training, office and equipment leases, rents and utilities, data and unified communications support, supplies and maintenance, and similar operating expenses. Also includes legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.
In keeping with congressional intent, PWS is allocated among the PEs on a pro-rata basis and therefore fluctuates by year based on the total MDA budget and the individual PE`s budget amount.

Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($22,741).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	-	37.227	41.968
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($22,741).			
FY 2011 Plans: See paragraph A, Mission Description and Budget Item Justification			
FY 2012 Plans: See paragraph A, Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	37.227	41.968

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603888C: *Ballistic Missile Defense Test and Targets*	**PROJECT** MD40: *Program-Wide Support*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	355.870	402.769	373.563	-	373.563	331.203	314.193	336.749	346.560	Continuing	Continuing
YX24: *Systems Engineering & Integration*	94.785	-	-	-	-	-	-	-	-	0.000	94.785
MD24: *System Engineering & Integration*	-	124.040	133.890	-	133.890	97.521	101.666	111.826	112.062	Continuing	Continuing
YX28: *Intelligence & Security*	20.024	-	-	-	-	-	-	-	-	0.000	20.024
MD28: *Intelligence & Security*	-	15.905	18.865	-	18.865	16.773	15.627	15.226	16.195	Continuing	Continuing
YX29: *Producibility and Manufacturing Technology*	41.619	-	-	-	-	-	-	-	-	0.000	41.619
MD29: *Producibility & Manufacturing Technology*	-	36.575	-	-	-	-	-	-	-	0.000	36.575
YX30: *BMD Information Management Systems*	109.324	-	-	-	-	-	-	-	-	0.000	109.324
MD30: *BMD Information Management Systems*	-	111.829	116.508	-	116.508	112.919	96.783	105.018	109.678	Continuing	Continuing
YX31: *Modeling & Simulation*	47.478	-	-	-	-	-	-	-	-	0.000	47.478
MD31: *Modeling & Simulation*	-	64.623	56.617	-	56.617	59.393	57.473	62.187	63.775	Continuing	Continuing
YX32: *Quality, Safety, and Mission Assurance*	29.184	-	-	-	-	-	-	-	-	0.000	29.184
MD32: *Quality, Safety, and Mission Assurance*	-	32.881	33.045	-	33.045	30.725	28.548	28.091	30.078	Continuing	Continuing
ZX40: *Program-Wide Support*	13.456	-	-	-	-	-	-	-	-	0.000	13.456
MD40: *Program-Wide Support*	-	16.916	14.638	-	14.638	13.872	14.096	14.401	14.772	Continuing	Continuing

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Projects YX24, YX28, YX29, YX30, YX31, and YX32 for FY 2010 are now captured in Projects MD24, MD28, MD29, MD30, MD31, and MD32 for FY2011-FY2016.

Beginning in FY 2012, funding from MD29 was transferred to the SM-3 Block IIB Program Element (0603902C).

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*

For FY 2011-FY 2016, Ballistic Missile Defense Capability Assessment (BCA) portion of the Integrated Master Test Plan (IMTP) was transferred from Test and Targets (MD04) to Systems Engineering & Integration (MD24).

A. Mission Description and Budget Item Justification

The Ballistic Missile Defense (BMD) System Enabling Programs provide the Missile Defense Agency with the critical processes needed to integrate element missile defense systems into a layered BMDS providing the capability required by BMD Review, while improving protection performance with increased defended area, and minimizing force structure costs. The Enabling Programs, embedded within a single Program Element, independently evaluate the integrated BMD System methodology, threat, manufacturing maturity, technical safeguards, and mission assurance effectiveness while simultaneously assessing whether the System is proficient at maintaining its integrity and superiority with advances in technology development.

The MDA Enabling Programs are:

- (YX 24 & MD24) Systems Engineering and Integration - Systems Engineering and Integration leads the integration of the BMD System using Element and Component capabilities to provide the Warfighter with the ability to defend the United States and its friends and allies from ballistic missile attacks. Systems Engineering defines and develops integrated BMD System capability improvements such as Aegis Ashore through BMD level control of system requirements, and allocates those requirements to the Element and Component levels most capable of supporting intercepts in a particular Phased Adaptive Approach phase.
- (YX31 & MD31) Modeling and Simulation - As missile defense technologies continually advance and the threat changes, Modeling and Simulation develops system-level models, simulations, and environments, then evaluates performance of the Elements, Components, and overall BMD System.
- (YX 29 & MD29) Producibility and Manufacturing Technology - Producibility and Manufacturing provides technical assessments to ensure the production equipment and processes being used for the BMD System are technologically mature, while applying common approaches and best value engineering principals across the BMDS.
- (YX32 & MD32) Quality, Safety, and Mission Assurance - Quality, Safety, and Mission Assurance has the distinct management role of improving quality, safety, and mission assurance throughout the product life cycle of design, manufacturing, test and system operation, in order to achieve a safe and reliable BMD System.
- (YX28 & MD28) Intelligence and Security - Intelligence and Security provides the adversary data necessary for the development of the BMDS common threat. Accurate and timely threat data is necessary to enable technologically advanced system solutions and system performance predictions. Security is also provided as an Enabling Program to apply the same level of system capability protection across the entire BMDS.
- (YX30 & MD30) Information Management Systems - Information Management is vital to the efficient operation and safeguarding of all information, from development to fielding new BMDS capabilities.

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	358.751	402.769	468.673	-	468.673
Current President's Budget	355.870	402.769	373.563	-	373.563
Total Adjustments	-2.881	-	-95.110	-	-95.110
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	4.490	-			
• SBIR/STTR Transfer	-6.851	-			
• Other Adjustment Detail	-0.520	-	-95.110	-	-95.110

Change Summary Explanation

The FY 2012 $95.110 million dollar decrease in this program element is the result of the Propulsion Technology content and associated funding moving to the Standard Missile-3 Block IIB PE 0603902C, $21.924 million in efficiency savings and MDA programmatic changes.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT YX24: *Systems Engineering & Integration*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
YX24: *Systems Engineering & Integration*	94.785	-	-	-	-	-	-	-	-	0.000	94.785
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project YX24 transferred to Project MD24 in FY 2011.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD24 for FY 2010 Accomplishments	94.785	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	94.785	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD24: *System Engineering & Integration*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD24: *System Engineering & Integration*	-	124.040	133.890	-	133.890	97.521	101.666	111.826	112.062	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised Budget structure, the content previously planned in Project YX24 for FY 2010 is now captured in Project MD24 for FY 2011 - FY 2016.

For FY 2011 - FY 2016, the Ballistic Missile Defense System (BMDS) Capability Assessment (BCA) portion of the Integrated Master Test Plan (IMTP) was transferred from Test and Targets (MD04) to Systems Engineering & Integration (MD24).

A. Mission Description and Budget Item Justification

Systems Engineering and Integration (SE&I) continues to develop and improve the integrated Ballistic Missile Defense System architectures, engineer major improvements to regional Ballistic Missile Defense capabilities, and provide system improvements that enable earlier Ballistic Missile Defense engagements. SE&I develops technical roadmaps, knowledge points, and capability trades at the Ballistic Missile Defense System level to balance integration and improvement efforts. The SE&I workforce, including Industry and Contractor Support Services (CSS), also provides analysis, decision-making and planning activities for real-world operations to the White House, Joint Staff, Military Services, North Atlantic Treaty Organization (NATO), Combatant Commanders (Military Utility Assessment), Operational Test Agencies, Director of Operational Test and Evaluation, Allies, and others. Systems Engineering and Integration is the single team that applies its technical expertise, tools, and facilities across many disciplines and specialties to lead the collaborative effort to define, design, test and integrate the Ballistic Missile Defense System. System Engineering and Integration (SE&I) Major Program Goals:

-Develop, design, test and integrate the layered Ballistic Missile Defense System and improve Ballistic Missile Defense performance
-Develop a four-Phased Adaptive Approach architecture to respond to the rapid proliferation of short and medium range ballistic missiles, provide a more effective missile defense capability for North Atlantic Treaty Organization territories and enhance U.S. homeland defense.
-Develop the Ballistic Missile Defense System functional and performance requirements for the Phased Adaptive Approach
-Document the functional and performance requirements for the Phased Adaptive Approach in a Future Systems Capability document and Capability Planning Specifications
-Provide system-level support to the Elements for definition, design, and integration of the Ballistic Missile Defense System capabilities
-Provide technical direction to Element and Component developers
-Produce controlling specifications and analysis to drive the Ballistic Missile Defense System design
-Establish and enforce design and construction standards
-Lead collaborative and cross-Element and cross-Component engineering

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD24: *System Engineering & Integration*

Verify and Assess through testing and Ballistic Missile Defense System performance and capabilities

-Develop Ballistic Missile Defense System Performance Assessment parameters
-Identify the Critical Engagement Conditions and data required to develop the test campaigns that will demonstrate regional defense performance, and verify and assess the capability of each Phased Adaptive Approach
-Define the test objectives necessary to anchor Ballistic Missile Defense System-level models and simulations
-Monitor ground and flight test execution and identify Ballistic Missile Defense System issues
-Identify Ballistic Missile Defense System capabilities and limitations

Analyze Architecture Alternatives and New Technologies

-Provide detailed analysis to support MDA leadership and US policy decisions
-Pursue architecture alternatives that are complementary to and interoperable with North Atlantic Treaty Organization systems and other theaters around the world; more adaptable and flexible to counter threat advances; and that provide increased defended areas over time
-Develop architecture frameworks and operational concepts for emerging capabilities
-Establish technical roadmaps for future defense capabilities
-Leverage recent advances in sensor and interceptor technologies to aggressively counter growing regional threats with a more powerful and agile system
-Evaluate mature capabilities using Engineering and Manufacturing Readiness Level assessments to analyze risks in advance of manufacturing processes
-Develop anti-tamper approaches to enable international fielding of the Ballistic Missile Defense System

Products: Fundamental to the System Engineering and Integration (SE&I) approach is development, coordination, and dissemination of fully vetted products at each stage of the SE&I process. These products document and communicate key information such as: technical goals and objectives, design trades and resulting decisions to update system design and interface requirements; integration plans and schedules; test objectives that include the collection of data needed to anchor the system representative models and simulations, assessment through ground and flight test results and fielding plans. Ballistic Missile Defense Systems Engineering provides significant and thorough guidance through the Ballistic Missile Defense System Description Document (BMD SDD) and Ballistic Missile Defense System Specifications (BMD SS) for Elements to design, build, and integrate the Ballistic Missile Defense System. The Ballistic Missile Defense System Interface Control Documents (SICDs), the Capability Assessment Plan (CAP), the Modeling and Simulation Master Plan (MSMP), and the Master Integration Plan (MIP) provide additional guidance to the Ballistic Missile Defense System Elements and Components. A brief description of some of the remaining, yet equally essential, System Engineering products follows:

-Capability Needs Document (CND) - describes the future capability requirements at a high level
-Achievable Capabilities List (ACL) - a determination based on technology maturity, affordability, and emerging threat assessments of what capabilities desired by the Warfighter are achievable
-Adversary Capabilities Document (ACD) - provides an engineering threat reference that details overall feasible threat space and representative Systems, including countermeasures
-Analysis Guidance Document (AGD) - sets common analysis scenarios for system/Element/Component assessments and evaluations

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD24: *System Engineering & Integration*

-Future System Capability Document (FSCD) - documents the functional and performance objectives for future capabilities
-Capability Planning Specification (CPS) - documents the preliminary requirements for new programs and specific upgrades for the BMD System
-Adversary Data Package (ADP) - provides common and consistent threat data, including countermeasures, to drive Ballistic Missile Defense System weapon system designs, ground and flight tests, digital simulations, and pre-mission analysis
-Element/Component Characterizations for Analysis (E/CCA) - a database of Element, Component, and System-level performance parameters that ensure correct and consistent medium fidelity analysis inputs across the Agency System Engineering Assessment Report (SEAR) - annual end-of-year report on progress toward achieving capability objectives

Collaboration: System Engineering and Integration`s disciplined engineering process consists of setting technical objectives and goals, understanding the threat, exploring alternative system design concepts, performing design trades to update the Ballistic Missile Defense System Specification, implementing the updated requirements, verifying that the specified design is properly built, integrated and fielded, and then assessing how well the system meets performance goals. This process occurs in a collaborative environment in close partnership with key stakeholders such as the Element developers, Combatant Commands, and international partners. Systems Engineering and Integration further collaborates with the Director for Operations on the system content and activities described in the Ballistic Missile Defense System Single Acquisition Master Plan (SAMP).

The system engineering process defines required system-wide behavior, validates Element system designs, and assesses and verifies system capabilities in 5 stages: 1) Future concepts and planning; 2) Requirements and Design; 3) Integrated Master Test Plan Engineering; 4) Integration; and 5) Verification and Assessment. Additional engineering efforts which cross multiple stages of the system engineering process include the Countermeasures/Counter-countermeasures (CM/CCM), Threat Systems Engineering, Engineering Analysis and Quick Response Team, and Anti-Tamper and Engineering Manufacturing Readiness Levels Development programs.

The Ballistic Missile Defense System Future Concepts directorate conducts the first step stage of the System Engineering and Integration process and directs the enterprise-wide lethality program, which ensures lethality, post-engagement assessment (miss/hit/kill assessment), collateral effects (such as debris) and consequences (identified for use by other agencies to determine management/mitigation strategies) are accounted for throughout the engineering process.

The Design and Specification directorate performs the second step of the engineering process using data developed during the planning process and collaborates with the Ballistic Missile Defense System Element and Component engineers to develop functional performance, interface, and design suitability requirements. Using standard, commercially available system engineering tools, Design and Specification develops, defines, and specifies the detailed Ballistic Missile Defense System design. Design and Specification activities culminate in System/Subsystem Requirements Reviews to ensure correct technical execution and understanding needed to realize the Phased Adaptive Approach (PAA) and increase the flexibility and effectiveness of the Ballistic Missile Defense System.

Integration and Assessment conducts the third, fourth, and fifth stages of the Systems Engineering and Integration (SE&I) process to prove that Missile Defense works: 3) horizontal integration of software and hardware; 4) test integration, verification and model validation; and 5) operational assessments with the Warfighter to facilitate fielding. However, Integration and Assessment is involved in a coordinating role during the first two phases of SE&I, of formulating how the Elements and Components of the BMDS will be delivered and integrated for testing and capability delivery.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD24: *System Engineering & Integration*

Horizontal integration of software and hardware describes those system engineering activities and events required to structure and test new functionality as an integrated, seamless, end-to-end Ballistic Missile Defense capability. Systems Engineering and Integration (SE&I) builds a time-phased Master Integration Plan that defines integration phases for incremental Ballistic Missile Defense System capabilities and allocates to those integration phases the functionality and performance requirements captured in the Ballistic Missile Defense System Description Document and Ballistic Missile Defense System Specification. These bundled sets of capabilities, along with their associated model data validation requirements, form the basis of the required test program in the Integrated Master Test Plan and Ballistic Missile Defense System Level Testing. Horizontal integration includes participation in Element level design reviews to ensure Ballistic Missile Defense System specifications are being properly implemented.

During test integration, verification, and model validation, engineering studies and analyses enable the allocation of test requirements to individual test events, design of test architectures, definition of target requirements, and generation of appropriate scenarios for ground and flight tests, in order to collect the required model validation data. Along with the support of the Director of Operational Test and Evaluation (DOT&E), System Engineering and Integration works with the Services` Operational Test Agencies (OTA) to incorporate operational test requirements under development to ensure the incremental capability being transferred to the Warfighter will be operationally effective, suitable, and survivable. System Engineering and Integration participates in test failure review boards, identifies shortfalls in data collection, and reallocates objectives to future test events until all identified model validation data is collected. Suitability data is collected through the Joint Reliability and Maintainability Engineering Team (JRMET) and quarterly data scoring boards with the Elements, to Warfighter commanders and increases the confidence levels in the predicted performance of the Ballistic Missile Defense System.

Finally, System Engineering and Integration uses a compilation of flight tests, ground tests, performance assessments and other analyses as described in the Capability Assessment Plan to perform a technical assessment of the incrementally delivered capability, and provides a System Engineering Assessment Report (SEAR) summarizing the verification and assessment activities. This assessment activity links the Warfighter community and the Systems Engineering team, and provides sustaining engineering and analysis for configuration management, operations, and sustainment of Ballistic Missile Defense System capabilities. A permanent on-site presence in the Warfighter Support Center provides the Joint Functional Component Command-Integrated Missile Defense (JFCC-IMD) quick responses to Ballistic Missile Defense System operational capability questions. Additionally, Warfighter requested changes and modifications to the designed system are facilitated through the Prioritized Capabilities List, Modification and Fielding Request Lists, and the Warfighter Involvement Process, which is linked through Systems Engineering & Integration.

The Countermeasures/Counter-countermeasures (CM/CCM) program conducts tailored system engineering to facilitate Ballistic Missile Defense System capability improvement and works collaboratively with the Threat Systems Engineering team to synchronize and integrate adversary capability development efforts. The Adversary Engineering efforts determine the range of feasible engineering approaches an adversary could use to defeat or degrade the Ballistic Missile Defense System, identifies gaps and risk in Ballistic Missile Defense System performance, and develops conceptual countermeasures to exploit these potential shortfalls. Adversary Engineering is performed by the Red Team, an external organization funded by MDA that develops countermeasures based solely on information obtained from public domain sources.

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The Blue Team, comprised of Ballistic Missile Defense System, element, and Component technical experts, performed integrated performance and risk assessments of the Ballistic Missile Defense System (BMDS) against the projected adversary capabilities and conceptual countermeasures; identified and characterized counter-countermeasure options to mitigate Ballistic Missile Defense System (BMDS) risks posed by these adversary capabilities and countermeasures, and performed the system-level engineering required to identify the Ballistic Missile Defense System (BMDS) baseline changes to implement and integrate the options into the operational system baseline. The White Team, an team of senior experts, reviewed the adversary capabilities and conceptual countermeasures posed by the Black Team and risk assessments and mitigation approaches presented by the Blue Team; presented their independent assessments of performance risks associated with countermeasures to the MDA Director; and recommended priorities for MDA investments in counter-countermeasures that have a strong potential to mitigate these risks.

The Threat Systems Engineering team specifies adversary missile capabilities, defines parametric threat space, develops real world test scenarios, establishes system level and common and consistent threat data to support all five stages of the system engineering process, and provides threat input to key system engineering products such as the Ballistic Missile Defense System Description Document, System Specification, and the Integrated Master Test Plan. Threat Systems Engineering incorporates adversary missile capabilities and characterizations in the Adversary Data Packages (ADP) that drives Ballistic Missile Defense System design and analysis, ground tests, flight tests, digital simulations, and pre-mission analysis activities. Threat Systems engineering products directly support the Phased Adaptive Approach (PAA) and International Cooperative Programs such as the enhanced Israeli Interceptor program, US-Japan Cooperative Program, and other North Atlantic Treaty Organization cooperative programs.

The Engineering Analysis and Quick Response Team provides force-on-force effectiveness analyses, identification of system level gaps and shortfalls to defeat adversary capabilities, formulation of system alternatives and their relative contributions, engineering trade studies, Warfighter/war game analysis support, and rapid responses to senior Department (MDA Director/Deputy Director, Defense Secretary) and external (State Department, National Security Council) questions and scenarios. The team produces analyses for each stage of the systems engineering process, provides the technical basis and rationale for developing and balancing the integrated, layered Ballistic Missile Defense System, as well as performance predictions for each phase of the Phased Adaptive Approach.

The BMDS Engineering Technology Protection and Standards consists of three individual programs: Ballistic Missile Defense System, Anti-Tamper, and Engineering Manufacturing Readiness Levels (EMRLs). The goal of the Ballistic Missile Defense System Anti-Tamper program is to provide protection against reverse engineering of Ballistic Missile Defense System critical technologies. Robust Anti-Tamper solutions support coalition warfare and extend the effective operational life of the Ballistic Missile Defense System. The application of engineering and Manufacturing Readiness levels provides a means of evaluating the engineering and manufacturing maturity of the Ballistic Missile Defense System elements, systems, and components, by assessing the program or product against quantifiable criteria.

BMDS Level Testing: In conjunction with the Director for Test, the Director for Engineering supplies test objectives that define the basic test development and ensure BMDS requirements are being met by the BMD System under test. Systems Engineering plays a key role in Ballistic Missile Defense test design and development through definition and tracking of the Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs), as documented in the Integrated Master Test Plan (IMTP). The CECs and EMEs ensure that the design of the BMDS test includes data collection to show proper system operation; they also provide validation, verification, and assessment data for the digital models and simulations used to predict Ballistic Missile Defense System performance. These models, along with the rigorous test and verification process, will inform fielding decisions and operations.

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System Pre- and Post-Flight Reconstruction: System Engineering and Integration (SE&I) supports System Pre-Flight predictions for system level flight tests using the test framework set up with the Ballistic Missile Defense System configuration for a particular flight test. This provides confidence in Flight Test execution by predicting element performance and exercising element interfaces. This work also ensures the flight test will collect the required data (including CECs and EMEs) and the data management plan will support System Post-Flight Reconstruction (SPFR) objectives. System Post-Flight Reconstruction uses a hardware-in-the-loop (HWIL) and/or a Digital Modeling and Simulation Environment to replicate the day of flight for the Ballistic Missile Defense System configuration, including the actual environmental conditions and target dynamics observed in the test. The results of this process increase confidence in the models and simulations by anchoring the results to the real world event, with emphasis on the Critical Engagement Conditions and Empirical Measurement Events. System Post-Flight Reconstruction is used for validation (anchoring) of models and simulations.

Interdependencies: Integrated ballistic missile defense capabilities draw on space-, land-, and sea-based assets operated by multiple Services to provide the most accurate track of enemy ballistic missile threats that may cross regions and fly higher and faster, as well as a more diverse and effective set of weapons and sensors for the Combatant Commander to defeat the attack; all connected by a unifying Command and Control Battle Management and Communications (C2BMC). Integrated Ballistic Missile Defense capabilities can result in an effort funded in one Program Element being critical to the success of efforts in other Program Elements. Such results are referred to as interdependencies. Throughout the budget justification material, System Engineering`s interdependencies with the MDA directorates and the Ballistic Missile Defense System Elements and Components are highlighted in order to explain fully the relationship between different parts of the proposed program.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Future Concepts and Planning	-	11.754	8.033
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for FY 2010 accomplishments is reported in prior year Budget Project YX24 ($5,254) -Provided updates to the Ballistic Missile Defense (BMD) System Description Document (SDD) for new capabilities, including the Phased Adaptive Approach (PAA) -Developed and updated Capability Needs Documents (CNDs) for the Phased Adaptive Approach -Developed and updated Capability Planning Specifications (CPSs) for the Phased Adaptive Approach -Drafted Future System Concepts Document -Conducted three System Concept Reviews (SCRs) for Phased Adaptive Approach -Maintained the Systems Engineering Plan -Executed approved Agency Lethality Plan -Updated Technical Objectives and Goals (TOG) measurement standards -Provided first principle Verification and Validation Plan for first principle code Virtual Data			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Developed and executed full scale United States/United Kingdom (US/UK) Numerical Test Bed benchmark tests ***FY 2011 Plans:*** -Complete the future capability System Concept review (Part 3) refining the baseline for the future BMDS architecture and the allocation of functional and performance requirements -Conduct analyses and support analysis of alternatives for Precision Tracking Space System, Standard Missile 3 Block IIB, and Airborne Infrared planning -Update the Future Systems Capability Document based on results of ongoing trade studies and architectural balancing activities -Update the Capability Planning specifications for Precision Tracking Space System (PTSS) and the future Command and Control, Battle Management, and Communications (C2BMC) Components -Support the execution of the Aegis Weapon System 5.1 BMD Standard Missile-3 (SM-3) Block IIA System Requirements Review -Conduct joint United States/United Kingdom virtual debris data benchmark testing that provides unique, threat representative, data points crucial in anchoring first principle and fast running debris prediction codes -Conduct two sub-scale virtual debris data benchmark tests against non-reentry vehicle objects -Complete work to add uncertainty estimation to virtual debris data predictions -Add ability to predict small debris to increase accuracy and fidelity of radar debris scene modeling -Provide 50+ virtual debris data sets to fill debris modeling data gaps -Assess and add emerging threats to Missile Defense Agency lethality prediction models -Support the North Atlantic Treaty Organization Consequence of Intercept Analysis team (COIAT) with intercept consequence technical analysis -Maintain the Ballistic Missile Defense System (BMDS) System Engineering Plan ensuring synchronization of Element System Engineering Plans with the document ***FY 2012 Plans:*** -Update the concept capability documentation based on results of ongoing trade studies and technology development experiments -Refine the Capability Planning specifications for Precision Tracking Space System (PTSS) and the future C2BMC components -Support technology development reviews for Precision Tracking Space System (PTSS), and Standard Missile-3 (SM-3) Block IIB and ABIR in support of follow on development efforts. -Develop the Capability Planning Specification for the Aegis 5.x weapon system & the Standard Missile 3 (SM-3) Block IIB -Produce an updated Ballistic Missile Defense System Lethality Program Plan to encompass lethality assessment, collateral effects and consequences -Assess and add emerging threats to Missile Defense Agency lethality prediction models			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Support Defense Threat Reduction Agency (DTRA)/Missile Defense Agency efforts to provide consequence model predictive capabilities -Maintain the System Engineering Plan ensuring synchronization of Element System Engineering Plans with the System document			
Title: Countermeasures/Counter-Countermeasures (CM/CCM)	-	1.000	-
Articles:	0	0	
Description: See Description Below			
FY 2010 Accomplishments: Funding for FY 2010 accomplishments is reported in prior year Budget Project YX24 ($1,785) -Completed the discrimination and lethality enhancement study of changes to the Ballistic Missile Defense System Technical Baseline and engineering trades to enhance existing Ballistic Missile Defense System integrated system discrimination capabilities -Continued characterization of adversary countermeasures capabilities and phenomenology related to design, employment, and performance of countermeasures to kill vehicles and Forward-Based Radars (FBRs). -Completed study on the lethality of kill vehicles and potential advanced discrimination techniques to improve Ballistic Missile Defense System (BMDS) lethality			
FY 2011 Plans: -Initiate the characterization of the Ballistic Missile Defense System architecture and elements assessed to be employed in the defense of Europe from ballistic missile attack based solely on open sources of information, basic scientific principles, and engineering judgment -Define three generic threat systems that may be encountered in a defense of Europe -Assess the European defense architecture for potential weaknesses and vulnerabilities -Initiate development of conceptual countermeasures to exploit assessed weaknesses -Initiate assessment of Ballistic Missile Defense System capabilities in regional engagement scenarios against short to intermediate range adversary ballistic missiles			
Title: Requirements and Design	-	26.843	30.653
Articles:	0	0	0
Description: See Description Below			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: Funding for FY 2010 accomplishments is reported in prior year Budget Project YX24 ($21,505) -Supported System Design Reviews following Element Preliminary Design Reviews to determine the maturity of the technical baseline and plans for integration, test and verification prior to execution -Performed technical evaluation of emerging adversary characteristics to be included within future Adversary Data Packages (ADPs) -Developed revised Ballistic Missile Defense System Specification Document, and Ballistic Missile Defense System Interface Control Documents to document content approved for design initiation or refinement and integration into the Ballistic Missile Defense System (BMDS) and concepts demonstrating the most potential for improving Ballistic Missile Defense System (BMDS) effectiveness and integrated them into Ballistic Missile Defense System (BMDS) program planning -Conducted engineering analyses and performed trade studies for system design and implementation products to include Ballistic Missile Defense System Interface Control Documents -Provided updated requirements traceability and certification guidance and conducted detailed System/Element requirements reconciliation to resolve technical disconnects and ensured common requirements understanding and intent ***FY 2011 Plans:*** -Conduct Engineering Reviews for MDA Engineering: -Conduct Ballistic Missile Defense System/Subsystem Design Reviews following Element Requirement Reviews to assess the maturity of the technical baseline at both the System and Subsystem levels, as well as the plans for integration, test and verification prior to execution -Continue technical evaluation of emerging adversary characteristics to be included within future Adversary Data Packages (ADP) -Develop updates to the Ballistic Missile Defense System Description Document, Ballistic Missile Defense System Specifications, and Ballistic Missile Defense System Interface Control Documents to document integrated system build content approved for design, development and integration -Conduct engineering analyses and perform trade studies for system design and development products to include Ballistic Missile Defense System Specification and Ballistic Missile Defense System Interface Control Documents -Provide updated requirements traceability and certification guidance and conduct detailed System/Element requirements reconciliation to resolve technical disconnects and ensure common System/Element requirements interpretation ***FY 2012 Plans:*** -Conduct Engineering Reviews for MDA Engineering, which include new Phased Adaptive Approach capabilities:			

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD24: *System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Conduct Ballistic Missile Defense System/Subsystem Design Reviews following Element Requirement Reviews to assess the maturity of the technical baseline at both the System and Subsystem levels, as well as the plans for integration, test and verification prior to execution -Ensure requirements for the new Phased Adaptive Approach capabilities are adequately addressed -Continue technical evaluation of emerging adversary characteristics to be included within future Adversary Data Packages -Develop updates to the Ballistic Missile Defense System Description Document, Ballistic Missile Defense System Specification, and Ballistic Missile Defense System Interface Control Documents to document integrated system build content approved for design, development and integration, including new Phased Adaptive Approach capabilities (e.g., Phase III and IV documentation in the Ballistic Missile Defense System Description Document) -Conduct engineering analyses and perform trade studies for system design and development products, including the Ballistic Missile Defense System Specification and Ballistic Missile Defense System Interface Control Documents -Provide updated requirements traceability and certification guidance and conduct detailed System/Element requirements reconciliation to resolve technical disconnects and ensure common System/Element requirements interpretation			
Title: IMTP Engineering, Integration, Verification and Assessment	-	23.173	22.265
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** Funding for FY 2010 accomplishments is reported in prior year Budget Project YX24 ($22,801) -Provided system-level engineering inputs to Integration Task Forces charged with facilitating the design, integration, test and fielding of cross-cutting integrating capabilities (e.g., Concurrent Test, Training, and Operation, Discrimination Capability Engineering, and Engage on System Track) -Updated the Master Integration Plan (MIP) to incorporate changes in planned delivery of Ballistic Missile Defense System content, and the Planning Allocation Matrix (PAM) tool to enable 2010-2015 integration, test, and assessment and verification activities. The Master Integration Plan defines the integration phases for incremental Ballistic Missile Defense System capabilities and allocates the functionality and performance requirements captured in the Ballistic Missile Defense System Description Document and Ballistic Missile Defense System -Assessed test risks and tracked and resolved anomalies occurring in ground testing in order to reduce flight test risks -Provided engineering inputs for Integrated Master Test Plan (IMTP) updates -Defined test objectives and provided scenario support for all system-level test events, including identification of Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs)			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Defined and executed required performance assessments to provide information needed for Capability Delivery Readiness Reviews and incremental capability deliveries -Conducted integration, provided test execution support, and verified Phased Adaptive Approach (PAA) capabilities ***FY 2011 Plans:*** -Update the Master Integration Plan (MIP) to incorporate changes in planned delivery of Ballistic Missile Defense System content -Provide engineering inputs for Integrated Master Test Plan updates using the Planning Allocation Matrix (PAM) tool to identify integration, test, assessment, and verification activities -Provide test definition, risk assessment, and anomaly and test incident report review, assessment, and closure to enable execution of the ground and flight test program -Allocate and track Critical Engagement Condition (CEC) and Empirical Measurement Events (EME) data requirements and sufficiency for ground and flight tests in accordance with the Integrated Master Test Plan -Define test objectives and evaluation criteria for all system level test events -Design and certify scenarios for Ground Test Events to meet required data collection and satisfy System Engineering and Integration, Operational Test Agencies, and Warfighter objectives -Collect Ballistic Missile Defense System suitability data through the Joint Reliability and Maintainability Engineering Team (JRMET) Data Scoring Boards -Define and execute required performance assessments to support incremental capability deliveries -Provide monthly updates for Ballistic Missile Defense System verification status ***FY 2012 Plans:*** -Update the Master Integration Plan (MIP) to incorporate changes in planned delivery of Ballistic Missile Defense System content -Provide engineering inputs for Integrated Master Test Plan updates using the Planning Allocation Matrix (PAM) tool to identify integration, test, assessment, and verification activities -Collect Ballistic Missile Defense System Suitability Data through the Joint Reliability and Maintainability Engineering Team (JRMET) Data Scoring Boards -Define and execute required performance assessments to support incremental capability deliveries -Provide monthly updates for Ballistic Missile Defense System verification status -Conduct BMD System Critical Design Review to document requirements used for performance assessments of incremental deliveries.			
Title: Systems Engineering, Engineering Analysis and Quick Response Team	-	28.024	43.328
Articles:	0	0	0
Description: See Description Below			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: Funding for FY 2010 accomplishments is reported in prior year Budget Project YX24 ($20,296) -Conducted system-level performance analyses to support the Ballistic Missile Defense System (BMDS) architecture and Systems Engineering -Developed expected BMD System performance for each Phased Adaptive Approach (PAA) stage as input to system architecture and design efforts -Updated Element/Component Characterizations for Analysis (E/CCA) to ensure consistent inputs for system performance predictions -Continued to maintain the Effectiveness Metrics Standard (EMS) necessary for systematic presentation of alternatives to MDA senior leadership and the Combatant Commanders (COCOMs) and Services -Provided engineering technical assessments in Ballistic Missile Defense System (BMDS) and Element programs to examine critical areas as designated by the MDA`s Director for Engineering -Provided analysis and assessment support to the Combatant Commands to respond to Warfighter requests for analyses and requests for information -Conducted performance analyses to support MDA summer studies ***FY 2011 Plans:*** -Conduct system level performance analysis to support Ballistic Missile Defense System Architecture and Systems Engineering -Develop expected BMD System performance for each Phased Adaptive Approach phase as input to System architecture and design effort -Provide analysis in support of various BMD System Reviews -Update the Element/Component Characterizations for Analysis (E/CCA) with latest performance data to improve capability -Maintain the Effective Metrics Standard (EMS) necessary for systematic presentation of alternatives to MDA senior leaders and the Combatant Commanders -Provide engineering technical assessments in Ballistic Missile Defense System and Element programs to examine critical areas as designated by the Director for Engineering -Provide analysis and assessment support to the Combatant Commands to respond to Warfighter requests for analyses and requests for information ***FY 2012 Plans:*** -Conducts overall Systems Engineering and Integration program operations and management. -Conduct system level performance analysis to support Ballistic Missile Defense System Architecture and Systems Engineering			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Develop expected performance for each Phased Adaptive Approach phase as input to System architecture and design effort -Conduct technical analyses and provide engineering assessments of the Standard Missile 3 Block IIB -Update the Element/Component Characterizations for Analysis (E/CCA) with latest performance data to improve capability -Maintain the Effective Metric Standard (EMS) necessary for systematic presentation of alternatives to MDA senior leaders and the Combatant Commanders -Provide engineering technical assessments in Ballistic Missile Defense System and Element programs to examine critical areas as designated by the Director for Engineering -Provide analysis and assessment support to the Combatant Commands to respond to Warfighter requests for analyses and requests for information			
Title: Threat Engineering	-	9.978	3.205
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for FY 2010 accomplishments is reported in prior year Budget Project YX24 ($15,223) -Maintained and updated the agency-wide common and consistent Ballistic Missile Defense System (BMDS) threat to provide data for future Ballistic Missile Defense System (BMDS) design, verification, and assessment -Continued to update adversary missile capabilities and characterizations consistent with projected threat environment for the Ballistic Missile Defense System (BMDS) Builds -Produced all the threat data required to enable Ballistic Missile Defense System (BMDS) System Ground Test (GT-03), FY-10 Ballistic Missile Defense System (BMDS) Performance Assessment (PA-04) and Technical Assessment-10 (TA-10), and Fiscal Year 2010 wargames and exercises as documented in the Ballistic Missile Defense System (BMDS) Integrated Master Test Plan (IMTP) -Produced scenario data for Element and Component design and assessment for Ballistic Missile Defense System (BMDS) Build-D updates, including all phases of the Phased Adaptive Approach (PAA) -Developed threat data for special projects -Validated that Ballistic Missile Defense System (BMDS) test targets for Joint Flight Test, Standard Missile-3 (JFTM-03), Flight Test, Ground-Based Interceptor-06 (FTG-06), and Flight Test, Terminal High Altitude Area Defense (THAAD) Interceptor-11/12 (FTT-11/12) are threat representative			
FY 2011 Plans:			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Develop a parametric threat space to support all phases of the BMDS Phased Adaptive Approach -Maintain and update the agency-wide common and consistent Ballistic Missile Defense System threat to provide data for future Ballistic Missile Defense System design, verification, and assessment -Update adversary missile capabilities and characterizations consistent with projected threat environment for the Ballistic Missile Defense System Phased Adaptive Approach (PAA) -Produce all the threat data required to enable Ballistic Missile Defense System Ground Tests for Phased Adaptive Approach Phase-1, Flight Tests, Ballistic Missile Defense System Performance Assessment, war games and exercises as documented in the Ballistic Missile Defense System Integrated Master Test Plan -Produce parametric threat space and scenario data for Element and Component design and assessment for Ballistic Missile Defense System in accordance to the Phased Adaptive Approach -Develop threat data for special projects -Deliver analysis of threat representations of Ballistic Missile Defense System test targets, including analysis for Flight Test, Ground-Based Interceptor-06a (FTG-06a), Flight Test, Standard Missile-15 (FTM-15), and Flight Test, Terminal High Altitude Area Defense (THAAD)-24 (FTT-24) ***FY 2012 Plans:*** -Maintain and update the agency-wide common and consistent Ballistic Missile Defense System threat to provide data for future Ballistic Missile Defense System design, verification, and assessment -Update adversary missile capabilities and characterizations consistent with projected threat environment for the Ballistic Missile Defense System Phased Adaptive Approach			
Title: Anti-Tamper and Engineering Manufacturing Readiness Levels Development	-	4.587	6.521
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** Funding for FY 2010 accomplishments is reported in prior year Budget Project YX29 ($3,091) -Evaluated software modification effort started in FY 2008 to determine its likely effectiveness against reverse engineering -Developed protective anti-tamper technologies focused on key management, authentication, and active-response (penalties) for the Ballistic Missile Defense System (BMDS) -Developed low/no power anti-tamper technologies to enable active response capabilities for the Ballistic Missile Defense System (BMDS) -Evaluated performance of multiple integrated anti-tamper technologies			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD24: *System Engineering & Integration*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Conducted assessments on anti-tamper technologies to evaluate likely effectiveness -Initiated transition plans and tailor above anti-tamper technologies for utilization on and protection of the Ballistic Missile Defense System (BMDS) -Worked with the Ballistic Missile Defense System (BMDS) to identify critical technologies and identify anti-tamper solutions ***FY 2011 Plans:*** -Evaluate software modification efforts to determine likely effectiveness against reverse engineering -Develop low/no power Anti-Tamper technologies to enable active response and sensing capabilities for the Ballistic Missile Defense System -Evaluate performance of multiple integrated Anti-Tamper technologies Engineering and Manufacturing Readiness Levels (EMRLs): -Apply Engineering and Manufacturing Readiness Levels as a means of evaluating the engineering and manufacturing maturity of the Ballistic Missile Defense System elements, systems, and components, by assessing the program or product against quantifiable criteria -Use Engineering and Manufacturing Readiness Levels to assess the maturity of MDA development programs, and to report readiness for transition to production, in a standard format across all MDA Elements ***FY 2012 Plans:*** Anti-Tamper: -Evaluate software modification efforts to determine likely effectiveness against reverse engineering -Develop low/no power Anti-Tamper technologies to enable active response and sensing capabilities for the Ballistic Missile Defense System -Evaluate performance of multiple integrated Anti-Tamper technologies Engineering and Manufacturing Readiness Levels (EMRLs): -Apply Engineering and Manufacturing Readiness Levels as a means of evaluating the engineering and manufacturing maturity of the Ballistic Missile Defense System elements, systems, and components, by assessing the program or product against quantifiable criteria			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Use Engineering and Manufacturing Readiness Levels to assess the maturity of Missile Defense Agency (MDA) development programs, and to report readiness for transition to production, in a standard format across all MDA Elements			
Title: Independent Technical Assessment	-	11.043	9.324
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for FY 2010 accomplishments is reported in prior year Budget Project YX04 ($4,830) -The Ballistic Missile Defense System Capability Assessment (BCA) Team performed independent analyses and assessments for the MDA Director, and for the MDA Director for Engineering. These assessments included Failure Investigations, system architecture studies, and test event data analysis. -The BCA Team conducted non-advocate assessments of Ballistic Missile Defense System (BMDS) capabilities and fielding readiness, including independent reviews of BMDS Test Incident Reports, evaluation of modeling and simulation status, and identification of unverified failures. -The Ballistic Missile Defense System Capability Assessment (BCA) Team identified mitigation approaches for system performance issues -The Ballistic Missile Defense System Capability Assessment (BCA) Team lead the Collaborative Analysis and Assessment Forum (CAAF) consisting of Users and Stakeholders (e.g., Operational Test Agency, Engineering Verification Team, and BCA Team) for the Performance Assessment digital simulation event. Produced an assessment of the system-level digital simulation model fidelity using flight test and post-flight reconstruction runs in Hardware-in-the-Loop.			
FY 2011 Plans: -Perform independent analyses and assessments for the MDA Director and MDA Director for Engineering including Failure Investigations, system architecture studies, and test event data analysis. -Conduct non-advocate assessments of the BMDS capabilities and limitations prior to capability delivery decisions to determine fielding readiness. These assessments include Defense of the Homeland, Defense of Israel and Theater/Regional BMD. -Conduct extensive, first-hand analysis of all data collected in BMD test events (digital, hardware-in-the-loop, and flight test). Analysis is key to developing understanding of BMD operations and performance. -Identify mitigation approaches for system performance issues uncovered during the course of analysis and assessment.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Monitor the progress in improving digital simulation Performance Assessment events and produce an independent assessment of the validity of the models and simulations. -Produce independent assessments of each Capability Delivery for Terminal High Altitude Defense, Patriot, Aegis Ballistic Missile Defense (BMD), forward-based Army-Navy Transportable Radar Surveillance (AN/TPY-2) and Command, Control, Battle Management and Communications (C2BMC) in support of fielding readiness for Phased Adaptive Approach. ***FY 2012 Plans:*** -Conduct non-advocate assessments of the BMDS capabilities and limitations prior to capability delivery decisions to determine fielding readiness. These assessments include Defense of the Homeland, Phased Adaptive Approach (PAA), Defense of Israel and Theater/Regional BMD configurations (e.g., SITE B). -Perform independent analyses and assessments for the MDA Director and MDA Director for Engineering including investment prioritization, system architecture studies, design reviews, and failure investigations. -Monitor the development and recommend improvements to the digital simulation enterprise based on an evaluation of the validity of component-, Element- and System-level models (and frameworks) and participation in Performance Assessment and other digital Modeling and Simulation events.			
Title: Knowledge Centers ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** Funding for Knowledge Centers was not previously identified in FY10 (YX24). ***FY 2011 Plans:*** -Identified and mitigated BMDS element (C2BMC, Interceptor, Space, and Sensor) technical risks, and served as independent technical advisors to the BMDS program offices. -Provided independent review of BMDS Knowledge Point closure, and participated in Failure Review Boards as necessary. ***FY 2012 Plans:*** -Identify and mitigate BMDS element (C2BMC, Interceptor, Space, and Sensor) technical risks, and serve as independent technical advisors to BMDS program offices. -Provide independent review of BMDS Knowledge Point closure, and participate in Failure Review Boards as necessary.	- 0	7.638 0	9.443 0
Title: Risk Management ***Articles:***	- 0	- 0	1.118 0

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Description: See Description Below ***FY 2010 Accomplishments:*** Funding for Risk Management was not previously identified in FY10 (YX24) ***FY 2011 Plans:*** Funding for Risk Management was not previously identified in FY11 (MD24) ***FY 2012 Plans:*** -Review, approve and configuration manage program risks across the BMDS.			
Accomplishments/Planned Programs Subtotals	-	124.040	133.890

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	82.926	86.198	69.325		69.325	64.514	55.808	56.769	54.621	Continuing	Continuing

D. Acquisition Strategy

NA

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Future Concepts and Planning Industry MD24	C/CPAF	Boeing:VA	5.074	6.329	Oct 2010	4.326	Oct 2011	-		4.326	Continuing	Continuing	Continuing
Future Concepts and Planning CSS MD24	C/CPFF	Cobham:CA	2.859	2.027	Oct 2010	1.385	Oct 2011	-		1.385	Continuing	Continuing	Continuing
Future Concepts and Planning FFRDC/UARC MD24	MIPR	SNL:CA	0.579	0.363	Oct 2010	0.248	Oct 2011	-		0.248	Continuing	Continuing	Continuing
Future Concepts and Planning FFRDC/UARC MD24	MIPR	LLNL:CA	0.696	0.408	Oct 2010	0.279	Oct 2011	-		0.279	Continuing	Continuing	Continuing
Future Concepts and Planning CSS MD24	C/CPFF	CSC:VA	3.143	2.263	Oct 2010	1.546	Oct 2011	-		1.546	Continuing	Continuing	Continuing
Future Concepts and Planning Various MD24	MIPR	Various:Various	0.430	0.364	Oct 2010	0.249	Oct 2011	-		0.249	Continuing	Continuing	Continuing
Countermeasures/Counter-Countermeasures (CM/CCM) CSS MD24	C/CPFF	CSC:VA	0.548	0.265	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
Countermeasures/Counter-Countermeasures (CM/CCM) CSS - 2009876285863 MD24	C/CPFF	Cobham:CA	0.548	0.133	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
Countermeasures/Counter-Countermeasures (CM/CCM) FFRDC/UARC MD24	MIPR	IDA:VA	0.126	0.038	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
Countermeasures/Counter-Countermeasures (CM/CCM) FFRDC/UARC - 2009876285872 MD24	MIPR	MIT-LL:MA	-	0.480	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
	C/CPFF	STS, LLC:VA	0.169	0.084	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Countermeasures/Counter-Countermeasures (CM/CCM) CSS MD24													
Countermeasures/Counter-Countermeasures (CM/CCM) Industry MD24	C/CPAF	Boeing:VA	0.716	-		-		-		-	Continuing	Continuing	Continuing
Requirements and Design Industry MD24	C/CPAF	Boeing:VA	15.970	15.125	Oct 2010	17.274	Oct 2011	-		17.274	Continuing	Continuing	Continuing
Requirements and Design CSS MD24	C/CPFF	CSC:VA	4.571	5.408	Oct 2010	6.174	Oct 2011	-		6.174	Continuing	Continuing	Continuing
Requirements and Design CSS - 2009876311542 MD24	C/CPFF	Cobham:CA	3.784	4.845	Oct 2010	5.532	Oct 2011	-		5.532	Continuing	Continuing	Continuing
Requirements and Design FFRDC/UARC MD24	MIPR	MIT/LL:MA	0.777	0.474	Oct 2010	0.542	Oct 2011	-		0.542	Continuing	Continuing	Continuing
Requirements and Design Other DoD MD24	MIPR	NSWC:IN	1.880	0.904	Oct 2010	1.032	Oct 2011	-		1.032	Continuing	Continuing	Continuing
Requirements and Design FFRDC/UARC MD24	MIPR	LLNL:CA	0.103	0.087	Oct 2010	0.099	Oct 2011	-		0.099	Continuing	Continuing	Continuing
Requirements and Design FFRDC/UARC - 20111166101531 MD24	MIPR	JHU-APL:VA	2.274	-		-		-		-	Continuing	Continuing	Continuing
IMTP Engineering, Integration, Verification and Assessment Industry MD24	C/CPAF	Boeing:VA	5.160	11.819	Oct 2010	15.371	Oct 2011	-		15.371	Continuing	Continuing	Continuing
IMTP Engineering, Integration, Verification and Assessment CSS MD24	C/CPFF	CSC:VA	2.528	4.403	Oct 2010	2.000	Oct 2011	-		2.000	Continuing	Continuing	Continuing
IMTP Engineering, Integration, Verification and Assessment CSS - 2009876330489 MD24	C/CPFF	Cobham:CA	2.731	3.939	Oct 2010	2.000	Oct 2011	-		2.000	Continuing	Continuing	Continuing
IMTP Engineering, Integration, Verification and	FFRDC	JHU APL:VA	0.903	2.086	Oct 2010	2.004	Oct 2011	-		2.004	Continuing	Continuing	Continuing

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Support ($ in Millions)

				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 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
Assessment FFRDC/UARC - 2009876330497 MD24													
IMTP Engineering, Integration, Verification and Assessment FFRDC/UARC - 2009876330502 MD24	MIPR	MITRE:VA	0.201	0.463	Oct 2010	0.445	Oct 2011	-		0.445	Continuing	Continuing	Continuing
IMTP Engineering, Integration, Verification and Assessment FFRDC/UARC - 2009876330508 MD24	MIPR	SNL:CA	0.302	0.463	Oct 2010	0.445	Oct 2011	-		0.445	Continuing	Continuing	Continuing
IMTP Engineering, Integration, Verification and Assessment FFRDC MD24	MIPR	Aerospace:CA	0.405	-		-		-		-	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team Industry MD24	C/CPAF	Boeing:VA	5.081	21.299	Oct 2010	32.929	Oct 2011	-		32.929	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team CSS MD24	C/CPFF	CSC:VA	2.752	2.802	Oct 2010	4.333	Oct 2011	-		4.333	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team CSS - 2009876376622 MD24	C/CPFF	Cobham:CA	2.752	2.242	Oct 2010	3.466	Oct 2011	-		3.466	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team FFRDC/UARC MD24	MIPR	Aerospace:VA	0.487	-	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team FFRDC/UARC - 2009876376631 MD24	MIPR	MITRE:VA	1.207	1.681	Oct 2010	2.600	Oct 2011	-		2.600	Continuing	Continuing	Continuing

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Systems Engineering, Engineering Analysis and Quick Response Team FFRDC/UARC - 2009876376636 MD24	FFRDC	JHU-APL:VA	0.767	-	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team FFRDC/UARC MD24	MIPR	MIT/LL:MA	0.434	-	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
Systems Engineering, Engineering Analysis and Quick Response Team FFRDC/UARC - 20107176282869 MD24	MIPR	LLNL:CA	0.293	-	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
Threat Engineering CSS MD24	C/CPFF	CSC:VA	1.246	1.905	Oct 2010	0.612	Oct 2011	-		0.612	Continuing	Continuing	Continuing
Threat Engineering CSS - 2009876348723 MD24	C/CPFF	Cobham:CA	0.706	1.890	Oct 2010	0.607	Oct 2011	-		0.607	Continuing	Continuing	Continuing
Threat Engineering FFRDC/ UARC MD24	FFRDC	JHU APL:VA	0.861	0.704	Oct 2010	0.226	Oct 2011	-		0.226	Continuing	Continuing	Continuing
Threat Engineering FFRDC/ UARC - 2009876348731 MD24	MIPR	MIT-LL:MA	1.379	3.032	Oct 2010	0.974	Oct 2011	-		0.974	Continuing	Continuing	Continuing
Threat Engineering FFRDC/ UARC - 2009876348736 MD24	MIPR	SNL:CA	1.448	2.030	Oct 2010	0.652	Oct 2011	-		0.652	Continuing	Continuing	Continuing
Threat Engineering FFRDC/ UARC MD24	MIPR	LLNL:CA	0.448	0.417	Oct 2010	0.134	Oct 2011	-		0.134	Continuing	Continuing	Continuing
Threat Engineering CSS MD24	C/CPFF	Schafer:VA	3.389	-		-		-		-	Continuing	Continuing	Continuing
Threat Engineering Industry MD24	C/CPAF	Boeing:VA	2.783	-		-		-		-	Continuing	Continuing	Continuing
Anti-Tamper and Engineering Manufacturing Readiness	MIPR	NSWC Crane:IN	1.070	1.604	Oct 2010	2.280	Oct 2011	-		2.280	Continuing	Continuing	Continuing

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Levels Development Anti-Tamper Support MD24													
Anti-Tamper and Engineering Manufacturing Readiness Levels Development CSS/ Travel MD24	C/CPFF	DRC, Cobham:CA	1.531	0.561	Oct 2010	0.798	Oct 2011	-		0.798	Continuing	Continuing	Continuing
Anti-Tamper and Engineering Manufacturing Readiness Levels Development Commonality and Standards MD24	C/CPFF	DRAPER:MA	0.400	2.422	Oct 2010	3.443	Oct 2011	-		3.443	Continuing	Continuing	Continuing
Independent Technical Assessment FFRDC/UARC MD24	MIPR	Aerospace:CA	5.843	2.762	Oct 2010	2.331	Oct 2011	-		2.331	Continuing	Continuing	Continuing
Independent Technical Assessment FFRDC/UARC - 20091295307334 MD24	FFRDC	JHU APL:VA	2.200	1.546	Oct 2010	1.305	Oct 2011	-		1.305	Continuing	Continuing	Continuing
Independent Technical Assessment FFRDC/UARC - 20091295307338 MD24	FFRDC	Draper :MA	1.446	-		-	Oct 2011	-		-	Continuing	Continuing	Continuing
Independent Technical Assessment FFRDC/UARC - 20091295307342 MD24	MIPR	GTRI:GA	3.681	1.656	Oct 2010	1.399	Oct 2011	-		1.399	Continuing	Continuing	Continuing
Independent Technical Assessment FFRDC/UARC - 20091295307347 MD24	MIPR	JPL:CA	0.931	-		-	Oct 2011	-		-	Continuing	Continuing	Continuing
Independent Technical Assessment FFRDC/UARC - 20091295307352 MD24	MIPR	MIT/LL:MA	7.214	3.202	Oct 2010	2.704	Oct 2011	-		2.704	Continuing	Continuing	Continuing
Independent Technical Assessment FFRDC/UARC - 20091295307356 MD24	MIPR	MITRE:VA	4.243	1.877	Oct 2010	1.585	Oct 2011	-		1.585	Continuing	Continuing	Continuing
	MIPR	ORNL:TN	0.746	-		-	Oct 2011	-		-	Continuing	Continuing	Continuing

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Independent Technical Assessment FFRDC/UARC - 20091295307359 MD24													
Independent Technical Assessment FFRDC/UARC - 20091295307364 MD24	MIPR	LLNL:CA	0.240	-		-	Oct 2011	-		-	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/ UARC MD24	MIPR	Aerospace:CA	-	1.912	Oct 2010	2.365	Oct 2011	-		2.365	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/ UARC - 20111165433044 MD24	MIPR	MIT/LL:MA	-	1.050	Oct 2010	1.298	Oct 2011	-		1.298	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/ UARC - 20111165433048 MD24	FFRDC	MITRE:VA	-	0.812	Oct 2010	1.004	Oct 2011	-		1.004	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/ UARC - 20111165433055 MD24	FFRDC	JHU/APL:VA	-	0.967	Oct 2010	1.195	Oct 2011	-		1.195	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/ UARC - 20111165433058 MD24	FFRDC	SDL:MA	-	0.096	Oct 2010	0.119	Oct 2011	-		0.119	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/ UARC - 20111165433063 MD24	MIPR	Draper:MA	-	0.755	Oct 2010	0.933	Oct 2011	-		0.933	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/ UARC - 20111165433067 MD24	MIPR	GTRI:GA	-	1.009	Oct 2010	1.247	Oct 2011	-		1.247	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/ UARC - 20111165433072 MD24	MIPR	JPL:CA	-	0.490	Oct 2010	0.606	Oct 2011	-		0.606	Continuing	Continuing	Continuing
Knowledge Centers FFRDC/ UARC - 20111165433077 MD24	MIPR	ORNL:TN	-	0.382	Oct 2010	0.472	Oct 2011	-		0.472	Continuing	Continuing	Continuing
	MIPR	SEI:PA	-	0.064	Oct 2010	0.079	Oct 2011	-		0.079	Continuing	Continuing	Continuing

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Knowledge Centers FFRDC/ UARC - 2011116543308 MD24													
Knowledge Centers OGA MD24	MIPR	ARMDEC:AB	-	0.025	Oct 2010	0.031	Oct 2011	-		0.031	Continuing	Continuing	Continuing
Knowledge Centers Other MD24	MIPR	Northrop Grumman:VA	-	0.076	Oct 2010	0.094	Oct 2011	-		0.094	Continuing	Continuing	Continuing
Risk Management CSS MD24	C/CPFF	Cobham:CA	-	-		0.656	Oct 2011	-		0.656	Continuing	Continuing	Continuing
Risk Management Other MD24	MIPR	DAU:VA	-	-		0.026	Oct 2011	-		0.026	Continuing	Continuing	Continuing
Risk Management Other - 20111165612359 MD24	MIPR	MDA/DOI:VA	-	-		0.044	Oct 2011	-		0.044	Continuing	Continuing	Continuing
Risk Management FFRDC/ UARC MD24	MIPR	MITRE:VA	-	-		0.392	Oct 2011	-		0.392	Continuing	Continuing	Continuing
		Subtotal	112.055	124.040		133.890		-		133.890			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
IMTP Engineering, Integration, Verification and Assessment BMDS Level Testing MD24	C/CPAF	Boeing:VA	12.057	-		-		-		-	Continuing	Continuing	Continuing
IMTP Engineering, Integration, Verification and Assessment BMDS Level Testing - 20098275381727 MD24	C/CPFF	CSC:VA	2.462	-		-		-		-	Continuing	Continuing	Continuing
IMTP Engineering, Integration, Verification and Assessment BMDS Level Testing - 20098275381733 MD24	FFRDC	JHU APL:VA	1.731	-		-		-		-	Continuing	Continuing	Continuing
	C/CPAF	Boeing:VA	4.585	-		-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD24: *System Engineering & Integration*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Threat Engineering Industry MD24													
Threat Engineering CSS MD24	C/CPFF	CSC:VA	1.974	-		-		-		-	Continuing	Continuing	Continuing
Threat Engineering CSS - 201089633513 MD24	C/CPFF	Cobham:CA	1.385	-		-		-		-	Continuing	Continuing	Continuing
		Subtotal	24.194	-		-		-		-			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	136.249	124.040		133.890		-		133.890			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD24: *System Engineering & Integration*

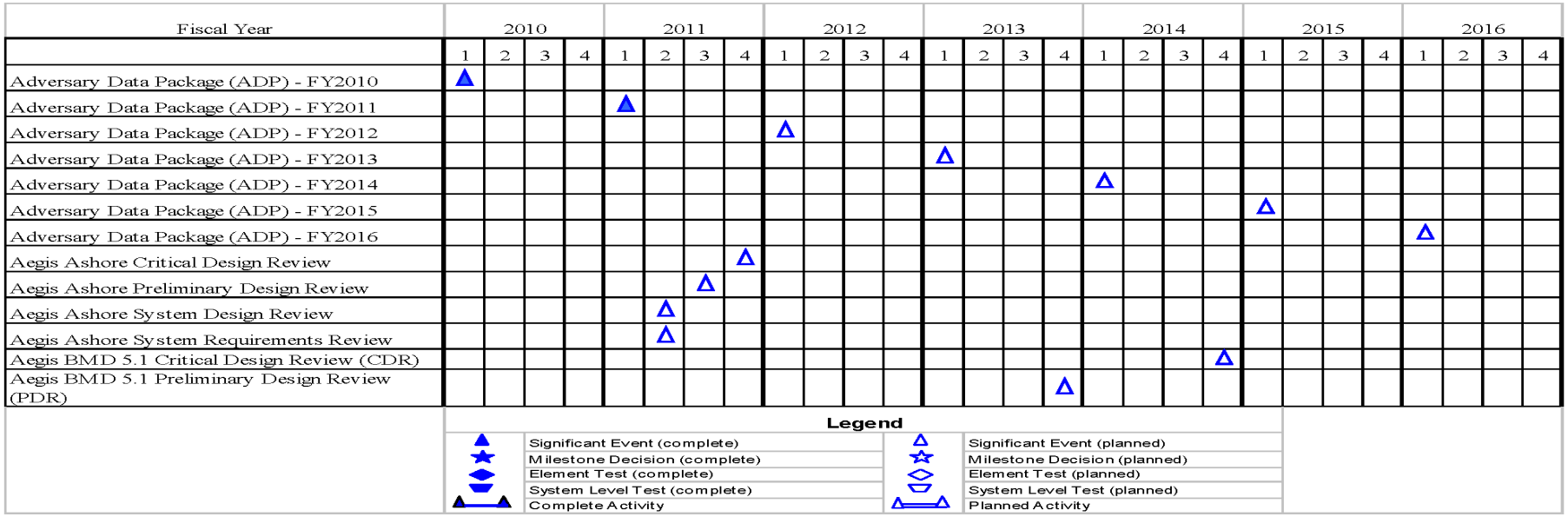

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD24: *System Engineering & Integration*

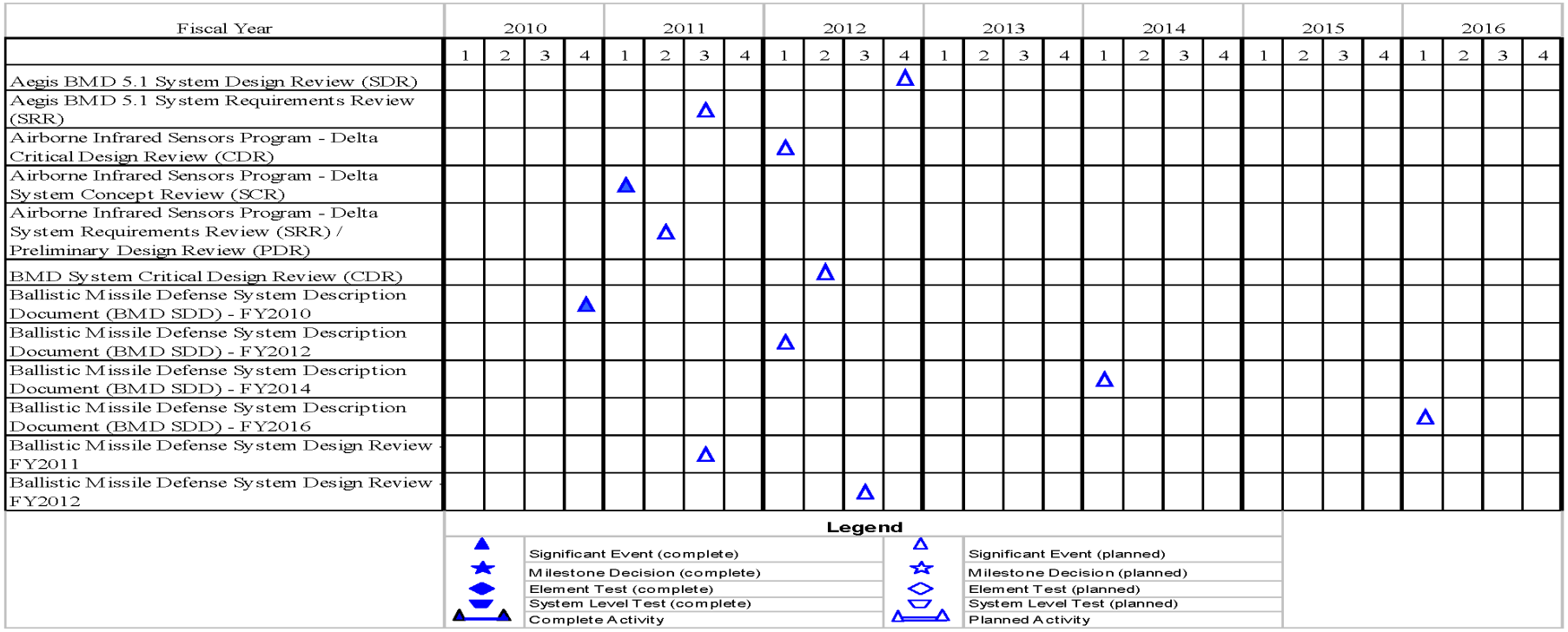

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD24: *System Engineering & Integration*

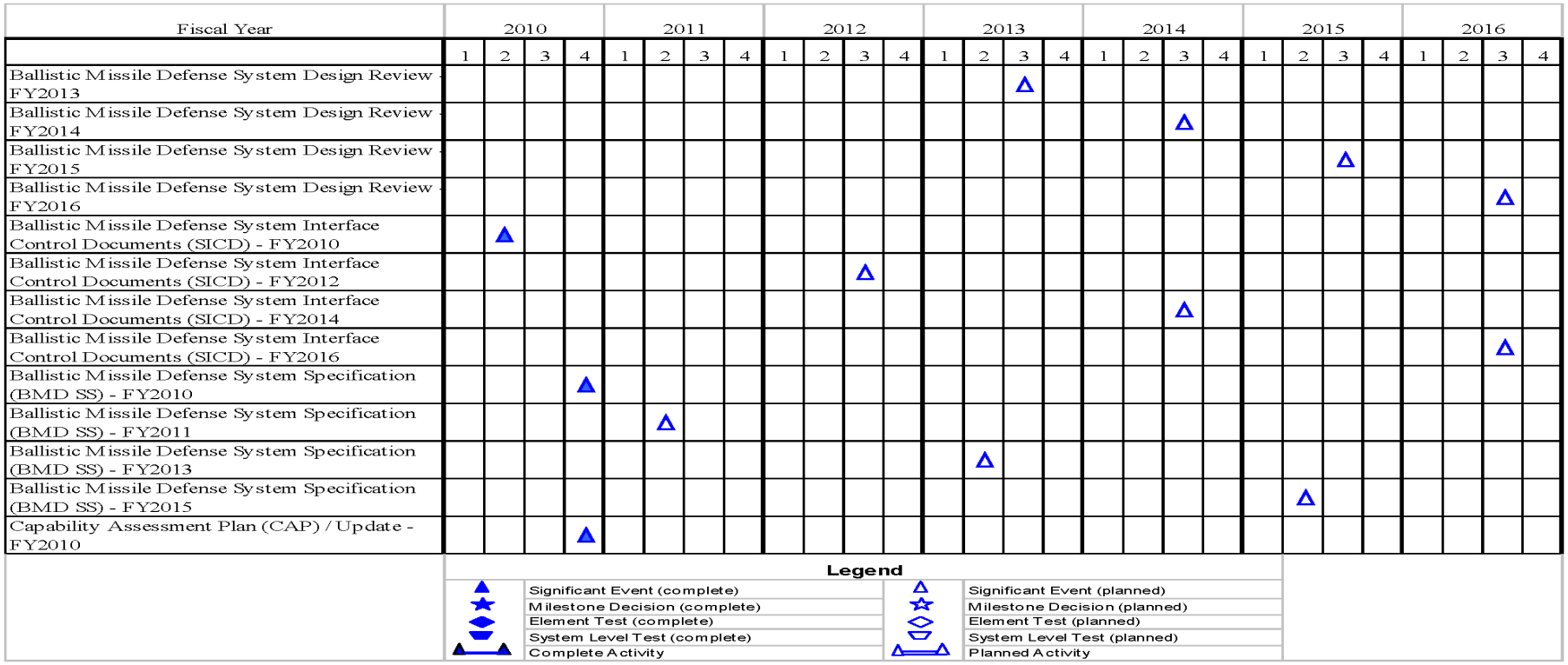

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD24: *System Engineering & Integration*

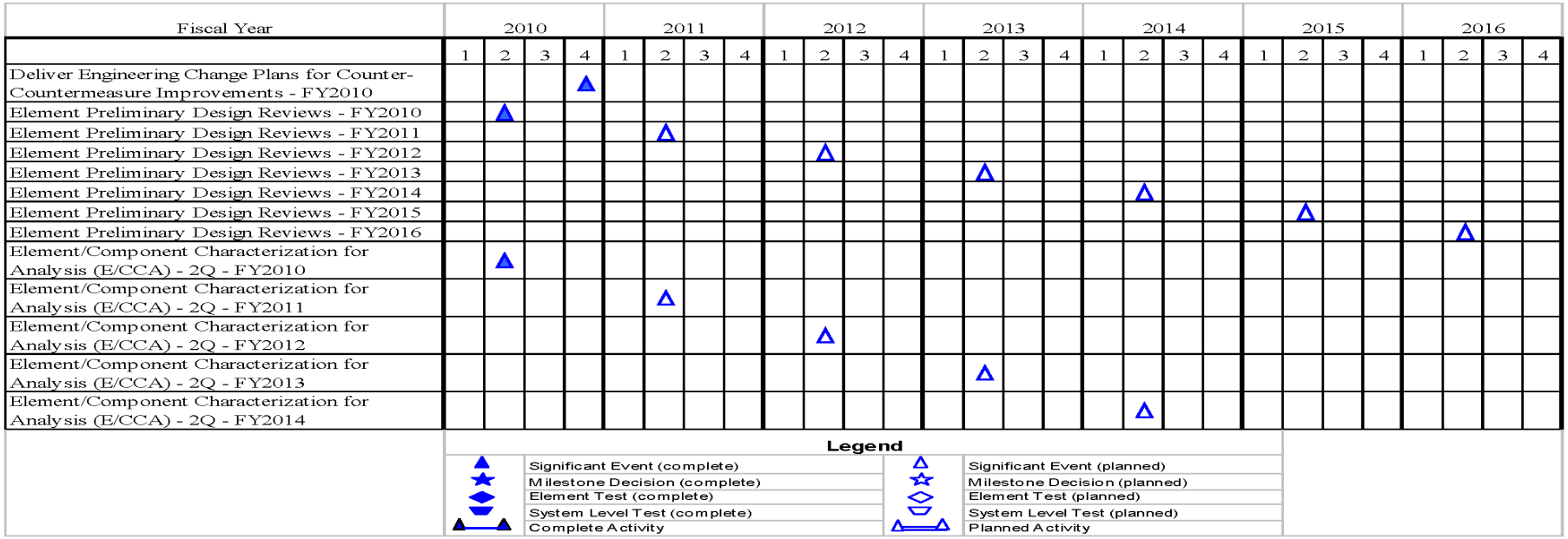

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD24: *System Engineering & Integration*

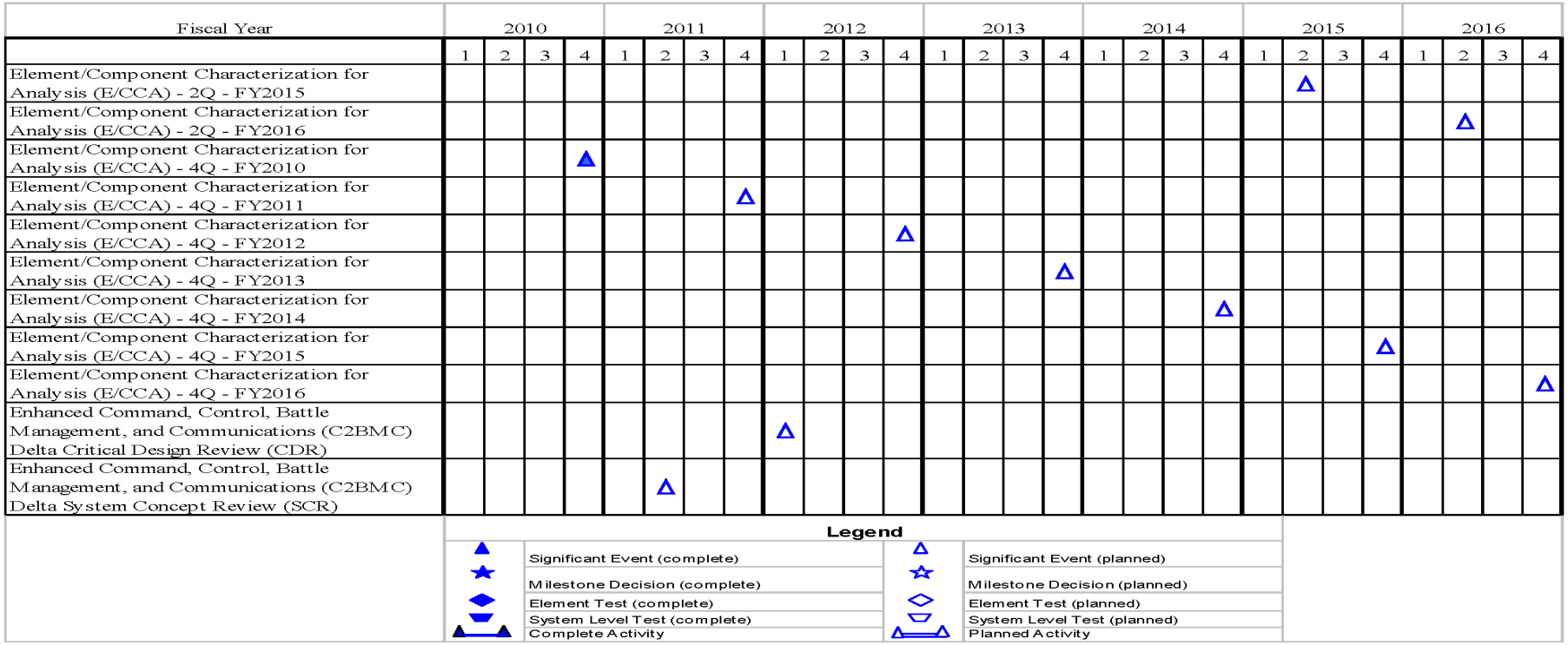

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD24: *System Engineering & Integration*

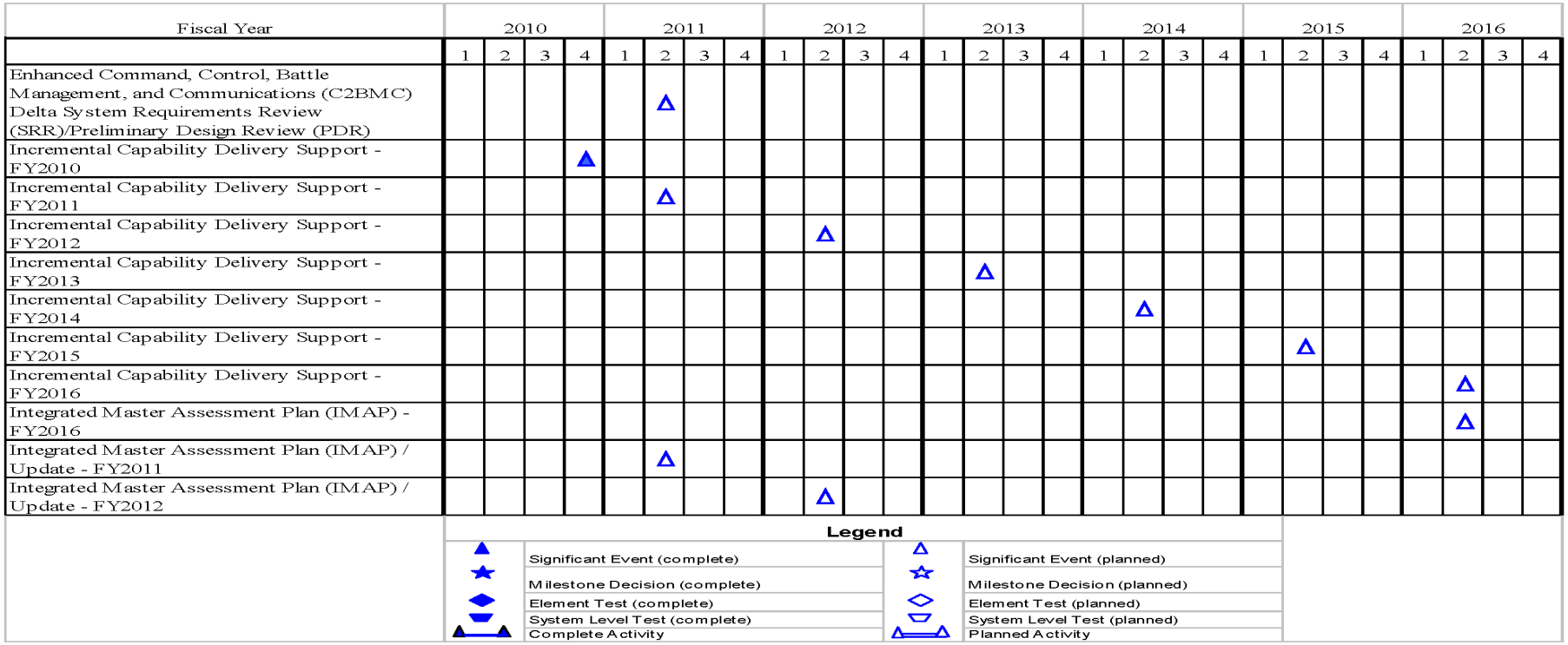

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		**DATE:** February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD24: *System Engineering & Integration*

Fiscal Year	2010				2011				2012				2013				2014				2015				2016			
	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 Master Assessment Plan (IMAP) / Update - FY2013														△														
Integrated Master Assessment Plan (IMAP) / Update - FY2014																		△										
Integrated Master Assessment Plan (IMAP) / Update - FY2015																						△						
Master Integration Plan (MIP) - FY2010				▲																								
Master Integration Plan (MIP) - FY2011								△																				
Master Integration Plan (MIP) - FY2012												△																
Master Integration Plan (MIP) - FY2013																△												
Master Integration Plan (MIP) - FY2014																				△								
Master Integration Plan (MIP) - FY2015																								△				
Master Integration Plan (MIP) - FY2016																												△
Phased Adaptive Approach (PAA) Capability Planning Specifications (CPS) - FY2010				▲																								
Phased Adaptive Approach (PAA) Capability Planning Specifications (CPS) - FY2011-PTSS						△																						
Phased Adaptive Approach (PAA) Capability Planning Specifications (CPS) - FY2011-C2BMC								△																				

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

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD24: *System Engineering & Integration*

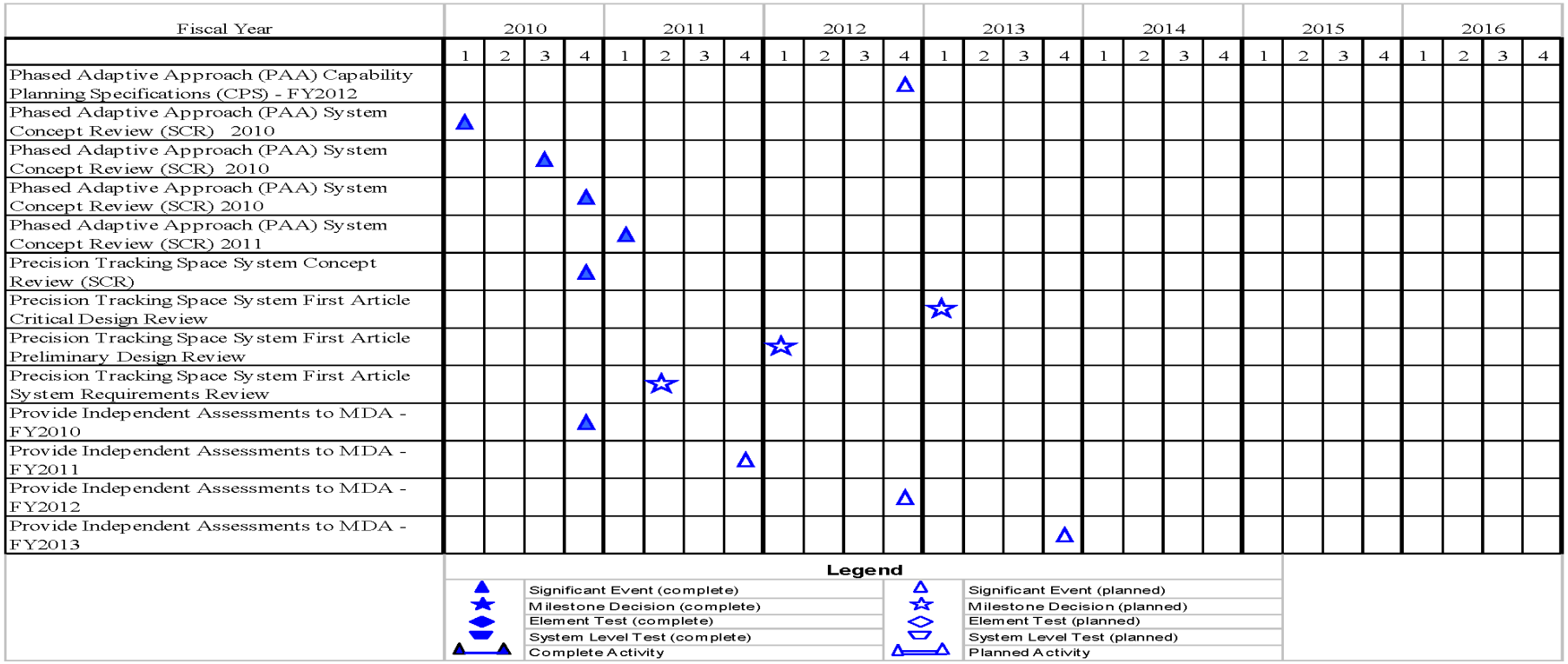

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD24: *System Engineering & Integration*

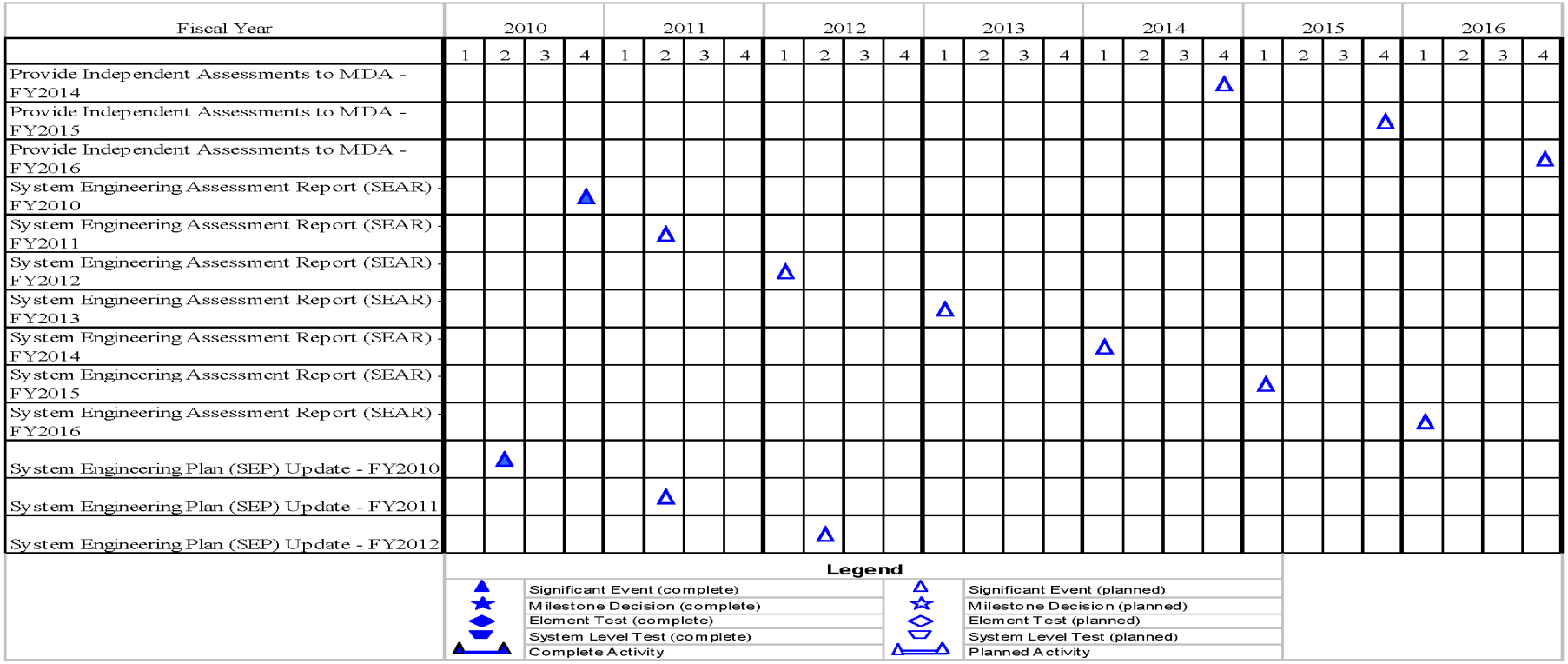

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD24: *System Engineering & Integration*

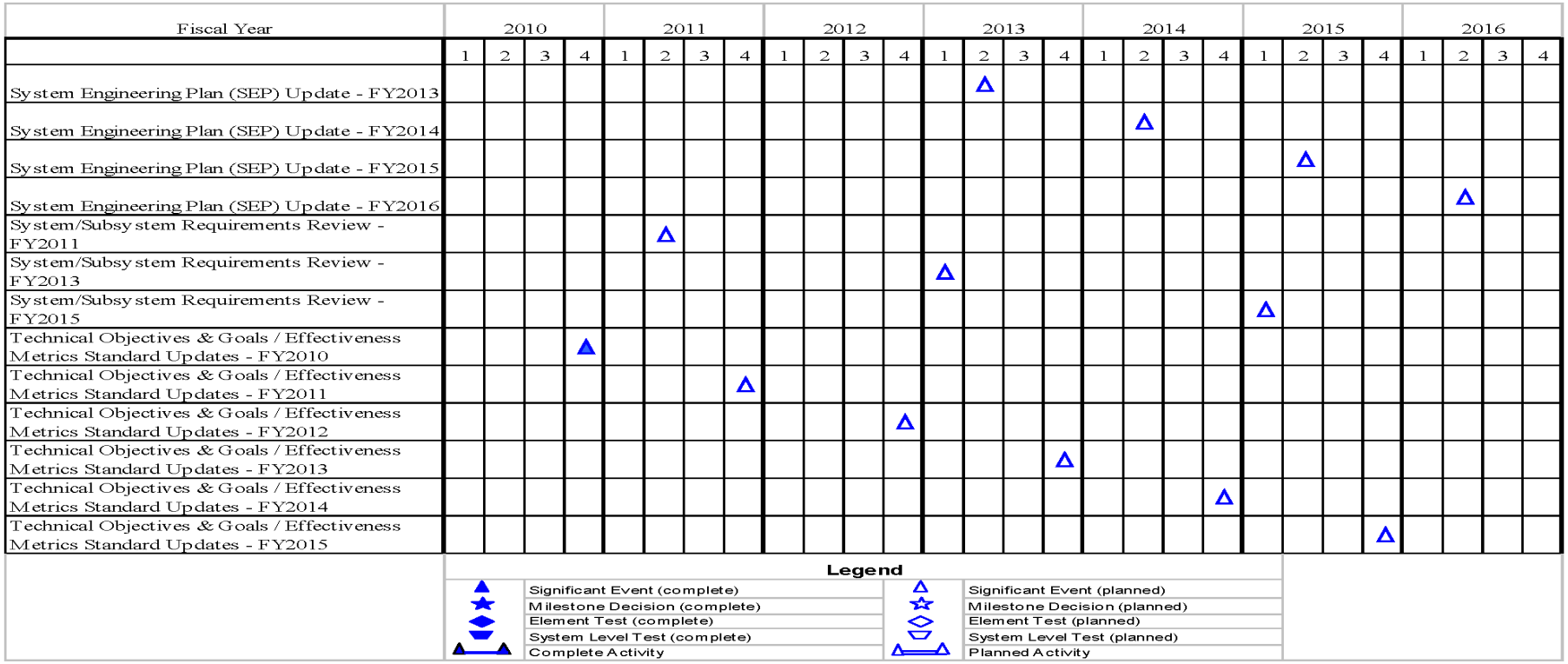

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD24: *System Engineering & Integration*

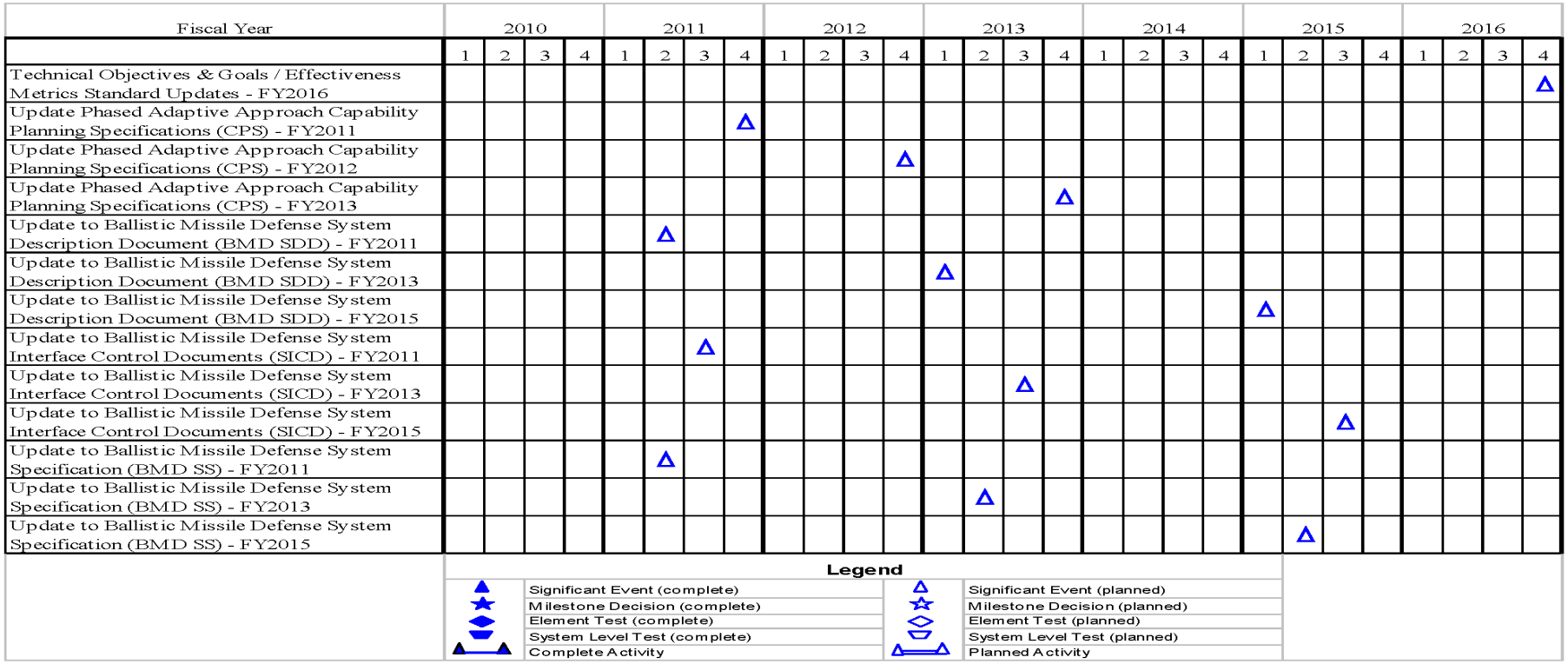

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD24: *System Engineering & Integration*

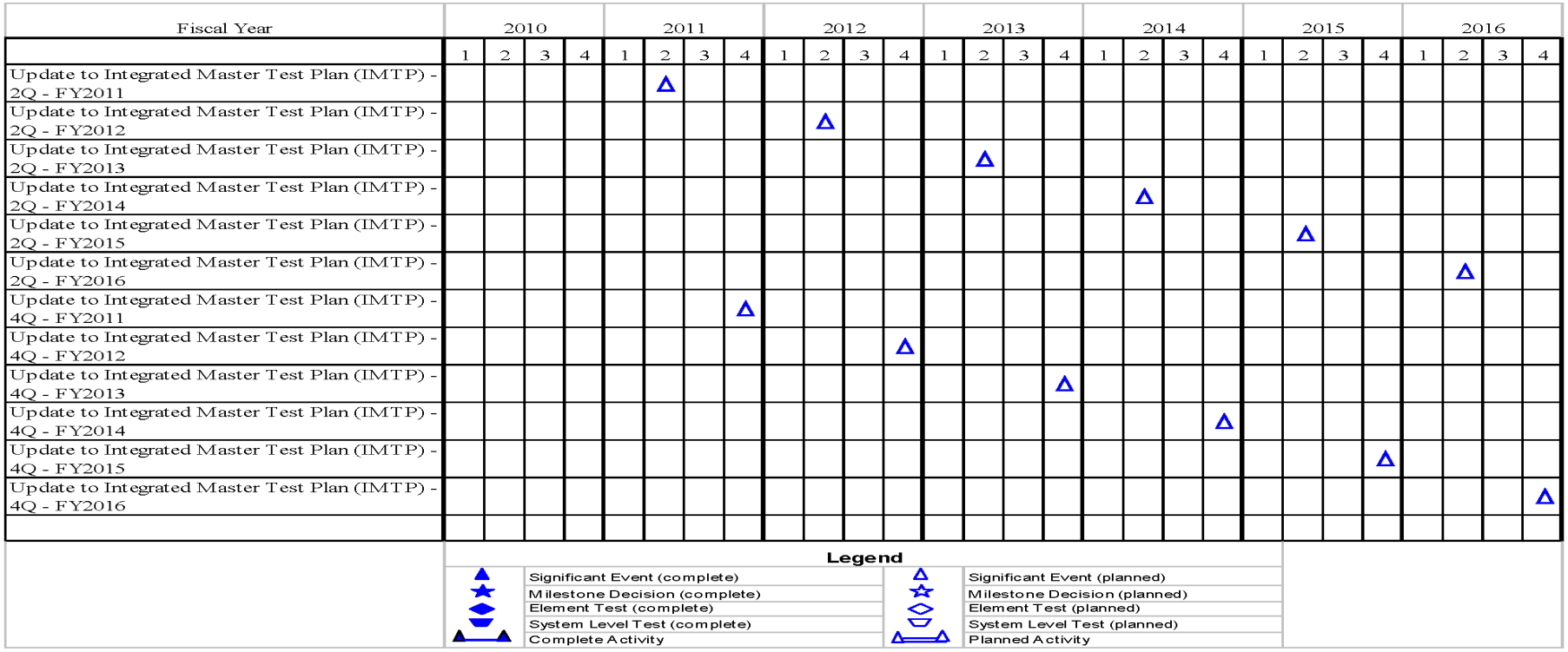

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD24: *System Engineering & Integration*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Adversary Data Package (ADP) - FY2010	1	2010	1	2010
Adversary Data Package (ADP) - FY2011	1	2011	1	2011
Adversary Data Package (ADP) - FY2012	1	2012	1	2012
Adversary Data Package (ADP) - FY2013	1	2013	1	2013
Adversary Data Package (ADP) - FY2014	1	2014	1	2014
Adversary Data Package (ADP) - FY2015	1	2015	1	2015
Adversary Data Package (ADP) - FY2016	1	2016	1	2016
Aegis Ashore Critical Design Review	4	2011	4	2011
Aegis Ashore Preliminary Design Review	3	2011	3	2011
Aegis Ashore System Design Review	2	2011	2	2011
Aegis Ashore System Requirements Review	2	2011	2	2011
Aegis BMD 5.1 Critical Design Review (CDR)	4	2014	4	2014
Aegis BMD 5.1 Preliminary Design Review (PDR)	4	2013	4	2013
Aegis BMD 5.1 System Design Review (SDR)	4	2012	4	2012
Aegis BMD 5.1 System Requirements Review (SRR)	3	2011	3	2011
Airborne Infrared Sensors Program - Delta Critical Design Review (CDR)	1	2012	1	2012
Airborne Infrared Sensors Program - Delta System Concept Review (SCR)	1	2011	1	2011
Airborne Infrared Sensors Program - Delta System Requirements Review (SRR) / Preliminary Design Review (PDR)	2	2011	2	2011
BMD System Critical Design Review (CDR)	2	2012	2	2012
Ballistic Missile Defense System Description Document (BMD SDD) - FY2010	4	2010	4	2010
Ballistic Missile Defense System Description Document (BMD SDD) - FY2012	1	2012	1	2012
Ballistic Missile Defense System Description Document (BMD SDD) - FY2014	1	2014	1	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD24: *System Engineering & Integration*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Ballistic Missile Defense System Description Document (BMD SDD) - FY2016	1	2016	1	2016
Ballistic Missile Defense System Design Review - FY2011	3	2011	3	2011
Ballistic Missile Defense System Design Review - FY2012	3	2012	3	2012
Ballistic Missile Defense System Design Review - FY2013	3	2013	3	2013
Ballistic Missile Defense System Design Review - FY2014	3	2014	3	2014
Ballistic Missile Defense System Design Review - FY2015	3	2015	3	2015
Ballistic Missile Defense System Design Review - FY2016	3	2016	3	2016
Ballistic Missile Defense System Interface Control Documents (SICD) - FY2010	2	2010	2	2010
Ballistic Missile Defense System Interface Control Documents (SICD) - FY2012	3	2012	3	2012
Ballistic Missile Defense System Interface Control Documents (SICD) - FY2014	3	2014	3	2014
Ballistic Missile Defense System Interface Control Documents (SICD) - FY2016	3	2016	3	2016
Ballistic Missile Defense System Specification (BMD SS) - FY2010	4	2010	4	2010
Ballistic Missile Defense System Specification (BMD SS) - FY2011	2	2011	2	2011
Ballistic Missile Defense System Specification (BMD SS) - FY2013	2	2013	2	2013
Ballistic Missile Defense System Specification (BMD SS) - FY2015	2	2015	2	2015
Capability Assessment Plan (CAP) / Update - FY2010	4	2010	4	2010
Deliver Engineering Change Plans for Counter-Countermeasure Improvements - FY2010	4	2010	4	2010
Element Preliminary Design Reviews - FY2010	2	2010	2	2010
Element Preliminary Design Reviews - FY2011	2	2011	2	2011
Element Preliminary Design Reviews - FY2012	2	2012	2	2012
Element Preliminary Design Reviews - FY2013	2	2013	2	2013
Element Preliminary Design Reviews - FY2014	2	2014	2	2014
Element Preliminary Design Reviews - FY2015	2	2015	2	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD24: *System Engineering & Integration*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Element Preliminary Design Reviews - FY2016	2	2016	2	2016
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2010	2	2010	2	2010
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2011	2	2011	2	2011
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2012	2	2012	2	2012
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2013	2	2013	2	2013
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2014	2	2014	2	2014
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2015	2	2015	2	2015
Element/Component Characterization for Analysis (E/CCA) - 2Q - FY2016	2	2016	2	2016
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2010	4	2010	4	2010
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2011	4	2011	4	2011
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2012	4	2012	4	2012
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2013	4	2013	4	2013
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2014	4	2014	4	2014
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2015	4	2015	4	2015
Element/Component Characterization for Analysis (E/CCA) - 4Q - FY2016	4	2016	4	2016
Enhanced Command, Control, Battle Management, and Communications (C2BMC) Delta Critical Design Review (CDR)	1	2012	1	2012
Enhanced Command, Control, Battle Management, and Communications (C2BMC) Delta System Concept Review (SCR)	2	2011	2	2011
Enhanced Command, Control, Battle Management, and Communications (C2BMC) Delta System Requirements Review (SRR)/Preliminary Design Review (PDR)	2	2011	2	2011
Incremental Capability Delivery Support - FY2010	4	2010	4	2010
Incremental Capability Delivery Support - FY2011	2	2011	2	2011
Incremental Capability Delivery Support - FY2012	2	2012	2	2012
Incremental Capability Delivery Support - FY2013	2	2013	2	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD24: *System Engineering & Integration*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Incremental Capability Delivery Support - FY2014	2	2014	2	2014
Incremental Capability Delivery Support - FY2015	2	2015	2	2015
Incremental Capability Delivery Support - FY2016	2	2016	2	2016
Integrated Master Assessment Plan (IMAP) - FY2016	2	2016	2	2016
Integrated Master Assessment Plan (IMAP) / Update - FY2011	2	2011	2	2011
Integrated Master Assessment Plan (IMAP) / Update - FY2012	2	2012	2	2012
Integrated Master Assessment Plan (IMAP) / Update - FY2013	2	2013	2	2013
Integrated Master Assessment Plan (IMAP) / Update - FY2014	2	2014	2	2014
Integrated Master Assessment Plan (IMAP) / Update - FY2015	2	2015	2	2015
Master Integration Plan (MIP) - FY2010	4	2010	4	2010
Master Integration Plan (MIP) - FY2011	4	2011	4	2011
Master Integration Plan (MIP) - FY2012	4	2012	4	2012
Master Integration Plan (MIP) - FY2013	4	2013	4	2013
Master Integration Plan (MIP) - FY2014	4	2014	4	2014
Master Integration Plan (MIP) - FY2015	4	2015	4	2015
Master Integration Plan (MIP) - FY2016	4	2016	4	2016
Phased Adaptive Approach (PAA) Capability Planning Specifications (CPS) - FY2010	4	2010	4	2010
Phased Adaptive Approach (PAA) Capability Planning Specifications (CPS) - FY2011-PTSS	2	2011	2	2011
Phased Adaptive Approach (PAA) Capability Planning Specifications (CPS) - FY2011-C2BMC	4	2011	4	2011
Phased Adaptive Approach (PAA) Capability Planning Specifications (CPS) - FY2012	4	2012	4	2012
Phased Adaptive Approach (PAA) System Concept Review (SCR) 2010	1	2010	1	2010
Phased Adaptive Approach (PAA) System Concept Review (SCR) 2010	3	2010	3	2010
Phased Adaptive Approach (PAA) System Concept Review (SCR) 2010	4	2010	4	2010

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD24: *System Engineering & Integration*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Phased Adaptive Approach (PAA) System Concept Review (SCR) 2011	1	2011	1	2011
Precision Tracking Space System Concept Review (SCR)	4	2010	4	2010
Precision Tracking Space System First Article Critical Design Review	1	2013	1	2013
Precision Tracking Space System First Article Preliminary Design Review	1	2012	1	2012
Precision Tracking Space System First Article System Requirements Review	2	2011	2	2011
Provide Independent Assessments to MDA - FY2010	4	2010	4	2010
Provide Independent Assessments to MDA - FY2011	4	2011	4	2011
Provide Independent Assessments to MDA - FY2012	4	2012	4	2012
Provide Independent Assessments to MDA - FY2013	4	2013	4	2013
Provide Independent Assessments to MDA - FY2014	4	2014	4	2014
Provide Independent Assessments to MDA - FY2015	4	2015	4	2015
Provide Independent Assessments to MDA - FY2016	4	2016	4	2016
System Engineering Assessment Report (SEAR) - FY2010	4	2010	4	2010
System Engineering Assessment Report (SEAR) - FY2011	2	2011	2	2011
System Engineering Assessment Report (SEAR) - FY2012	1	2012	1	2012
System Engineering Assessment Report (SEAR) - FY2013	1	2013	1	2013
System Engineering Assessment Report (SEAR) - FY2014	1	2014	1	2014
System Engineering Assessment Report (SEAR) - FY2015	1	2015	1	2015
System Engineering Assessment Report (SEAR) - FY2016	1	2016	1	2016
System Engineering Plan (SEP) Update - FY2010	2	2010	2	2010
System Engineering Plan (SEP) Update - FY2011	2	2011	2	2011
System Engineering Plan (SEP) Update - FY2012	2	2012	2	2012
System Engineering Plan (SEP) Update - FY2013	2	2013	2	2013
System Engineering Plan (SEP) Update - FY2014	2	2014	2	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD24: *System Engineering & Integration*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
System Engineering Plan (SEP) Update - FY2015	2	2015	2	2015
System Engineering Plan (SEP) Update - FY2016	2	2016	2	2016
System/Subsystem Requirements Review - FY2011	2	2011	2	2011
System/Subsystem Requirements Review - FY2013	1	2013	1	2013
System/Subsystem Requirements Review - FY2015	1	2015	1	2015
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2010	4	2010	4	2010
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2011	4	2011	4	2011
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2012	4	2012	4	2012
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2013	4	2013	4	2013
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2014	4	2014	4	2014
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2015	4	2015	4	2015
Technical Objectives & Goals / Effectiveness Metrics Standard Updates - FY2016	4	2016	4	2016
Update Phased Adaptive Approach Capability Planning Specifications (CPS) - FY2011	4	2011	4	2011
Update Phased Adaptive Approach Capability Planning Specifications (CPS) - FY2012	4	2012	4	2012
Update Phased Adaptive Approach Capability Planning Specifications (CPS) - FY2013	4	2013	4	2013
Update to Ballistic Missile Defense System Description Document (BMD SDD) - FY2011	2	2011	2	2011
Update to Ballistic Missile Defense System Description Document (BMD SDD) - FY2013	1	2013	1	2013
Update to Ballistic Missile Defense System Description Document (BMD SDD) - FY2015	1	2015	1	2015
Update to Ballistic Missile Defense System Interface Control Documents (SICD) - FY2011	3	2011	3	2011
Update to Ballistic Missile Defense System Interface Control Documents (SICD) - FY2013	3	2013	3	2013
Update to Ballistic Missile Defense System Interface Control Documents (SICD) - FY2015	3	2015	3	2015
Update to Ballistic Missile Defense System Specification (BMD SS) - FY2011	2	2011	2	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD24: *System Engineering & Integration*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Update to Ballistic Missile Defense System Specification (BMD SS) - FY2013	2	2013	2	2013
Update to Ballistic Missile Defense System Specification (BMD SS) - FY2015	2	2015	2	2015
Update to Integrated Master Test Plan (IMTP) - 2Q - FY2011	2	2011	2	2011
Update to Integrated Master Test Plan (IMTP) - 2Q - FY2012	2	2012	2	2012
Update to Integrated Master Test Plan (IMTP) - 2Q - FY2013	2	2013	2	2013
Update to Integrated Master Test Plan (IMTP) - 2Q - FY2014	2	2014	2	2014
Update to Integrated Master Test Plan (IMTP) - 2Q - FY2015	2	2015	2	2015
Update to Integrated Master Test Plan (IMTP) - 2Q - FY2016	2	2016	2	2016
Update to Integrated Master Test Plan (IMTP) - 4Q - FY2011	4	2011	4	2011
Update to Integrated Master Test Plan (IMTP) - 4Q - FY2012	4	2012	4	2012
Update to Integrated Master Test Plan (IMTP) - 4Q - FY2013	4	2013	4	2013
Update to Integrated Master Test Plan (IMTP) - 4Q - FY2014	4	2014	4	2014
Update to Integrated Master Test Plan (IMTP) - 4Q - FY2015	4	2015	4	2015
Update to Integrated Master Test Plan (IMTP) - 4Q - FY2016	4	2016	4	2016

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT YX28: *Intelligence & Security*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
YX28: *Intelligence & Security*	20.024	-	-	-	-	-	-	-	-	0.000	20.024
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project YX28 has been transferred to Project MD28

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD28 for FY 2010 Accomplishments	20.024	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	20.024	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD28: *Intelligence & Security*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD28: *Intelligence & Security*	-	15.905	18.865	-	18.865	16.773	15.627	15.226	16.195	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

Note: In accordance with the Missile Defense Agency revised Budget structure, the content previously planned in Project YX28 for FY 2010 is now captured in Project MD28 for FY 2011 - FY 2015.

A. Mission Description and Budget Item Justification

Intelligence and Security Program Major Program Goals:

-Ensure the Intelligence Community understands and fulfills MDA`s current and future prioritized intelligence requirements in an accurate and timely manner; advocate BMDS test support collection requirements with the Intelligence Community; and ensure that MDA`s intelligence needs and finished intelligence requirements are understood while ensuring the Intelligence Community is involved in technical interchange meetings.
-Continue the federated approach to supporting MDA by leveraging available National and DoD Counterintelligence resources to ensure counterintelligence products and services are fully integrated into all RDT&E programs and activities to protect classified information and critical technologies and to support and protect MDA and BMDS personnel, facilities, information and activities from criminal, terrorist and Foreign Intelligence and Security Service targeting/threats.
-Consistently, comprehensively and definitively define information assurance requirements for Continental United States (CONUS) and non-CONUS based on BMDS assets. Define Information Assurance/Computer Network Defense and cyber security infrastructure intelligence requirements to focus Intelligence Community collection, analysis and production to target MDA/BMDS vulnerabilities, definitize, and incorporate information assurance requirements into the systems engineering process.

The Security and Intelligence Project captures three specific areas:
1) Intelligence
2) Counterintelligence
3) BMDS Information Assurance Development and Management

Collectively, these efforts provide critical information regarding threat ballistic missile system capabilities (via intelligence); protection of personnel, activities, and technology from espionage and terrorism through active and passive activities (via counterintelligence); and Ballistic Missile Defense System (BMDS) system vulnerabilities (via BMDS information assurance). Specifically, the Intelligence and Security program activities support the overarching MDA objectives of defending the homeland against a limited ballistic missile attack; defending U.S. forces, allies and partners against regional threats; and developing flexible capabilities that can be adapted as threats evolve.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD28: *Intelligence & Security*

1) Intelligence: The MDA Intelligence Requirements Division serves as a clearing house for MDA`s requirements for the Intelligence Community collection, analysis and production. The MDA Intelligence Requirements Division serves as the quality control and dissemination agent of Intelligence Community products for all properly cleared Government and contractor personnel and provides feedback to the Intelligence Community on subsequent questions, issues and other requirements resulting from Intelligence Community reporting. The intelligence process begins when the Intelligence Community collects and analyzes data on foreign threat missiles. Resulting threats and threat changes are provided to the Ballistic Missile Defense System (BMDS) System Engineer, who uses the threats to develop and change the BMDS. This information reduces risk and improves system performance. It enables MDA Program Managers to achieve a sufficiently accurate understanding of the threat environment to respond to relevant capabilities of immediate importance, make informed decisions, and invest limited resources on countering the most significant aspects of potential adversary capabilities. Other aspects of the Intelligence Division are designed to gain access to, and leverage unique Intelligence Community developed, owned and operated capabilities for the benefit and advocacy of the Missile Defense Community. Numerous Intelligence Community capabilities are highly classified and require both access and expertise to exploit.

2) Counterintelligence: Pursuant to Executive Order 12333, (US Intelligence Activities), DoD Directive O-5240.2 (DoD Counterintelligence), and other DoD Counterintelligence policy issuances, the MDA Counterintelligence Division is charged with undertaking activities as part of an integrated DoD and national effort, to detect, identify, assess, exploit, degrade and counter or neutralize foreign intelligence collection efforts, sabotage, espionage, sedition, subversion, terrorist and other intelligence activities directed against MDA personnel, information, materials, facilities, and activities or against U.S. national security. As a member of the DoD Counterintelligence Community, the Counterintelligence Division`s portfolio includes the following missions and functions:

-Counterintelligence Investigative Inquiries: Pursuant to DoD Instruction 5240.21, the Counterintelligence Division conducts counterintelligence investigative inquiries into reported or suspected clandestine relationships between MDA personnel and agents of a foreign power and/or individuals associated with international terrorist organizations; failure to report contact with a foreign intelligence service and/or failure to comply with DoD reporting requirements pursuant to DoD Instruction 5240.6. Counterintelligence inquiries establish or refute a reasonable belief that a particular person was acting for or on behalf of, or an event was related to, a foreign power engaged in spying or committing espionage, sabotage, treason, sedition, subversion, assassinations, or international terrorist activities. When such allegations are substantiated, the Counterintelligence Division refers them to the appropriate Title 10, U.S. Code jurisdiction (Army, Navy or United States Air Force Counterintelligence Organization, Defense Criminal Investigative Services or Federal Bureau of Investigation) for further investigative action.
-Counterintelligence Collection and Reporting: Pursuant to DoD Instruction S-5240.17, the Counterintelligence Division systematically collects counterintelligence information from U.S. and foreign partner intelligence, counterintelligence, security and law enforcement entities through routine liaison and other activities associated with multi-national Ballistic Missile Defense (BMD) conferences overseas, RDT&E activities and BMDS deployments worldwide. The Counterintelligence Division also conducts briefings and debriefings of MDA personnel who travel overseas and passes on any relevant information to the U.S. Intelligence Community via Intelligence Information Reports, as appropriate, to answer validated DoD Counterintelligence collection requirements.
-Counterintelligence Analysis and Production: Pursuant to DoD Instruction 5240.18, the Counterintelligence Division conducts unclassified and classified web-based research and prepares tailored, timely and relevant analytical products that address threats from espionage, international terrorism, subversion, sabotage, assassination, other clandestine or covert activities, and any other similar activities targeting MDA that are reasonably believed to have a foreign nexus. This includes threats to MDA personnel, property, flight tests, RDT&E activities, and worldwide conferences in addition to intelligence collection threats to MDA critical program information, Ballistic Missile Defense System (BMDS) technologies, administrative and mission networks or infrastructure.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD28: *Intelligence & Security*

-Counterintelligence Functional Services: Pursuant to DoD Instruction 5240.16, the Counterintelligence Division conducts specialized defensive counterintelligence activities to identify and counter terrorism, espionage, sabotage and other related activities of foreign intelligence services in support of MDA flight tests, Special Access Programs, continental U.S. (CONUS)/Outside CONUS (OCONUS) BMD conferences, BMDS field deployments and initiatives and other worldwide initiatives. Specialized defensive counterintelligence activities include the conduct of Technical Surveillance Countermeasures surveys/inspections pursuant to DoD Instruction 5240.5, and computer forensics examinations in support of investigations resulting from reported insider threats and/or foreign computer intrusions.
-Counterintelligence Awareness, Briefing and Reporting Program: Pursuant to DoD Instruction 5240.6, the Counterintelligence Division provides initial (MDA Newcomer`s briefing) and periodic Counterintelligence Awareness briefings to DoD military, civilian and contractor personnel assigned to MDA. These briefings focus on the threats posed by foreign intelligence services, international terrorists, computer intruders and unauthorized disclosures, in addition to individual reporting responsibilities. The Counterintelligence Division also provides mandatory foreign travel threat briefings to all MDA outside the continental U.S. (OCONUS) travelers to familiarize them with potential terrorism, criminal, health, political and foreign intelligence and security service threats they may encounter. Follow-up debriefings are conducted to capture pertinent counterintelligence information that is shared with other MDA travelers and the U.S. Intelligence Community, as appropriate.
-Counterintelligence in Cyberspace: Pursuant to DoD Instruction 5240.LL and other DoD policy guidance, the Counterintelligence Division conducts defensive cyber activities and computer forensics using specialized gear and software toolsets to detect, identify, assess, deter, neutralize or exploit the activities of individuals, organizations, international terrorists and foreign intelligence and security services attempting to extricate information from MDA administrative or mission networks or using the MDA cyberspace domain to conduct espionage, other intelligence activities, sabotage, and assassinations against MDA personnel, facilities, programs and/or activities.

3) BMDS Information Assurance Division: This division assists the Ballistic Missile Defense System (BMDS) to manage and deploy Information Assurance/ Computer Network Defense (IA/CND) requirements and solutions to fulfill DoD and Warfighter mandates, while enhancing the robustness and resilience of the cyber infrastructure. To fulfill this role, the BMDS Information Assurance Division works in concert with Information Assurance Engineers and Information Assurance managers to obtain a comprehensive picture of the overall IA/CND architecture at all levels of the BMDS, then influence the design by 1) identifying and developing Core Standards and Requirements to implement Defense-in-Depth within planned development cycles (Builds); 2) providing oversight, coordination and management of key information assurance management processes, technical requirements development, and policy-mandated responsibilities; 3) providing contract acquisition support to BMDS Elements ensuring information assurance is addressed throughout the procurement process and; 4) interfacing with the Intelligence Community to define cyber security threats relevant to the BMDS. To fulfill stated mission requirements, the division interfaces with relevant information assurance experts to assess requirements, documentation and IA/CND design, gain insight into past/present/future security related issues, and exploit threat/vulnerability assessments to identify trends, understand threats and manage risks to fulfill developmental related requirements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: BMDS Information Assurance	-	2.688	2.798
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for FY 2010 Accomplishments is reported in prior year budget project YX28 ($2,301).			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD28: *Intelligence & Security*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Ballistic Missile Defense System (BMDS) Information Assurance Division: The BMDS Information Assurance Division executes the mission of the BMDS Information Assurance Functional Manager. It is responsible for the following functions: -Fulfilling the DoD Instruction 8500.2 and 8510.01 policy-mandated roles as the BMDS Information Assurance Manager and the BMDS Information Assurance Officer for the overarching BMDS Mission System and Element Components. -Characterizing the overall BMDS security posture and managing matrixed Information Assurance staff. -Defining the Ballistic Missile Defense System (BMDS) Information Assurance/Computer Network Defense (IA/CND) architecture in conjunction with systems engineering. -Defining Information Assurance requirements consistently, comprehensively and definitively at each stage of the acquisition lifecycle. -Interfacing with the Intelligence Community to define cyber security threats relevant to the BMDS. FY 2010 BMDS Information Assurance Program: -Fulfilled DoD 8500.2 and 8510.01 policy-mandated roles of the Information Assurance Manager and Information Assurance Officer for the overarching Ballistic Missile Defense System (BMDS). -Defined information assurance requirements for continental U.S. (CONUS) and non-CONUS based BMDS assets consistently, comprehensively and definitively. -Enhanced the Information Assurance posture of the BMDS by delivering expert, responsive, relevant Information Assurance/ Computer Network Defense (IA/CND) products and services supporting the Program Managers to meet BMDS and Element IA/ CND needs and requirements. -Assisted in the sustainment of an acceptable IA/CND security posture for the MDA Director, through various initiatives at each stage of the program`s lifecycle. ***FY 2011 Plans:*** FY 2011 BMDS Information Assurance Program: -Fulfill DoD Instruction 8500.2 and 8510.01 policy-mandated roles of the Information Assurance Manager and Information Assurance Officer for the overarching BMDS. -Define Information Assurance/Computer Network Defense (IA/CND) requirements for continental U.S. (CONUS) and non-CONUS based BMDS assets consistently, comprehensively and definitively.			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD28: *Intelligence & Security*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continue to assess the Information Assurance/Computer Network Defense (IA/CND) security architecture to address gaps/ disconnects, to enhance interoperability, and realize efficiencies across all mission systems. Define the ``As Built`` and ``To Be`` IA/CND Architectural Concepts to support technical assessments and IA/CND design solutions and implementation recommendations. -Develop and document technical requirements and interfaces to execute an Integrated IA/CND Net-centric Architectural Concept. -Continue to enhance the information assurance posture of the BMDS by delivering expert, responsive, relevant IA/CND products and services supporting the Program Managers to meet BMDS and IA/CND needs and requirements. -Continue to assist in the sustainment of an acceptable IA/CND security posture for the MDA Director, through various initiatives at each stage of the program`s lifecycle. ***FY 2012 Plans:*** FY 2012 Ballistic Missile Defense System (BMDS) Information Assurance Planned Program: -Continue to fulfill DoD Instruction 8500.2 and 8510.01 policy-mandated roles of the Information Assurance Manager and Information Assurance Officer for the overarching Ballistic Missile Defense System (BMDS). -Continue to define Information Assurance/Computer Network Defense (IA/CND) requirements for continental U.S. (CONUS) and non-CONUS based BMDS assets consistently, comprehensively and definitively. -Continue to assess the IA/CND security architecture to address gaps/disconnects, to enhance interoperability, and realize efficiencies across all mission systems. Define the ``As Built`` and ``To Be`` IA/CND Architectural Concepts to support technical assessments and IA/CND design solutions and implementation recommendations. -Develop and document technical requirements and interfaces to execute an Integrated IA/CND Net-centric Architectural Concept. -Continue to enhance the information assurance posture of the BMDS by delivering expert, responsive, relevant IA/CND products and services supporting the Program Managers to meet BMDS and IA/CND needs and requirements. -Continue to assist in the sustainment of an acceptable IA/CND security posture for the MDA Director, through various initiatives at each stage of the program`s lifecycle.			
Title: Counterintelligence	-	4.362	4.503
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** Funding for FY 2010 Accomplishments is reported in prior year budget project YX28 ($4,167).			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD28: *Intelligence & Security*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-The Counterintelligence Division fostered new collaborative partnerships with National and DoD intelligence, counterintelligence and Law Enforcement agencies to share or exchange criminal, terrorist and foreign intelligence threat related information targeting MDA personnel, facilities, information and activities worldwide. -The Counterintelligence Division leveraged available DoD counterintelligence resources in support of the MDA flight tests, conferences, and deployment initiatives worldwide. -The Counterintelligence Division leveraged Foreign Counterintelligence Program funding in support of the MDA Counterintelligence in Cyberspace and insider threat programs. -The Counterintelligence Division implemented a new Counterintelligence Covering Agent methodology to integrate defensive counterintelligence products and services into 15 MDA Research, Development and Acquisition programs to protect critical program information, and test and evaluation activities from foreign intelligence service collection activities. -The Counterintelligence Division continued to keep MDA senior leadership and supported Research, Development and Acquisition program managers informed of criminal, terrorist and foreign intelligence threats to personnel, information, technologies and test activities by conducting counterintelligence research and analysis and producing high fidelity counterintelligence products. -The Counterintelligence Division validated its new Technical Surveillance Countermeasures Program by conducting 26 technical surveillance countermeasures services to detect, neutralize, and/or exploit a wide variety of hostile and foreign penetration technologies that are used to obtain unauthorized access to MDA classified and sensitive information. -The Counterintelligence Division executed Base Realignment and Closure (BRAC) actions in accordance with the MDA BRAC master plan.			
FY 2011 Plans: FY 2011 Counterintelligence Program: -The Counterintelligence Division will continue to serve as the single point of contact with Federal, State and Local Law Enforcement and Counterintelligence Organizations. To this end, the Counterintelligence Division will continue to foster collaborative partnerships targeting foreign intelligence collection activities directed against MDA personnel, facilities and activities to prevent the loss or compromise of critical program information or critical BMDS technologies. -The Counterintelligence Division deploys organic counterintelligence teams to conduct defensive counterintelligence activities in support of MDA fielding initiatives worldwide under the Phased Adaptive Approach and Foreign Military Sales Programs. -The Counterintelligence Division will procure and field updated secure video telecommunications systems for the Colorado Springs and Huntsville Regional Counterintelligence Offices in support of flight tests, conferences and overseas deployments. -The Counterintelligence Division will procure and field updated secure data communications systems for the Colorado Springs Regional Counterintelligence Office in support of flight tests, conferences and overseas deployments.			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD28: *Intelligence & Security*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-The Counterintelligence Division continues to support all MDA flight tests to detect, deter, or neutralize criminal, terrorist and foreign intelligence collection threats targeting MDA and Ballistic Missile Defense System (BMDS) technologies, personnel, facilities and activities. -The Counterintelligence Division continues to keep MDA leadership and supported Program Elements informed of counterintelligence threats targeting its Research, Development and Acquisition programs, technologies and critical program information through aggressive an Analysis and Production Program. -The Counterintelligence Division continues to educate the entire MDA workforce on the criminal, terrorist and foreign intelligence threats targeting MDA personnel, information, facilities and activities through an aggressive Counterintelligence Awareness Briefing Program that includes foreign travel threat briefings. ***FY 2012 Plans:*** FY 2012 Counterintelligence Planned Program: -The Counterintelligence Division will continue to serve as the single point of contact with Federal, State and Local Law Enforcement and Counterintelligence Organizations. To this end, the Counterintelligence Division will continue to foster collaborative partnerships targeting foreign intelligence collection activities directed against MDA personnel, facilities and activities to prevent the loss or compromise of critical program information or critical Ballistic Missile Defense System (BMDS) technologies. -The Counterintelligence Division will deploy organic counterintelligence teams to conduct defensive counterintelligence activities in support of BMDS fielding initiatives under the Phased Adaptive Approach and Foreign Military Sales Programs. -The Counterintelligence Division will continue to procure and field updated secure voice and data communications systems in support of MDA flight tests, conferences and BMDS deployment initiatives under the Phased Adaptive Approach and Foreign Military Sales Program. -The Counterintelligence Division will continue to support all MDA flight tests to detect, deter, or neutralize criminal, terrorist and foreign intelligence collection threats targeting MDA and BMDS technologies, personnel, facilities and activities.			
Title: Intelligence ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** Funding for FY 2010 Accomplishments is reported in prior year budget project YX28 ($11,321). The Intelligence Requirements Division is the single intelligence requirements integration office within MDA and its designated intermediary with the Intelligence Community and continues to maintain a consistent dialog with the Intelligence Community to	- 0	8.855 0	11.564 0

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD28: *Intelligence & Security*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012

ensure they have a focused, prioritized, and complete understanding of the vast requirements for foreign intelligence necessary to build a comprehensive Ballistic Missile Defense System (BMDS). The increased pace of rogue nation missile development, i.e., Iran and North Korea, requires increasing intelligence collection, analysis, and production of data on foreign threat missiles. Additionally, the nature of the 21st century world-wide missile testing is reducing available signatures and warning of test events. Therefore, enhanced collaboration with the Intelligence Community is crucial to fielding a missile defense capability.

The Intelligence Requirement Office:

-Managed the intelligence collection requirements and engage the Intelligence Community to ensure MDA requirements are documented, validated, collected, and understood. Intelligence tasks included planning intelligence collections support for missile defense tests and documenting requirements in Intelligence Community management systems, and maintaining and updating Measurement and Signature Intelligence (MASINT), Geospatial Intelligence (GEOINT), and Signal Intelligence (SIGINT) requirements on advances in foreign ballistic missile technology and for all MDA events.
-Maintained an ongoing, persistent, focused dialog with all members of the Intelligence Community to ensure MDA intelligence requirements are viewed in proper context, receive the proper priority level, and are explicitly understood by the Intelligence Community.
-Provided to all levels of builders of missile defense intelligence requirements the most up-to-date and accurate intelligence which requires a detailed understanding of the BMDS developer`s and senior leadership`s particular requirements.
-Provided an encyclopedic, all-source, and all encompassing knowledge base of the foreign ballistic missile threat including development, enhancement, and population of the Secret and Top Secret/Sensitive Compartmented Information Missile Threat Portal with Intelligence Community produced finish intelligence documents. These portals have the most up-to-date current intelligence to provide immediate situational awareness, technical intelligence data to be used by the BMDS Program Elements and System Engineers, and direct linkages to the Intelligence Community to support the MDA Warfighter Support Center.
-Maintained the use of UMPIRE which is a universal tool to allow BMDS planners and warfighters to access disparate Intelligence Community databases using a single interface.

FY 2011 Plans:
FY 2011 Intelligence Program:

The Intelligence Requirements Office:

-Acts as the single intelligence requirements integration office within MDA and its designated intermediary with the Intelligence Community and maintain a consistent dialog with the Intelligence Community to ensure they have a focused, prioritized, and

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD28: *Intelligence & Security*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
complete understanding of the vast requirements for foreign intelligence necessary to build a comprehensive Ballistic Missile Defense System (BMDS). -Manages the intelligence collection requirements and engage the Intelligence Community to ensure MDA requirements are documented, validated, collected, and understood. Intelligence tasks will include planning intelligence collections support for missile defense tests and documenting requirements in Intelligence Community management systems, and maintaining and updating Measurement and Signature Intelligence (MASINT), Geospatial Intelligence (GEOINT), and Signal Intelligence (SIGINT) requirements on advances in foreign ballistic missile technology and for all MDA events. -Maintains an ongoing, persistent, focused dialog with all members of the Intelligence Community to ensure MDA intelligence requirements are viewed in proper context, receive the proper priority level, and are explicitly understood by the Intelligence Community. -Provides all levels of builders of missile defense intelligence requirements with the most up to-date and accurate intelligence, which requires a detailed understanding of the BMDS developer`s and senior leadership`s particular requirements. -Provides an encyclopedic, all-source, and all encompassing knowledge base of the foreign ballistic missile threat including development, enhancement, and population of the Secret and Top Secret/Sensitive Compartmented Information Missile Threat Portals with Intelligence Community produced finish intelligence documents. These portals will have the most up-to-date current intelligence to provide immediate situational awareness, technical intelligence data to be used by the BMDS Program Elements and System Engineers, and direct linkages to the Intelligence Community to support the MDA Warfighter Support Center. ***FY 2012 Plans:*** FY 2012 Intelligence Planned Program: The Intelligence Requirements Office will: -Continue to be the single intelligence requirements integration office within MDA and its designated intermediary with the Intelligence Community and maintain a consistent dialog with the Intelligence Community to ensure they have a focused, prioritized, and complete understanding of the vast requirements for foreign intelligence necessary to build a comprehensive BMDS. -Continue to manage the intelligence collection requirements and engage the Intelligence Community to ensure MDA requirements are documented, validated, collected, and understood. Intelligence tasks will include planning intelligence collections support for missile defense tests and documenting requirements in Intelligence Community management systems, and maintaining and updating Measurement and Signature Intelligence (MASINT), Geospatial Intelligence (GEOINT), and Signal Intelligence (SIGINT) requirements on advances in foreign ballistic missile technology and for all MDA events.			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD28: *Intelligence & Security*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continue to maintain an ongoing, persistent, focused dialog with all members of the Intelligence Community to ensure MDA intelligence requirements are viewed in proper context, receive the proper priority level, and are explicitly understood by the Intelligence Community. -Continue to provide all levels of builders of missile defense intelligence requirements with the most up to-date and accurate intelligence, which requires a detailed understanding of the BMDS developer`s and senior leadership`s particular requirements. -Continue to provide an encyclopedic, all-source, and all encompassing knowledge base of the foreign ballistic missile threat including development, enhancement, and population of the Secret and Top Secret/Sensitive Compartmented Information Missile Threat Portals with Intelligence Community produced finish intelligence documents. These portals have the most up-to-date current intelligence to provide immediate situational awareness, technical intelligence data to be used by the BMDS Program Elements and System Engineers, and direct linkages to the Intelligence Community to support the MDA Warfighter Support Center. -Fully characterize all ballistic missile threat systems from high priority countries for use by the MDA Systems Engineer, Program Managers, and Director for Test to perform modeling, simulation, and testing of the BMDS. The MDA Director for Engineering uses this intelligence to build the Adversary Data Package used by all Program Elements and MDA Test as the ballistic missile threat document utilized to build and test the BMDS. The Director, MDA has offered and authorized this two year resource augmentation to NASIC as bridge funding while USAF/NASIC realign resources within the MIP to accommodate these requirements. -Propose, develop, and execute a cyber study. The study will continue the demonstration of the effectiveness of using models and simulation to support all-source S&TI analysis of the impact of cyber threats to a U.S. tactical military network. The term model and simulation will be interchangeable and includes both hardware and software. The details of the aspects of the specific network to be addressed shall be provided by the Government.			
Accomplishments/Planned Programs Subtotals	-	15.905	18.865

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	690.054	436.482	290.452		290.452	318.745	309.894	340.969	320.638	Continuing	Continuing
• 0603882C: *Ballistic Missile Defense Mid-Course Segment*	1,022.019	1,346.181	1,161.001		1,161.001	1,040.949	925.943	856.839	875.969	Continuing	Continuing
• 0603883C: *Ballistic Missile Defense Boost Defense Segment*	172.419	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	172.419

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD28: *Intelligence & Security*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603892C: *BMD AEGIS*	1,418.992	1,467.278	960.267		960.267	957.992	1,001.510	970.607	1,033.710	Continuing	Continuing
• 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	148.506	112.678	96.353		96.353	53.577	47.592	32.289	34.308	Continuing	Continuing
• 0603896C: *BMD C2BMC*	327.074	342.625	364.103		364.103	330.337	353.081	338.835	304.217	Continuing	Continuing
• 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	82.926	86.198	69.325		69.325	64.514	55.808	56.769	54.621	Continuing	Continuing

D. Acquisition Strategy

In support of acquiring an effective BMDS capability, this project directs various executing agents and leverages expertise in the intelligence community, counterintelligence community, and information assurance community, including the military departments, Federally Funded Research and Development Centers (FFRDCs), University Affiliated Research Centers (UARCs), and industry. The executing agents utilize various contracting strategies in a flexible manner to maximize their contribution to the BMDS. Products and Services will be acquired by competitive means to the extent that is possible and practical.

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD28: *Intelligence & Security*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BMDS Information Assurance IA/CND Support MD28	SS/FFP	Booz Allen Hamilton:McLean, VA	4.428	2.688	Oct 2010	2.798		-		2.798	Continuing	Continuing	Continuing
Counterintelligence Analysis and Support MD28	C/FFP	QinetiQ Inc:Fairfax, VA	12.643	4.262	Oct 2010	4.503		-		4.503	Continuing	Continuing	Continuing
Counterintelligence Analysis and Support - 2 MD28	MIPR	Various:Various	0.500	0.100	Oct 2010	-		-		-	Continuing	Continuing	Continuing
Intelligence Intelligence Watch MD28	SS/CPAF	MDIOC-Northrop Grumman:Colorado Springs, CO	8.840	2.346	Oct 2010	2.487		-		2.487	Continuing	Continuing	Continuing
Intelligence Analysis and Support MD28	C/FFP	Booz Allen Hamilton:McLean VA	15.629	5.294	Oct 2010	5.477		-		5.477	Continuing	Continuing	Continuing
Intelligence Intelligence Applications MD28	MIPR	SMDC:Huntsville, AL	3.124	1.191	Oct 2010	1.600		-		1.600	Continuing	Continuing	Continuing
Intelligence Intelligence Collections MD28	MIPR	NASIC:Wright-Patterson AFB, OH	-	-		1.300		-		1.300	Continuing	Continuing	Continuing
		Subtotal	45.164	15.881		18.165		-		18.165			

Remarks

MDIOC - Missile Defense Integration & Operations Center

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD28: *Intelligence & Security*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Intelligence Project Management MD28	SS/FFP	Various:Various	0.425	0.024	Oct 2010	0.700		-		0.700	Continuing	Continuing	Continuing
		Subtotal	0.425	0.024		0.700		-		0.700			

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	45.589	15.905		18.865		-		18.865			

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT YX29: *Producibility and Manufacturing Technology*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
YX29: *Producibility and Manufacturing Technology*	41.619	-	-	-	-	-	-	-	-	0.000	41.619
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

Project YX29 has been transferred to project MD29.

A. Mission Description and Budget Item Justification

Project YX29 transferred to Project MD29 in FY 2011.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD29 for FY 2010 Accomplishments	41.619	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	41.619	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD29: *Producibility & Manufacturing Technology*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD29: *Producibility & Manufacturing Technology*	-	36.575	-	-	-	-	-	-	-	0.000	36.575
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

Beginning in FY 2012, the funding currently in MD29 will be transferred to the SM-3 Block IIB Program Element, 0603902C.

A. Mission Description and Budget Item Justification

The Manufacturing and Producibility/Enabling Technology effort focuses on technology development for future generation interceptors. This project`s goal is to improve the Ballistic Missile Defense System (BMDS) by applying producibility tools; to assist in the elimination of manufacturing waste, reducing process variability, and insuring first time quality for Ballistic Missile Defense Element Program Offices and their suppliers. This project is supporting SM3 Block IIB in Seeker, Divert and Attitude Control System development, light weight structures and batteries. MDA assesses and reports transition readiness using Engineering Manufacturing Readiness Levels and exit criteria metrics (i.e., Critical Knowledge Points). Producibility and Manufacturing/Enabling Technology conducts Industrial Capability Assessments (ICAs) across the BMDS Industrial Base to identify production gaps created by material supplier changes, loss of manufacturing base, and movement of US production overseas.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Power Systems	-	0.300	-
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY2010 accomplishments are reported in prior year budget YX29 ($4,387). -Completed Lean Six Sigma Projects, Value Stream Mappings and Rapid Improvement Events at Eagle Picher Technologies which increased production efficiency by 25 batteries per month, benefiting MDA and all DoD missile programs at Eagle Picher Technologies -Completed Computer Assisted Production Planning/Paperless Manufacturing capability for large format lithium oxyhalide weapons batteries -Developed replacements for obsolete materials critical for MDA battery production -Began space grade Lithium-ion cell evaluation to achieve ground test validation for MDA use			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD29: *Producibility & Manufacturing Technology*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continued modeling for Lithium-ion cells in space applications -Enabled $7M cost avoidance on joint Title III space grade Lithium-ion cell production effort at Quallion LLC ***FY 2011 Plans:*** -Continue Lean Six Sigma Projects, with DoD battery industrial base manufacturers. -Continue testing of space grade Lithium-ion cells from multiple suppliers. ***FY 2012 Plans:*** Beginning in FY 2012, the funding currently in MD29 will be transferred to the SM-3 Block IIB Program Element (0603902C).			
Title: Radiation Hardening	-	3.800	-
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** Funding for these FY2010 accomplishments are reported in prior year budget YX29 ($6,405). -Conducted electronics and sensor nuclear survivability testable protocol testing for the BMDS. This included sensor chip assembly testing of Kill Vehicle long wave infrared and visible sensors relative to High Altitude Exoatmospheric Nuclear Survivability -Used nuclear survivability tested parts from FY 2008 and FY 2009 to build prototype Common Inertial Measurement Unit engineering development units in an effort to lead to low rate initial production of a nuclear survivable Common Inertial Measurement Unit (CIMU) -Verified that a small number of nuclear survivable parts needed further radiation hardening. This radiation environment part testing demanded new Small Business Innovation Research parts to fully meet the applicable MDA standards -This will improve the radiation hardening of Common Inertial Measuring Units and kill vehicle processors. ***FY 2011 Plans:*** -Conduct Kill Vehicle control and electronics Radiation Hardness Assurance Missile Defense Agency Parts, Materials, and Processes Mission Assurance Plan (PMAP) protocol testing for the BMDS. -Leverage 2006 through 2010 research into Radiation Hardened electronics and Inertial Measurement Units technology and fabricate prototype Radiation Hardened IMUs and conduct an extensive ground testing program. ***FY 2012 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD29: *Producibility & Manufacturing Technology*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Beginning in FY 2012, the funding currently in MD29 will be transferred to the SM-3 Block IIB Program Element (0603902C).			
Title: Manufacturing Process Improvements	-	0.700	-
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** Funding for these FY2010 accomplishments are reported in prior year budget YX29 ($3,837). -Demonstrated feasibility of a counterfeit/obsolete parts and materials mission assurance tool at Raytheon Missile Systems. -Partnered with the Navy to support a Strategic Obsolescence Initiative (SOI) which will enable of Diminishing Manufacturing Sources and Material Shortages (DMSMS) Case Management Collaboration across the multiple tools that are supporting these organizations. ***FY 2011 Plans:*** -Demonstrate tool that will provide greater insight with regards to obsolete and counterfeit parts. Tool will provide method to comply with PMAP, create ability to track individual component suppliers, inform user where other similar suspect (counterfeit/ obsolete) parts are installed and provide visibility of installed parts across BMDS. -Continue to support efforts to mitigate risks associated with lead free electronics. ***FY 2012 Plans:*** Beginning in FY 2012, the funding currently in MD29 will be transferred to the SM-3 Block IIB Program Element (0603902C).			
Title: Electro-Optics/Infrared (EO/IR)	-	5.783	-
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** Funding for these FY2010 accomplishments are reported in prior year budget YX29 ($18,738). -Completed multiple low (3-5 units) quantity production and radiation optical materials specimen testing of both improved performance and radiation tolerant next generation sensor subsystems/component technologies. The planned sensor technologies were : 1) both one and two color digital (up to 200 frames/second) Focal Plane Arrays, 2) a common power and data bus architecture/connectors, and a common dual-use split-cryocooler configuration, 3) subwavelength gratings in lieu of coatings			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD29: *Producibility & Manufacturing Technology*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
to improve the efficiency of both transmissive and reflective optics, and 4) laser cross-link telemetry between two separately launched payloads (sensor with Divert and Attitude Control System). ***FY 2011 Plans:*** -Complete coordinated multiple low (3-5 units) quantity production and radiation testing of both improved performance and radiation tolerant next generation sensor subsystems/component technologies to assess technology and supplier (to include Small Business Innovation Research) readiness: -Silicon Carbide versus Aluminum versus Beryllium optical [lightweight, low emissivity (which is a Noise Equivalent Irradiance component) and low cost] telescopes with lightweight Coefficient of Thermal Expansion matched canister-sunshade materials with associated reflective and anti-reflective coatings ranging from 4-8 aperture and varying F (aperture/effective focal length) numbers. -One color with dynamic (sub-wavelength grating) filter and two color Focal Plane Arrays (FPAs) comparing analog versus digital (up to 1000 frames/sec reduced power) Readout Integrated Circuits with dynamic integration times for varying backgrounds exercising frame summing algorithms designed to lower sensor Noise Equivalent Irradiance and weight. ***FY 2012 Plans:*** Beginning in FY 2012, the funding currently in MD29 will be transferred to the SM-3 Block IIB Program Element (0603902C).			
Title: Radar RF/Electronics ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** Funding for these FY2010 accomplishments are reported in prior year budget YX29 ($2,950). -Conducted electronics and sensor nuclear survivability testable protocol testing for the Ballistic Missile Defense System (BMDS). This included sensor chip assembly testing of Kill Vehicle long wave infrared and visible sensors relative to High Altitude Exoatmospheric Nuclear Survivability. -Used the nuclear survivability tested parts from FY 2008 and FY 2009 for building prototype Common Inertial Measurement Unit engineering development units in an effort to lead to low rate initial production of a nuclear survivable Common Inertial Measurement Unit (CIMU).	- 0	- 0	- 0

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD29: *Producibility & Manufacturing Technology*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-The development of the X-Band Gallium Nitride (GaN) monolithic microwave integrated circuits (MMIC) power amplifiers will improve TPY-2 range performance and discrimination when inserted. ***FY 2011 Plans:*** None. ***FY 2012 Plans:*** None.			
Title: Propulsion ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** Funding for FY2010 accomplishments are reported in prior year budget project YX29 ($2,965). -Completed low cost Liquid Divert and Attitude Control System (DACS) critical design review to support technology development activities for possible application to SM-3 Block IIB. -Successfully conducted the advanced controllable solid DACS divert subsystem test to demonstrate innovations in small business innovative research projects including braided Carbon-Silicon Carbide thruster nozzles, advanced actuators and embedded thrusters -Completed material characterization efforts for advanced insulators, high temperature ceramic matrix composite materials for propulsion system components ***FY 2011 Plans:*** -Complete the fabrication and system flight environmental testing for a low cost liquid divert and attitude control system. This effort will provide data on the technical maturity of the low cost liquid divert and attitude control system design. -Complete fabrication and conduct static hot-fire test of a solid divert attitude control system divert subsystem to demonstrate technology for advanced controllable solid divert and attitude control system for SM-3 Block IIB applications. This program will demonstrate advanced control, including extinguishment and advanced lightweight materials durability. -Conduct initial trade studies to prioritize investment strategy for divert and attitude control system technologies for SM-3 Block IIB applications. These trade studies include characterization of ultra high temperature material and trades on divert thrusters, ACS thrusters, and gas generator components.	- 0	24.332 0	- 0

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD29: *Producibility & Manufacturing Technology*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Conduct initial trade studies and design analyses for third stage rocket motor attitude control system, thrust vector control system and case material in order to minimize inert mass and increase controllability. These efforts will provide a prioritized list of technologies to improve the SM-3 Block IIB missile performance. -Execute technology risk reduction efforts for divert and attitude control system and third stage rocket motor components. These efforts will focus on reducing risk and improving technical maturity of component technologies in actuators, valves, high temperature materials, structural insulators, propellants, and supporting items. -Provide resources to Air Force Research Laboratory to manage test activities in support of static hot-fire test of the high performance liquid upper stage breadboard demonstration unit. This test will demonstrate integrated components for a liquid upper stage to assess component item maturity. ***FY 2012 Plans:*** Beginning in FY 2012, the funding currently in MD29 will be transferred to the SM-3 Block IIB Program Element (0603902C).			
Title: Advanced Materials & Structures	-	1.660	-
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** Funding for these FY2010 accomplishments are reported in prior year budget YX29 ($2,337). -Completed material characterization and design of experiments effort to improved carbonization yields of Lyocell -Developed, tested, demonstrated and delivered prototypes to Standard Missile-3 Block IIA Program Office for further testing and in support of Preliminary Design Review (PDR) several advanced materials product technologies to include compact antenna tray and window, strake leading edge, main strake, aft strake cover, guidance section main housing, guidance section aft plate and front cover -Conducted aerothermal testing for advanced materials and rain erosion preliminary screen tests for new materials for Standard Missile-3 Block IIA strake ***FY 2011 Plans:*** -Develop, test, demonstrate and deliver two compact antennae with a composite tray and window to the Standard Missile 3 (SM-3) Block IIB program office. -Conduct additional aero thermal testing for advanced materials and rain erosion tests for new radome materials. ***FY 2012 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Beginning in FY 2012, the funding currently in MD29 will be transferred to the SM-3 IIB Program Element (0603902C).			
Accomplishments/Planned Programs Subtotals	-	36.575	-

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603902C: *STANDARD MISSILE-3 BLOCK IIB (SM-3 IIB)*	0.000	0.000	123.456		123.456	433.106	384.647	401.141	394.803	Continuing	Continuing

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD29: *Producibility & Manufacturing Technology*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Power Systems Battery Efforts MD29	MIPR	NSWC CRANE:CRANE IN	5.058	0.300	Dec 2010	-		-		-	0.000	5.358	5.358
Power Systems Lithium-Ion modeling MD29	C/FFP	Quallion:SYLMAR CA	1.150	-		-		-		-	0.000	1.150	1.150
Power Systems Lean initiatives MD29	C/FFP	Tiburon:ALEXANDRIA VA	1.060	-		-		-		-	0.000	1.060	1.060
Power Systems BMDS Program Battery MD29	MIPR	NSWC CRANE:CRANE IN	2.918	-		-		-		-	0.000	2.918	2.918
Power Systems Thermal Battery Process Improvements MD29	C/FFP	Enser:ST PETERSBURG FL	0.400	-		-		-		-	0.000	0.400	0.400
Radiation Hardening Radiation Hardening MD29	C/CPFF	KEARFOTT:LITTLE FALLS NJ	10.954	-		-		-		-	0.000	10.954	10.954
Radiation Hardening Radiation Hardening - 201012148141803 MD29	MIPR	CRANE:CRANE, IN	-	0.250	Dec 2010	-		-		-	0.000	0.250	0.250
Radiation Hardening MEMS IMU MD29	FFRDC	DRAPER LABS:Cambridge, MA	-	0.300	Dec 2010	-		-		-	0.000	0.300	0.300
Radiation Hardening COMMON INERTIAL MEASURING UNIT MD29	C/CPFF	KEARFOTT:LITTLE FALLS, NJ	-	2.500	Feb 2011	-		-		-	0.000	2.500	2.500
Manufacturing Process Improvements BMDS SUPPLY CHAIN MD29	C/CPFF	Advanced Technology Institute:NORTH CHARLESTON SC	2.886	-		-		-		-	0.000	2.886	2.886
Manufacturing Process Improvements Continuous Process Improvement MD29	C/CPFF	Dynamics Research Corp (DRC):ANDOVER MA	2.445	0.575	Jan 2011	-		-		-	0.000	3.020	3.845
Manufacturing Process Improvements Commercial Off-The-Shelf MD29	MIPR	NSWC CRANE:CRANE IN	0.795	0.125	Jan 2011	-		-		-	0.000	0.920	0.920
Electro-Optics/Infrared (EO/IR) EO/IR MD29	C/CPFF	FIBERTEK:HERNDON VA	5.695	1.000	Jan 2011	-		-		-	0.000	6.695	6.695
	C/CPFF		4.400	-		-		-		-	0.000	4.400	4.400

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Electro-Optics/Infrared (EO/IR) EO/IR - 20098204697769 MD29		MILTEC:HUNTSVILLE AL											
Electro-Optics/Infrared (EO/IR) EO/IR - 20098204697773 MD29	MIPR	NASA:WALLOPS ISLAND VA	7.450	-		-		-		-	0.000	7.450	7.450
Electro-Optics/Infrared (EO/IR) EO/IR - 20098204697777 MD29	C/CPFF	AXSYS:ROCHESTER MI	5.603	-		-		-		-	0.000	5.603	5.603
Electro-Optics/Infrared (EO/IR) EO/IR - 20098204697783 MD29	C/CPFF	Electro-Optics Center:UNIVERSITY PARK PA	11.151	0.500	Jan 2011	-		-		-	0.000	11.651	12.000
Electro-Optics/Infrared (EO/IR) EO/IR MD29	MIPR	DMEA:MCCLELLAN CA	2.200	-		-		-		-	0.000	2.200	2.200
Electro-Optics/Infrared (EO/IR) SENSOR MD29	C/CPFF	TBD:TBD	-	3.200	Feb 2011	-		-		-	0.000	3.200	3.200
Radar RF/Electronics BULK Semi-Insulating Gallium Nitride FOR Radio Frequency MD29	C/CPFF	AIR FORCE (AFRL):ALBUQUERQUE NM	1.395	-		-		-		-	0.000	1.395	2.095
Radar RF/Electronics RELIABILITY TESTING MD29	MIPR	NAVAL RESEARCH LAB:WASHINGTON DC	0.700	-		-		-		-	0.000	0.700	0.900
Radar RF/Electronics TRI-SERVICE RELIABILITY TESTING MD29	MIPR	AFRL:ALBUQUERQUE NM	1.655	-		-		-		-	0.000	1.655	1.955
Radar RF/Electronics 100mm Semi-Insulating Silicon Carbide SUBSTRATES MD29	MIPR	AFRL:ALBUQUERQUE NM	1.950	-		-		-		-	0.000	1.950	2.439
Propulsion PROPULSION EXTINGUISHABLE DACS MD29	C/CPFF	AEROJET:SACRAMENTO CA	11.250	0.650	Oct 2010	-		-		-	0.000	11.900	11.900
Propulsion PROPULSION - 20098204823348 MD29	MIPR		2.226	0.500	Oct 2010	-		-		-	0.000	2.726	2.726

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD29: *Producibility & Manufacturing Technology*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		NSWC CARDEROCK:BETHESDA MD											
Propulsion PROPULSION - 20098204823353 MD29	MIPR	NAVAL AIR WARFARE CENTER WEAPONS DIV:CHINA LAKE CA	0.156	-		-		-		-	0.000	0.156	0.000
Propulsion PROPULSION MD29	C/CPFF	AMPAC:NIAGRA, NY	-	2.900	Jan 2011	-		-		-	0.000	2.900	2.900
Propulsion PROPULSION (DACS) MD29	C/CPFF	TBD Vendor:TBD Location	-	8.774	Jan 2011	-		-		-	0.000	8.774	8.774
Propulsion PROPULSION (TSRM) MD29	C/CPFF	AEROJET:SACRAMENTO, CA	-	3.754	Jan 2011	-		-		-	0.000	3.754	3.754
Propulsion PROPULSION (TSRM) - 201012148221022 MD29	C/CPFF	ATK:ELKTON, MD	-	3.754	Jan 2011	-		-		-	0.000	3.754	3.754
Propulsion PROPULSION MD29	MIPR	AFRL:EDWARDS AFB, CA	4.000	0.800	Oct 2010	-		-		-	0.000	4.800	4.800
Propulsion VLS Study MD29	MIPR	NSWC Dahlgren:Dahlgren, VA	-	0.525	Dec 2010	-		-		-	0.000	0.525	0.525
Advanced Materials & Structures ADVANCED MATERIALS MD29	C/CPFF	SMDC/SAN DIEGO COMPOSITES:SAN DIEGO CA	-	0.350	Jan 2011	-		-		-	0.000	0.350	0.350
Advanced Materials & Structures ADVANCED MATERIALS - 20098204860438 MD29	MIPR	SMDC :HUNTSVILLE, AL	-	0.625	Jan 2011	-		-		-	0.000	0.625	0.625
Advanced Materials & Structures ADVANCED MATERIALS - 20098204860442 MD29	MIPR	DEFENSE CONTRACT MAGANGEMENT AGENCY/ IAC:ALEXANDRIA VA	-	0.060	Dec 2010	-		-		-	0.000	0.060	0.060
Advanced Materials & Structures ADVANCED MATERIALS MD29	MIPR	UHT:HOLLOMAN, AFB	-	0.100	Jan 2011	-		-		-	0.000	0.100	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Advanced Materials & Structures VALUE ENGINEERING MD29	MIPR	AMRDEC:HUNTSVILLE, AL	-	0.025	Jan 2011	-		-		-	0.000	0.025	0.000
		Subtotal	87.497	31.567		-		-		-	0.000	119.064	121.646

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Power Systems CONTRACT SUPPORT SERVICES (CSS) MD29	C/FFP	DRC:ANDOVER MA	1.531	-		-		-		-	0.000	1.531	1.531
Radiation Hardening CSS MD29	C/FFP	DRC:ANDOVER MA	1.531	-		-		-		-	0.000	1.531	1.531
Radiation Hardening OTHER DOD MD29	MIPR	SMDC:HUNTSVILLE AL	0.343	-		-		-		-	0.000	0.343	0.343
Manufacturing Process Improvements JOINT DEFENSE MANUFACTURING TECHNOLOGY PANEL MD29	C/CPFF	TIBURON:ALEXANDRIA VA	0.806	-		-		-		-	0.000	0.806	0.806
Manufacturing Process Improvements CSS MD29	C/FFP	DRC:ANDOVER MA	1.531	-		-		-		-	0.000	1.531	1.531
Electro-Optics/Infrared (EO/IR) CSS MD29	C/FFP	DRC:ANDOVER MA	1.531	-		-		-		-	0.000	1.531	1.531
Electro-Optics/Infrared (EO/IR) AVIONICS SUPPORT MD29	C/CPFF	DRAPER LABS:CAMBRIDGE, MA	-	0.333	Dec 2010	-		-		-	0.000	0.333	0.333
Radar RF/Electronics CSS MD29	C/FFP	DRC:ANDOVER MA	1.531	-		-		-		-	0.000	1.531	1.531
Propulsion CSS MD29	C/FFP	DRC:ANDOVER MA	1.531	-		-		-		-	0.000	1.531	1.531
	MIPR		0.343	-		-		-		-	0.000	0.343	0.343

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Propulsion OTHER DOD MD29		SMDC:HUNTSVILLE AL											
Propulsion PROPULSION MD29	C/CPFF	SPACE DYNAMIC LAB:UTAH	-	0.170	Nov 2010	-		-		-	0.000	0.170	0.170
Advanced Materials & Structures CSS MD29	C/FFP	DRC:ANDOVER MA	1.531	-		-		-		-	0.000	1.531	1.531
Advanced Materials & Structures OTHER DOD MD29	MIPR	SMDC:HUNTSVILLE AL	0.354	-		-		-		-	0.000	0.354	0.354
		Subtotal	12.563	0.503		-		-		-	0.000	13.066	13.066

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Power Systems GOVT SALARIES AND TRAVEL MD29	Allot	MDA:ARLINGTON VA	0.754	-		-		-		-	0.000	0.754	0.000
Radiation Hardening GOVT SALARIES AND TRAVEL MD29	Allot	MDA:ARLINGTON VA	0.754	-		-		-		-	0.000	0.754	0.000
Radiation Hardening MiDAESS MD29	C/CPFF	MiDAESS:Huntsville, AL	-	0.750	Jan 2011	-		-		-	0.000	0.750	0.750
Manufacturing Process Improvements GOVT	Allot	MDA:ARLINGTON VA	0.754	-		-		-		-	0.000	0.754	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD29: *Producibility & Manufacturing Technology*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SALARIES AND TRAVEL MD29													
Electro-Optics/Infrared (EO/IR) GOVERNMENT SALARIES AND TRAVEL MD29	Allot	MDA:ARLINGTON VA	0.754	-		-		-		-	0.000	0.754	0.000
Electro-Optics/Infrared (EO/IR) MiDAESS MD29	C/CPFF	MiDAESS:Huntsville, AL	-	0.750	Jan 2011	-		-		-	0.000	0.750	0.750
Radar RF/Electronics GOVT SALARIES AND TRAVEL MD29	Allot	MDA:ARLINGTON VA	0.754	-		-		-		-	0.000	0.754	0.000
Propulsion GOVT SALARIES AND TRAVEL MD29	Allot	MDA:ARLINGTON VA	0.754	0.200	Oct 2010	-		-		-	0.000	0.954	0.000
Propulsion CSS/MiDAESS MD29	C/CPFF	MiDAESS:Huntsville, AL	-	2.305	Jan 2011	-		-		-	0.000	2.305	2.305
Advanced Materials & Structures GOVT SALARIES AND TRAVEL MD29	Allot	MDA:ARLINGTON VA	0.754	-		-		-		-	0.000	0.754	0.000
Advanced Materials & Structures MiDAESS MD29	C/CPFF	MiDAESS:Huntsville, AL	-	0.500	Jan 2011	-		-		-	0.000	0.500	0.500
		Subtotal	5.278	4.505		-		-		-	0.000	9.783	4.305

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	105.338	36.575		-		-		-	0.000	141.913	139.017

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD29: *Producibility & Manufacturing Technology*

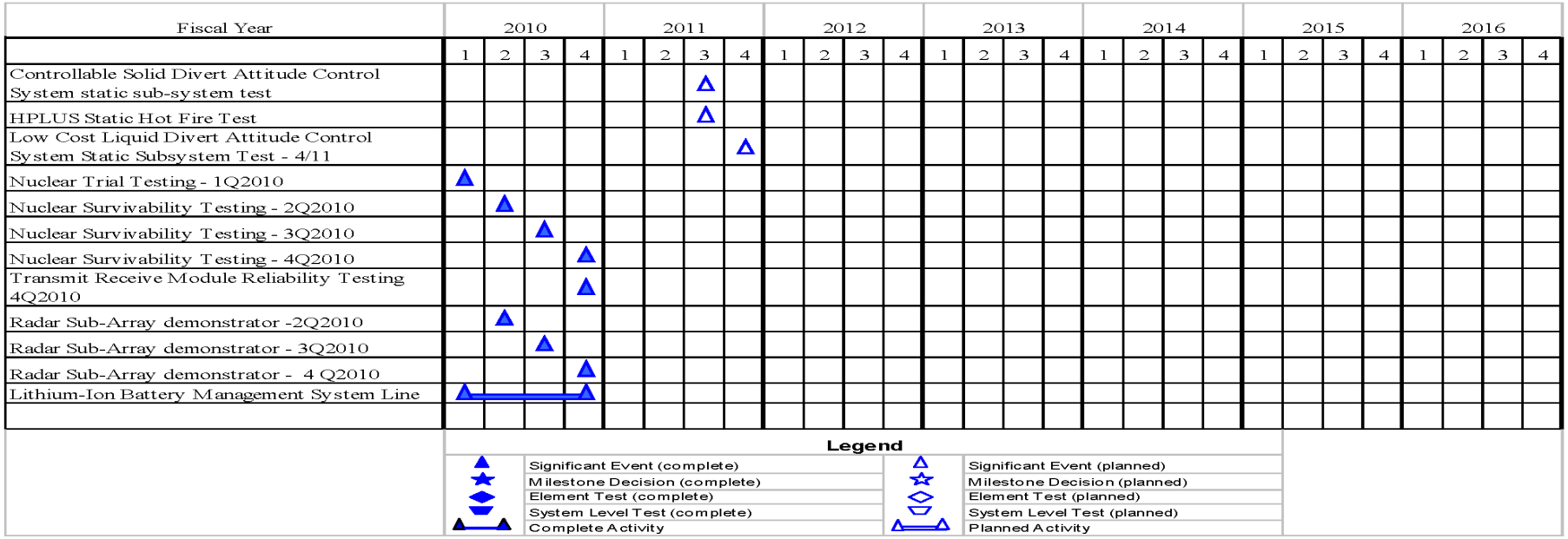

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD29: *Producibility & Manufacturing Technology*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Controllable Solid Divert Attitude Control System static sub-system test	3	2011	3	2011
HPLUS Static Hot Fire Test	3	2011	3	2011
Low Cost Liquid Divert Attitude Control System Static Subsystem Test - 4/11	4	2011	4	2011
Nuclear Trial Testing - 1Q2010	1	2010	1	2010
Nuclear Survivability Testing - 2Q2010	2	2010	2	2010
Nuclear Survivability Testing - 3Q2010	3	2010	3	2010
Nuclear Survivability Testing - 4Q2010	4	2010	4	2010
Transmit Receive Module Reliability Testing 4Q2010	4	2010	4	2010
Controllable Solid Divert and Attitude Control System Development and Test 2Q2010	2	2010	2	2010
Dorsal and Control Surface Cost Reduction 1Q2010	1	2010	1	2010
Dorsal and Control Surface Cost Reduction 2Q2010	2	2010	2	2010
Dorsal and Control Surface Cost Reduction 3Q2010	3	2010	3	2010
Dorsal and Control Surface Cost Reduction 4Q2010	4	2010	4	2010
Specialized Solutions 1Q2010	1	2010	1	2010
Specialized Solutions 2Q2010	2	2010	2	2010
Specialized Solutions 3Q2010	3	2010	3	2010
Specialized Solutions 4Q2010	4	2010	4	2010
Radar Sub-Array demonstrator -2Q2010	2	2010	2	2010
Radar Sub-Array demonstrator - 3Q2010	3	2010	3	2010
Radar Sub-Array demonstrator - 4 Q2010	4	2010	4	2010
Lithium-Ion Battery Management System Line	1	2010	4	2010

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
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COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
YX30: *BMD Information Management Systems*	109.324	-	-	-	-	-	-	-	-	0.000	109.324
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project YX30 has been transferred to project MD30.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD30 for FY 2010 Accomplishments	109.324	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	109.324	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
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COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD30: *BMD Information Management Systems*	-	111.829	116.508	-	116.508	112.919	96.783	105.018	109.678	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

The Ballistic Missile Defense (BMD) Information Management Systems Project funds the Information Technology (IT), Information Assurance (IA) and telecommunications infrastructure of the Agency. The information management, cyber security, information assurance and telecommunications infrastructure is critical to the day-to-day functions of the MDA Director, MDA senior leaders and all MDA personnel to communicate (classified and unclassified) with each other, Congress, senior DoD and other U.S. government agency personnel, Combatant Commanders, North Atlantic Treaty Organization (NATO) partners, and other industry partners. Communication among these organizations facilitates the MDA mission of developing and fielding an integrated Ballistic Missile Defense System (BMDS) to defend the United States, our deployed forces, allies and friends against all ranges of enemy ballistic missiles in all phases of flight. The MDA information technology, cyber security, information assurance and telecommunication capabilities support rigorous missile defense testing and facilitates the development of technologies to hedge against future missile threat growth. Communications are vital for missile defense to continue a viable homeland defense against rogue threats and to provide the integration required to defend deployed forces, allies, and friends against theater threats. The information technology, cyber security, information assurance and telecommunications infrastructure consists of MDA secure information technology systems, data centers, operations and monitoring centers which are vital to support the strategic mission of the Agency and necessary to meet disaster recovery and continuity of operations requirements. This infrastructure is required to sustain access to the Secret Internet Protocol Router Network (SIPRNET), Non secure Internet Protocol Router Network (NIPRNET), MDA classified and unclassified networks, classified and unclassified video teleconferencing services, test and business knowledge data centers, the Defense Research Engineering Network (DREN). These mission critical functions provide for the efficient operation and safeguarding of all agency information in locations supporting MDA around the world including Alabama, Alaska, California, Colorado, Hawaii, the National Capital Region, New Mexico, United Kingdom, Israel and Japan. This project funds information management/ information technology operations for multiple systems in existing and new facilities at Dahlgren, Virginia and during the MDA transition to Huntsville, Alabama and Alexandria, Virginia.

To support the Director`s intent to significantly improve all layers of our Ballistic Missile Defense System (BMDS), this project funds several Information Technology (IT) mission critical functions. These mission critical functions provide for the efficient operation and safeguarding of Agency information in compliance with DoD policies and in keeping with the President`s declaration that ``cyber threat is one of the most serious economic and national security challenges we face as a nation``. The mission critical functions of this project include:

-Operational support to provide critical day-to-day IT support to the Agency mission at locations in Alabama, Virginia, Colorado, California, Alaska and New Mexico as well as locations in Europe, Japan and Israel
-Information Technology enterprise architecture that is compliant with DoD and Federally mandated standards for the business and mission support activities of the MDA
-Interaction with the U.S. Cyber Command for instructions and regulatory guidance and reporting requirements

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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-Business Transformation Agency efforts to provide DoD approved solutions for information sharing, electronic records management, financial management, and decision support systems to achieve more effective, efficient and secure business and mission support activities throughout MDA
-Knowledge center integration and universal access for information sharing capabilities
-Consolidated information technology infrastructure in support of information technology line of business goals/objectives
-Information assurance controls and computer network defense of MDA networks infrastructure for disaster recovery and continuity of operations capabilities
-Certification and accreditation processes that support the BMDS, test assets, and administrative support networks
-Cyber Security implementation of information technology policies, guidance, planning, oversight, and monitoring to ensure continued compliance with DoD mandated initiatives, statutes, regulations, directives, and policies
-Implementation of an MDA Decision Support System to focus on integration of the technical, schedule and resource baselines for data retrieval, visualization, and automated programmatic analyses to support and improve decision making processes

The Cost Categories under the R-3 Section II. Support Costs for General IT Services reflects cost increases which are due to an internal realignment between the five major Support Cost Categories in this Project to reflect the current business model for General IT Services. MDA has realigned CIO IT Civilian Pay from Program Wide Support in FY 2012, as reflected in R-3 Section II Support Costs.

The BMD Information Management Systems project MD30 includes the following five mission critical Information Technology (IT) functional efforts:

-General IT Services

The General IT Services mission critical function consists of IT support services required to operate and maintain the classified and unclassified IT infrastructure in the National Capital Region including the Aegis Program Office at Dahlgren, Virginia; several MDA locations in Huntsville, Alabama region; the Colorado Springs, Colorado region; Edwards Air Force Base, California; Kirtland Air Force Base, New Mexico; Edwards Air Force Base, California; MDA`s enclave at Ft Greely and Elmendorf AFB, Alaska. This includes IT operations and maintenance, help desk services and hardware maintenance and software licensing in support of BMDS mission, research and test efforts as well as MDA business processes. Funding also supports coordination with the MDA Enterprise Network Operations Security Center (ENOSC) to implement Information Assurance Vulnerability Assessments (IAVAs) issued by the U.S. Cyber Command. This mission critical function also funds planning, programming, budget and execution support and Federal and DoD IT compliance reporting. The funding supports operations and maintenance of new facilities in Huntsville, Alabama; Dahlgren, Virginia; and Fort Belvoir, Virginia. This function provides the infrastructure necessary for planning and coordination of the Director`s RDT&E, operation and maintenance, and upgrade initiatives for the Ballistic Missile Defense System (BMDS).

-Knowledge and Information Management

In accordance with the Clinger Cohen Act and DoD directives, this mission critical function provides for the licensing and sustainment of DoD approved enterprise information applications. This function also provides management and storage of both the unclassified and classified MDA data to share information and knowledge throughout the Missile Defense community. Examples of DoD mandated and mission essential applications include Ballistic Missile Defense (BMD) Asset Management System, Decision Support System (DSS), BMDS Integrated Master Schedule, Electronic Records Management System, Electronic Tasking (E-Tasker), Integrated

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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Acquisition Environment, data management tool, financial management tools, personnel tracking system, MDA Identify and Management Infrastructure application, Computer-Aided Facilities Management, the MDA Employee Development Center, the Program Resource Internet Database Environment (PRIDE), and the MDA Standard Procurement System (SPS). This function supports the operations and maintenance of the Visual Information Production Centers, state of-the-art, high capacity graphic and video production services for senior leadership and agency employees. This function provides the infrastructure necessary for planning and coordination of the Director`s RDT&E, operations and maintenance, and upgrade initiatives for the Ballistic Missile Defense System (BMDS).

-Unified Communications

The Unified Communications mission critical function supports leased communications (classified and unclassified wide area networks, metropolitan area networks, and local area networks), telecommunications (local and long distance telephone services and secure and non secure mobile and desktop telephony devices), management, engineering, systems integration, operations, maintenance and technical support services. These services are provided at MDA locations including the National Capital Region; Huntsville, Alabama; Colorado Springs, Colorado and interceptor sites at Fort Greely and Elmendorf, Alaska; Kirtland Air Force Base, New Mexico and Vandenberg Air Force Base, California. This includes classified and unclassified voice and data circuits, video teleconferencing and sustainment of Video Over Internet Protocol (VoIP) capability to enhance resolution and control costs. Circuits and associated services are provided by the Defense Information Systems Agency (DISA) as well as the Defense Research and Engineering Network (DREN). These circuits provide access to over 80 government and industry partner locations to enable information sharing of BMD-related data throughout the global MDA Enterprise. Also included are planning efforts to ensure that the policies and budget are in place to support BMDS mission and to comply with statutory and DoD policies including: Clinger-Cohen Act, the Federal Information Security Management Act, and Office of Management and Budget (OMB) Information Technology (IT) budget reporting policies. This function provides the infrastructure necessary for planning and coordination of the Director`s RDT&E, operations and maintenance, and upgrade initiatives for the BMDS.

-Cyber Security and Information Assurance

The Cyber Security and Information Assurance mission critical function supports the Federal Information Security Management Act (FISMA) and is a key priority of the MDA Director. This vital program of the BMDS and MDA Enterprise consists of cyber security, information assurance, computer network defense, network situational awareness, and certification and accreditation activities to comply with the Global Information Grid Information Assurance Strategic Plan and Goals, DoD information assurance directives, instructions and guidelines. Additionally, the cyber security and information assurance program integrates human capital management initiatives to sustain and improve the continuity of workforce operations by providing information assurance workforce training and certification. The information assurance program provides system security engineering, development, and testing to ensure that command, control, communications, and computing systems are protected against malicious or accidental attacks and supports the transfer of missile defense capabilities between MDA and the Services. The MDA cyber security and information assurance program provides the network security operations center and supporting processes to protect and defend MDA knowledge stores and information systems against cyber warfare. The MDA Enterprise Network Operations Security Center manages network situational awareness and status reporting. The MDA Computer Emergency Response Team (CERT) coordinates with the U.S. Cyber Command to identify and implement network vulnerability updates. This ensures the availability, integrity, authentication, confidentiality and non-repudiation of the MDA mission, test and administrative systems. This function ensures the Information Technology (IT) support structure is sustained at an appropriate level to meet the Director`s operational availability across multiple environments and locations.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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-Information Technology (IT) Sustainment Engineering

This mission critical function provides project planning, sustainment engineering efforts, and Information Technology (IT) equipment and consumables for MDA general IT services and business systems to ensure compliance with Federal and DoD enterprise standards. Engineering efforts are essential to ensure the continuity of IT services necessary for the design, development, modeling, and testing of the Ballistic Missile Defense System (BMDS). Information Technology consumables consist of critical equipment sparing and test equipment necessary to sustain the general IT services to facilitate critical repairs within a 24 hour period. IT consumables also consist of items that require periodic replacement such as toner, keyboards, monitors, cabling, etc. This function provides the infrastructure necessary for planning and coordination of the Director`s RDT&E, operations and maintenance, and upgrade initiatives for the BMDS.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: General IT Services	-	31.621	57.377
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: $42,672 -Sustained Information Technology (IT) operational services 8 hours a day, 5 days a week for administrative and business information systems -Implemented information assurance vulnerability assessment control improvements in accordance with established Plan of Action and Milestones -Monitored networks for user compliance with DoD policies, and report incidents -Funded hardware and software licenses for IT operational systems -Tested and implemented software application upgrades -Maintained the network and help desk services -Provided planning, budgeting, and management oversight of IT projects -Provided web-based training to MDA users on new applications and upgrade -Monitored networks for user compliance with DoD policies and reported incidents -Maintained MDA IT system interface configuration control and asset management -Maintained asset accountability of IT equipment in accordance with DoD policies -Supported in/out processing operations and relocation of MDA personnel -Funding for these FY 2010 accomplishments are reported in prior year budget project YX30			
FY 2011 Plans: -Sustain Information Technology (IT) operational services 8 hours a day, 5 days a week for administrative and business information systems			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD30: *BMD Information Management Systems*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Implement information assurance vulnerability assessment control improvements in accordance with established Plan of Action and Milestones -Monitor networks for user compliance with DoD policies, and report incidents -Fund hardware and software licenses for IT operational systems -Test and implement software application upgrades -Maintain the network and help desk services -Provide planning, budgeting, and management oversight of IT projects -Provide web-based training to MDA users on new applications and upgrade -Monitor networks for user compliance with DoD policies and reported incidents -Maintain MDA IT system interface configuration control and asset management -Maintain asset accountability of IT equipment in accordance with DoD policies -Support in/out processing operations and relocation of MDA personnel.			
FY 2012 Plans: -Sustain Enterprise Network Operations Security Center (ENOSC) 24 hours a day, 7 days a week (this effort was previously reported in Cyber Security and Information Assurance) -Sustain 8 hours a day, 5 days a week IT operations of Federal Office Building II in the National Capital Region and the Wynn Drive facility in Huntsville, Alabama until decommissioned. -Sustain IT operational services 8 hours a day, 5 days a week for administrative and business information systems -Implement information assurance vulnerability assessment control improvements in accordance with established Plan of Action and Milestones -Monitor networks for user compliance with DoD policies, and report incidents -Fund hardware and software licenses for Information Technology (IT) operational systems (previously report in Knowledge and Information Management) -Test and implement software application upgrades -Maintain the network and help desk services -Provide planning, budgeting, and management oversight of IT projects -Provide web-based training to MDA users on new applications and upgrade -Monitor networks for user compliance with DoD policies and reported incidents -Maintain MDA IT system interface configuration control and asset management -Support in/out processing operations and relocation of MDA personnel			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Maintain asset accountability of IT equipment in accordance with DoD policy -Fund MDA CIO Office civilian salaries Defense Efficiency - As part of the Department of Defense reform agenda, reductions reported for General IT Services in FY 2012 are $2.639M.			
Title: Cyber Security and Information Assurance	-	18.780	13.779
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** $11,023 -Achieved a letter grade of ``A`` on the Defense Information Systems Agency Command Cyber Readiness Inspection -Funded recurring hardware maintenance and software licenses for Information Assurance (IA) monitoring systems -Monitored and defended MDA mission, test, and administrative information systems on a 24 hours a day, 7 days a week basis, 365 days a year -Collected, analyzed, and reported vulnerability and cyber warfare attack metrics to the MDA Chief Information Officer (CIO), MDA leadership, and U.S. Cyber Command - Revised and updated Information Assurance certification packages for administrative and business information technology systems reported to DoD and Office of Management and Budget -Ensured MDA mission, test, and administrative systems are operated securely in accordance with DoD Information Assurance Certification and Accreditation policies -Managed the Information Assurance Workforce Improvement Program to certify CIO Information Assurance professionals and reported compliance in accordance with Federal Information Security Management Act (FISMA) and DoD Manual 8570.1, achieving the DoD certification goal -Completed annual Information Assurance user training for the MDA workforce -Provided Information Assurance engineering and planning guidance and vulnerability assessment for all MDA Information Technology acquisition programs -Funding for these FY 2010 accomplishments are reported in prior year budget project YX30 ***FY 2011 Plans:*** -Fund recurring hardware maintenance and software licenses for Information Assurance (IA) monitoring systems			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Monitor and defend MDA mission, test, and administrative information systems on a 24 hours a day, 7 days a week basis, 365 days a year -Collect, analyze, and report vulnerability and cyber warfare attack metrics to the MDA Chief Information Officer (CIO), MDA leadership, and U.S. Cyber Command - Revise and update Information Assurance certification packages for administrative and business information technology systems reported to DoD and Office of Management and Budget -Ensure MDA mission, test, and administrative systems are operated securely in accordance with DoD Information Assurance Certification and Accreditation policies -Manage the Information Assurance Workforce Improvement Program to certify CIO Information Assurance professionals and report compliance in accordance with Federal Information Security Management Act (FISMA) and DoD Manual 8570.1, achieving the DoD certification goal -Complete annual Information Assurance user training for the MDA workforce -Provide Information Assurance engineering and planning guidance and vulnerability assessment for all MDA Information Technology acquisition programs			
FY 2012 Plans: -Fund recurring hardware maintenance and software licenses for IA monitoring systems -Monitor and defend mission, test, and administrative information systems on a 24 hours a day, 7 days a week, 365 days a year basis -Collect, analyze, and report vulnerability and cyber warfare attack metrics to the MDA Chief Information Officer (CIO), MDA leadership, and U.S. Cyber Command -Revise and update Information Assurance certification packages for administrative and business information technology systems reported to DoD and Office of Management and Budget -Ensure MDA mission, test, and administrative systems are operated securely in accordance with DoD Information Assurance Certification and Accreditation policies -Manage the Information Assurance Workforce Improvement Program to certify CIO Information Assurance professionals and report compliance in accordance with Federal Information Security Management Act (FISMA) and DoD Manual 8570.1, achieving the DoD certification goal -Complete annual Information Assurance user training for the MDA workforce -Maintain asset accountability of Information Technology equipment in accordance with DoD policies -Provide Information Assurance engineering and planning guidance and vulnerability assessment for all MDA Information Technology acquisition programs			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Fund MDA CIO Office civilian salaries			
Title: Unified Communications	-	20.398	20.101
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: $18,626 -Supported unified communications requirements during the transition to new facilities in Huntsville, AL and Alexandria, VA -Funded recurring leased circuits (wide area, local area and metropolitan area networks), maintenance agreements and licenses for MDA Enterprise network and telecommunications equipment (classified and unclassified mobile and telephony devices) -Operated, monitored, and sustained recurring classified and unclassified telecommunications equipment to comply with DoD policies and Global Information Grid architecture plan -Operated, monitored, and sustained recurring classified and unclassified wireless services -Operated, monitored, and sustained recurring operations for agency wide video teleconference rooms and equipment -Provided and implemented engineering solutions for all unified communication services -Funding for these FY 2010 accomplishments are reported in prior year budget project YX30			
FY 2011 Plans: -Compete, award and transition to a new operations, maintenance and engineering services contract for the MDA Video Telecommunications infrastructure -Support unified communications requirements during the transition to new facilities in Huntsville, AL and Alexandria, VA -Fund recurring leased circuits (wide area, local area and metropolitan area networks), maintenance agreements and licenses for MDA Enterprise network and telecommunications equipment (classified and unclassified mobile and telephony devices) -Operate, monitor, and sustain recurring classified and unclassified telecommunications equipment to comply with DoD policies and Global Information Grid architecture plan -Operate, monitor, and sustain recurring classified and unclassified wireless services -Operate, monitor, and sustain recurring operations for agency wide video teleconference rooms and equipment -Provide and implement engineering solutions for all unified communication services			
FY 2012 Plans: -Fund recurring leased circuits (wide area, local area and metropolitan area networks) maintenance agreements and licenses for MDA Enterprise network and telecommunications equipment			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Operate, monitor, and sustain recurring classified and unclassified telecommunications equipment (classified and unclassified mobile and telephony devices) to comply with DoD policies and Global Information Grid architecture plan -Operate, monitor, and sustain recurring classified and unclassified wireless services -Operate, monitor, and sustain recurring operations for agency wide video teleconference rooms and equipment -Provide and implement engineering solutions for all unified communication services -Fund MDA CIO Office civilian Salaries Defense Efficiency - As part of the Department of Defense reform agenda, reductions reported for Unified Communications in FY 2012 are $2.181M.			
Title: Knowledge and Information Management	-	28.983	13.433
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** $26,261 -Managed MDA business applications and sustained financial and contractual support systems -Managed software assessment program and conducted reviews of proposed software applications for DoD compliance -Sustained the Ballistic Missile Defense System (BMDS) Integrated Master Schedule and the Ballistic Missile Defense (BMD) Asset Management Tool -Conducted privacy impact surveys and supported compliance reporting -Managed MDA web-based training programs for information assurance, business applications, workforce certification, security, and ethics -Sustained MDA Knowledge Online services -Funding for these FY 2010 accomplishments are reported in prior year budget project YX30 ***FY 2011 Plans:*** -Deliver a prototype Decision Support System implementing industry best practice data retrieval capabilities for retrieving data from the Ballistic Missile Defense System technical, schedule and resource baselines -Manage MDA business applications and sustain financial and contractual support systems -Manage software assessment program and conduct reviews of proposed software applications for DoD compliance -Sustain the Ballistic Missile Defense System (BMDS) Integrated Master Schedule and the Ballistic Missile Defense (BMD) Asset Management Tool			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Conduct privacy impact surveys and support compliance reporting -Manage MDA web-based training programs for information assurance, business applications, workforce certification, security, and ethics -Sustain MDA Knowledge Online services ***FY 2012 Plans:*** -Manage MDA business applications and sustain financial and contractual support systems -Manage software assessment program and conduct reviews of proposed software applications for DoD compliance -Sustain the BMDS Integrated Master Schedule and the BMD Asset Management Tool -Conduct privacy impact surveys and support compliance reporting -Manage MDA web-based training programs for information assurance, business applications, workforce certification, security, and ethics -Sustain MDA Knowledge Online services -Fund MDA CIO Office civilian salaries			
Title: IT Sustainment Engineering	-	12.047	11.818
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** $10,742 -Sustained Information Technology (IT) services across the MDA Enterprise and maintain critical spares inventory -Architected and developed plans to repair general IT service and business systems -Performed analysis, tracked, and reported metrics on equipment lifecycle and average time to repair -Planned, engineered and implemented sustainment projects for general IT service and business systems -Procured, received, inventoried, and managed IT equipment to include network devices and desktop and laptop computers -Funding for these FY 2010 accomplishments are reported in prior year budget project YX30 ***FY 2011 Plans:*** -Sustain Information Technology (IT) services across the MDA Enterprise and maintain critical spares inventory -Architect and develop plans to repair general IT service and business systems -Perform analysis, track, and report metrics on equipment lifecycle and average time to repair -Plan, engineer and implement sustainment projects for general IT service and business systems			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Procure, receive, inventory, and manage IT equipment to include network devices and desktop and laptop computers ***FY 2012 Plans:*** -Sustain Information Technology (IT) services across the MDA Enterprise and maintain critical spares inventory -Architect and develop plans to repair general IT service and business systems -Perform analysis, track, and report metrics on equipment lifecycle and average time to repair -Plan, engineer and implement sustainment projects for general IT service and business systems -Revise and test contingency plans for IT systems across the MDA enterprise -Procure, receive, inventory, and manage IT equipment to include network devices, desktop and laptop computers -Fund MDA CIO Office civilian salaries Defense Efficiency - As part of the Department of Defense reform agenda, reductions reported for IT Sustainment Engineering for FY 2012 are $.406M.			
Accomplishments/Planned Programs Subtotals	-	111.829	116.508

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603175C: *Ballistic Missile Defense Technology*	164.670	132.220	75.003		75.003	103.844	111.712	164.378	170.851	Continuing	Continuing
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	690.054	436.482	290.452		290.452	318.745	309.894	340.969	320.638	Continuing	Continuing
• 0603882C: *Ballistic Missile Defense Mid-Course Segment*	1,022.019	1,346.181	1,161.001		1,161.001	1,040.949	925.943	856.839	875.969	Continuing	Continuing
• 0603883C: *Ballistic Missile Defense Boost Defense Segment*	172.419	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	172.419
• 0603884C: *Ballistic Missile Defense Sensors*	544.352	454.859	222.374		222.374	357.271	336.514	318.321	348.944	Continuing	Continuing
• 0603888C: *Ballistic Missile Defense Test and Targets*	737.863	1,113.425	1,071.039		1,071.039	898.680	790.906	787.113	878.215	Continuing	Continuing
	253.157	270.189	296.554		296.554	377.845	416.052	430.969	452.448	Continuing	Continuing

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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603891C: *SPECIAL PROGRAMS - MDA*	1,418.992	1,467.278	960.267		960.267	957.992	1,001.510	970.607	1,033.710	Continuing	Continuing
• 0603892C: *BMD AEGIS*	148.506	112.678	96.353		96.353	53.577	47.592	32.289	34.308	Continuing	Continuing
• 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	11.913	10.942	7.951		7.951	6.781	6.465	6.496	6.915	Continuing	Continuing
• 0603895C: *BMD SYSTEM SPACE PROGRAM*	327.074	342.625	364.103		364.103	330.337	353.081	338.835	304.217	Continuing	Continuing
• 0603896C: *BMD C2BMC*	45.250	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	45.250
• 0603897C: *BMD HERCULES*	58.105	68.726	41.225		41.225	58.089	55.961	56.479	60.684	Continuing	Continuing
• 0603898C: *BMD JOINT WARFIGHTER SUPPORT*	0.000	98.688	96.329		96.329	91.953	93.134	92.304	95.003	Continuing	Continuing
• 0603901C: *DIRECTED ENERGY RESEARCH*	0.000	0.000	123.456		123.456	433.106	384.647	401.141	394.803	Continuing	Continuing
• 0603902C: *STANDARD MISSILE-3 BLOCK IIB (SM-3 IIB)*	82.926	86.198	69.325		69.325	64.514	55.808	56.769	54.621	Continuing	Continuing
• 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	5.785	7.529	15.797		15.797	9.092	6.997	5.493	2.064	Continuing	Continuing
• 0603906C: *REGARDING TRENCH*	157.739	153.056	177.058		177.058	172.622	162.628	185.934	173.587	Continuing	Continuing
• 0603907C: *SEA BASED X-BAND RADAR (SBX)*	47.342	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	47.342
• 0603911C: *BMD EUROPEAN CAPABILITY*	195.652	121.735	106.100		106.100	99.873	95.819	96.840	103.977	Continuing	Continuing
• 0603913C: *ISRAELI COOPERATIVE*	0.000	281.378	306.595		306.595	149.320	60.628	41.417	154.842	Continuing	Continuing
• 0604880C: *LAND-BASED SM-3*	247.825	318.800	424.454		424.454	357.194	279.444	203.553	25.165	Continuing	Continuing
• 0604881C: *SM-3 BLOCK IIA CO-DEVELOPMENT*	0.000	66.969	160.818		160.818	272.881	302.344	273.623	331.205	Continuing	Continuing
• 0604883C: *PRECISION TRACKING SPACE SYSTEM*	0.000	111.671	46.877		46.877	49.948	49.173	33.035	34.249	Continuing	Continuing

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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0604884C: *AIRBORNE INFRARED (ABIR)*											

D. Acquisition Strategy

In FY 2011, the MDA will award a competitive contract for the Video Teleconference Collaboration Services to be performed at all MDA locations.

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
General IT Services IT Operations MD30	C/CPAF	Northrop Grumman:Various MDA Locations	24.931	21.062	Oct 2010	32.025		-		32.025	Continuing	Continuing	Continuing
General IT Services IT Management Support/ Portfolio/CRMs MD30	C/CPAF	Northrop Grumman:Various MDA Locations	2.490	1.773	Oct 2010	2.101		-		2.101	Continuing	Continuing	Continuing
General IT Services General IT Advisory and Assistance Services MD30	C/FFP	TBD:TBD	4.395	5.841	Oct 2010	1.817		-		1.817	Continuing	Continuing	Continuing
General IT Services Civilian Travel/PCS MD30	Allot	MDA Civilian Travel:Civilian	-	0.396	Oct 2010	0.817		-		0.817	Continuing	Continuing	Continuing
General IT Services IT Hardware/Software Licenses and Maintenance MD30	C/FP	Various:Various	8.845	2.549		14.563		-		14.563	Continuing	Continuing	Continuing
General IT Services MDA CIO General IT Services Civilian Pay MD30	Allot	MDA Civilian Pay:Various MDA Locations	-	-		6.054		-		6.054	Continuing	Continuing	Continuing
Cyber Security and Information Assurance MDA Information Assurance Certification MD30	C/CPAF	Northrop Grumman:Various MDA Locations	-	2.257	Oct 2010	2.771		-		2.771	Continuing	Continuing	Continuing
Cyber Security and Information Assurance Information Assurance Advisory and Assistance Services MD30	C/FFP	TBD:TBD	3.709	4.647	Oct 2010	3.343		-		3.343	Continuing	Continuing	Continuing
	C/FFP		1.475	1.397	Oct 2010	1.385		-		1.385	Continuing	Continuing	Continuing

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Cyber Security and Information Assurance DIACAP Certification/ Accreditation Support MD30		Northrop Grumman:Various MDA Locations											
Cyber Security and Information Assurance DEERS/RAPIDS/Active Client/ Card Support MD30	MIPR	Various :Various	0.080	0.083	Oct 2010	0.090		-		0.090	Continuing	Continuing	Continuing
Cyber Security and Information Assurance Identify Protection Support MD30	C/CPAF	WHS:VA	0.170	0.172	Oct 2010	0.179		-		0.179	Continuing	Continuing	Continuing
Cyber Security and Information Assurance COMSEC MD30	C/CPAF	Northrop Grumman:Various MDA Locations	0.647	0.667	Oct 2010	0.319		-		0.319	Continuing	Continuing	Continuing
Cyber Security and Information Assurance IAVA Operations and Support MD30	C/CPAF	Northrop Grumman:Various MDA Locations	2.212	2.904	Oct 2010	2.573		-		2.573	Continuing	Continuing	Continuing
Cyber Security and Information Assurance Information Assurance ENOSC (moved to General IT Services for FY 2012) MD30	C/CPAF	Northrop Grumman:Various MDA Locations	1.397	6.653	Oct 2010	-		-		-	Continuing	Continuing	Continuing
Cyber Security and Information Assurance MDA CIO Information Assurance Civilian Pay MD30	Allot	MDA Civilian Pay:Various MDA Locations	-	-		3.119		-		3.119	Continuing	Continuing	Continuing
Unified Communications Leased Communications - LAN/WAN MD30	MIPR	DISA/DREN:IL	3.830	4.934	Oct 2010	4.110		-		4.110	Continuing	Continuing	Continuing
Unified Communications WAN Engineering Sustainment Support MD30	C/CPAF	Northrop Grumman:Various MDA Locations	1.361	0.985	Jan 2011	0.990		-		0.990	Continuing	Continuing	Continuing
	C/FP	Various:Various	5.000	4.268	Oct 2010	5.971		-		5.971	Continuing	Continuing	Continuing

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Unified Communications Leased Telecom Wireless/ Local/Long Distance MD30													
Unified Communications Unified Communications Advisory and Assistance Services MD30	C/FFP	TBD:TBD	1.503	1.440	Oct 2010	0.552		-		0.552	Continuing	Continuing	Continuing
Unified Communications VTC Operations MD30	C/CPAF	TBD:TBD	5.961	8.771	Oct 2010	7.194		-		7.194	Continuing	Continuing	Continuing
Unified Communications MDA CIO Unified Communications Civilian Pay MD30	Allot	MDA Civilian Pay:Various MDA Locations	-	-		1.284		-		1.284	Continuing	Continuing	Continuing
Knowledge and Information Management Unclassified MDA Knowledge Online O&M Support MD30	C/CPAF	PHACIL:VA	11.246	6.617	Oct 2010	6.893		-		6.893	Continuing	Continuing	Continuing
Knowledge and Information Management Know Mgt Advisory and Assistance Services MD30	C/FFP	TBD :TBD	1.145	1.068	Oct 2010	-		-		-	Continuing	Continuing	Continuing
Knowledge and Information Management Standard Procurement System Support MD30	MIPR	SPS JPMO:VA	0.395	0.347	Oct 2010	0.424		-		0.424	Continuing	Continuing	Continuing
Knowledge and Information Management PRIDE Application Support MD30	C/CPAF	CIMS/CAMBER:AL	0.942	0.995	Oct 2010	1.128		-		1.128	Continuing	Continuing	Continuing
Knowledge and Information Management Classified MDA Knowledge Online O&M Support MD30	C/CPAF	Northrop Grumman:Various MDA Locations	1.844	1.110	Oct 2010	1.968		-		1.968	Continuing	Continuing	Continuing
Knowledge and Information Management Visual	SS/CPFF	CSC:Various MDA Locations	-	4.240	Jul 2011	-		-		-	Continuing	Continuing	Continuing

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Support ($ in Millions)

				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 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
Information Production Center MD30													
Knowledge and Information Management Knowledge and Information Management Software Licenses MD30	C/CPAF	Northrop Grumman:Various MDA Locations	3.566	1.780	Oct 2010	1.920		-		1.920	Continuing	Continuing	Continuing
Knowledge and Information Management IT General Services Licenses and Maintenance (moved to General IT Service in FY 2012) MD30	C/FP	Various:Various	-	12.826		-		-		-	Continuing	Continuing	Continuing
Knowledge and Information Management MDA CIO Knowledge and Information Management Civilian Pay MD30	Allot	MDA Civilian Pay:Various MDA Locations	-	-		1.100		-		1.100	Continuing	Continuing	Continuing
Knowledge and Information Management Decision Support System MD30	C/CPAF	IBM:Huntsville	6.309	-		-		-		-	Continuing	Continuing	Continuing
IT Sustainment Engineering Implementation/Architectural Engineering Support MD30	C/CPAF	Northrop Grumman:Various MDA Locations	2.358	2.741	Oct 2010	2.178		-		2.178	Continuing	Continuing	Continuing
IT Sustainment Engineering IT Recapitalization/Consumables MD30	C/CPAF	Northrop Grumman:Various MDA Locations	0.583	6.280	Oct 2010	3.736		-		3.736	Continuing	Continuing	Continuing
IT Sustainment Engineering Contract Deliverables/OMB, OSD, DoD Compliance Monitoring Reporting MD30	Allot	Various:Various	2.274	1.648	Oct 2010	3.637		-		3.637	Continuing	Continuing	Continuing
IT Sustainment Engineering IT Sustainment Engineering Advisory and Assistance Services MD30	C/FFP	TBD:TBD	1.073	1.378	Oct 2010	0.249		-		0.249	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD30: *BMD Information Management Systems*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
IT Sustainment Engineering MDA CIO IT Sustainment Engineering Civilian Pay MD30	Allot	MDA Civilian Pay:Various MDA Locations	-	-		2.018		-		2.018	Continuing	Continuing	Continuing
		Subtotal	99.741	111.829		116.508		-		116.508			

Remarks

The overall increase from FY 2011 to FY 2012 reflects the funding this Project requires to operate and maintain the MDA IT infrastructure to meet the demands of the Agency, to ensure it operates in a secure environment, and to ensure technology enhancements promote the maximum efficiency of operations.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	99.741	111.829		116.508		-		116.508			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD30: *BMD Information Management Systems*

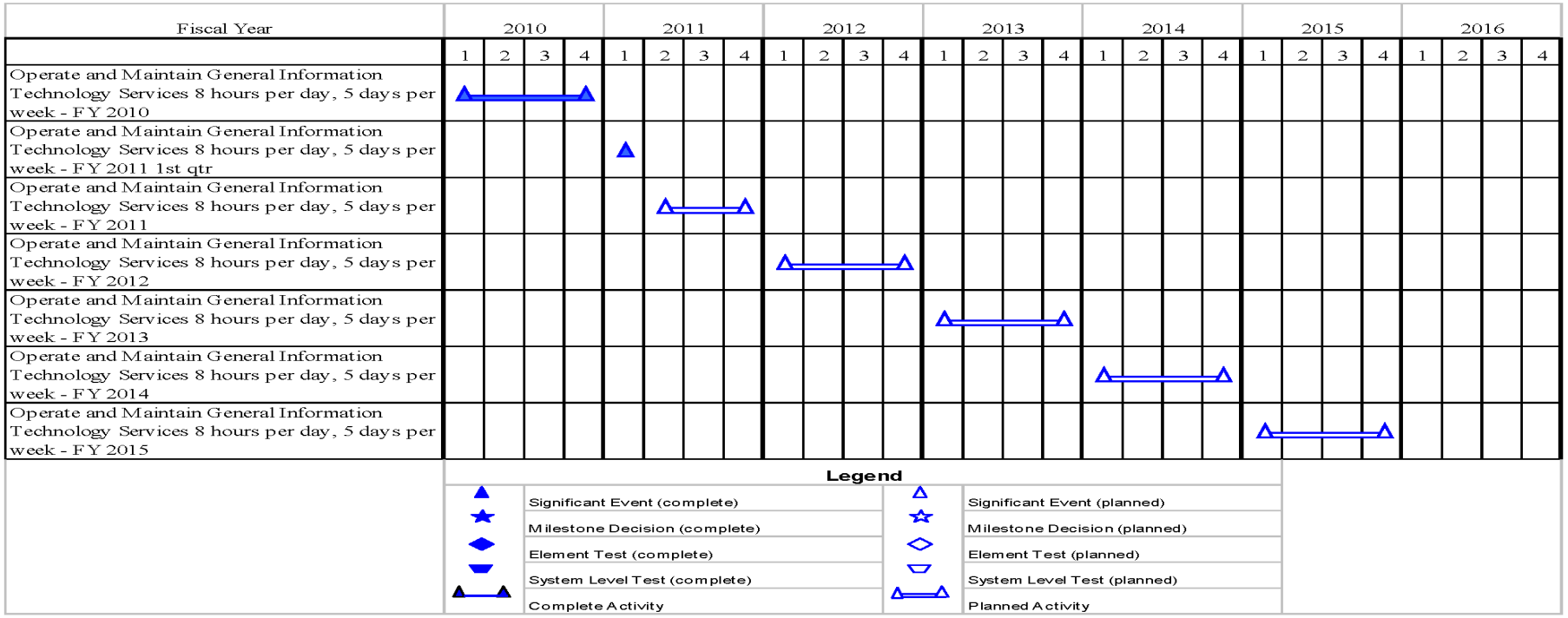

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
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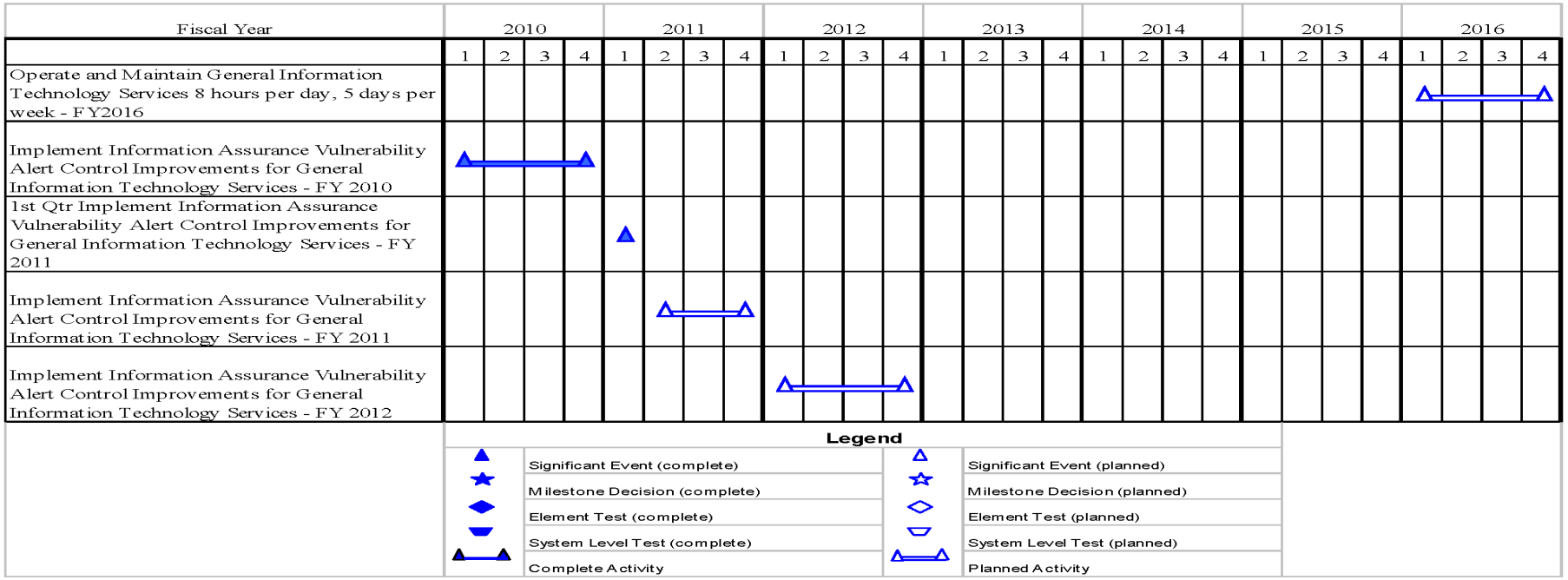

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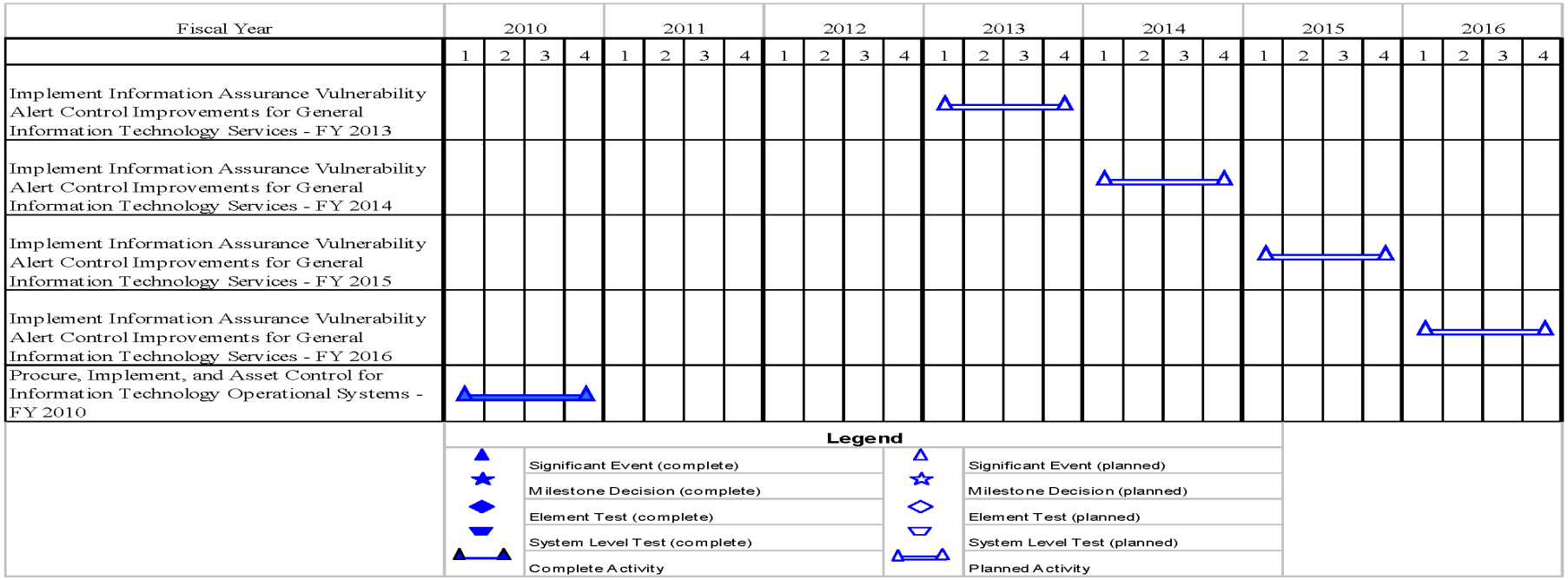

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
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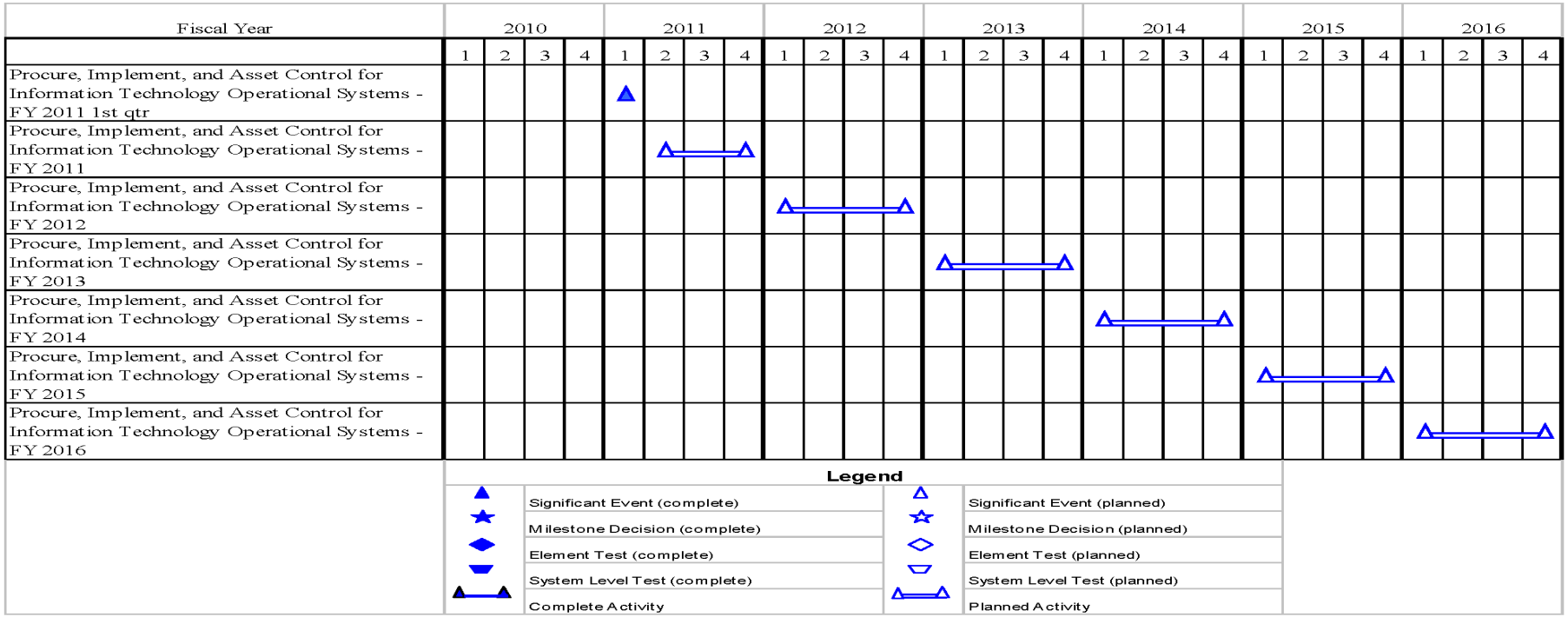

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
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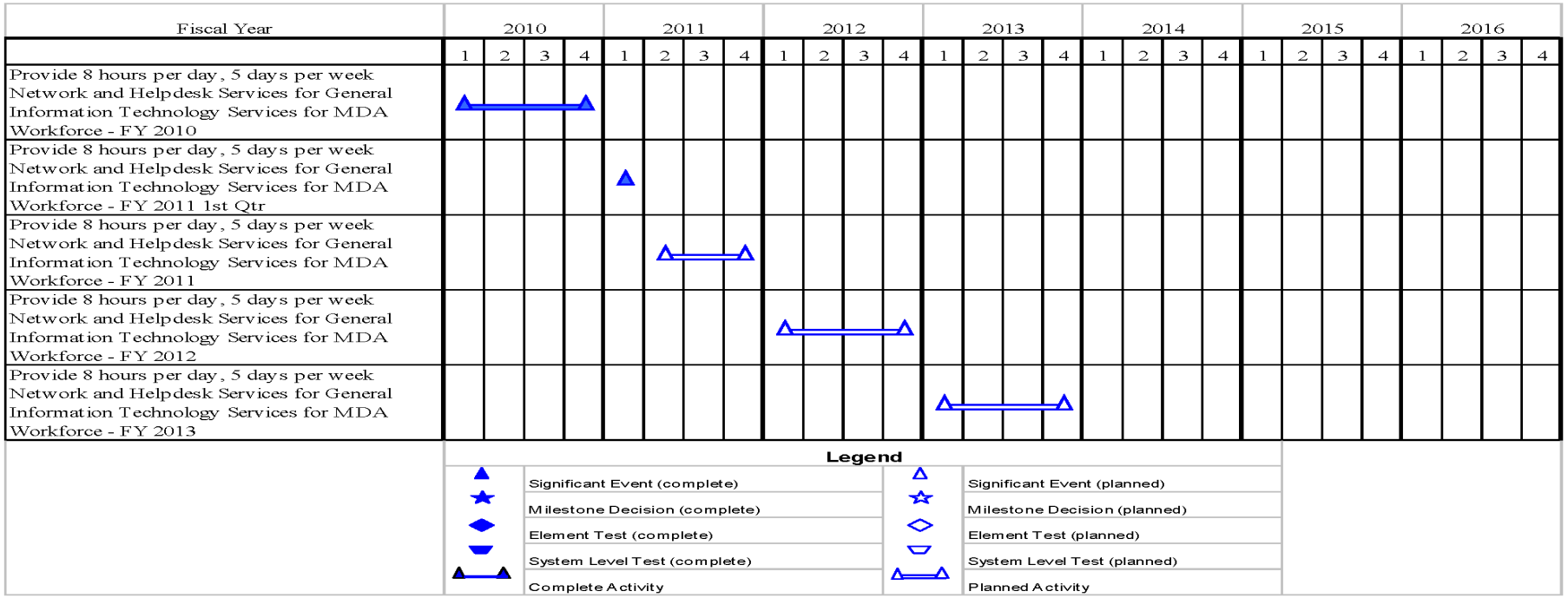

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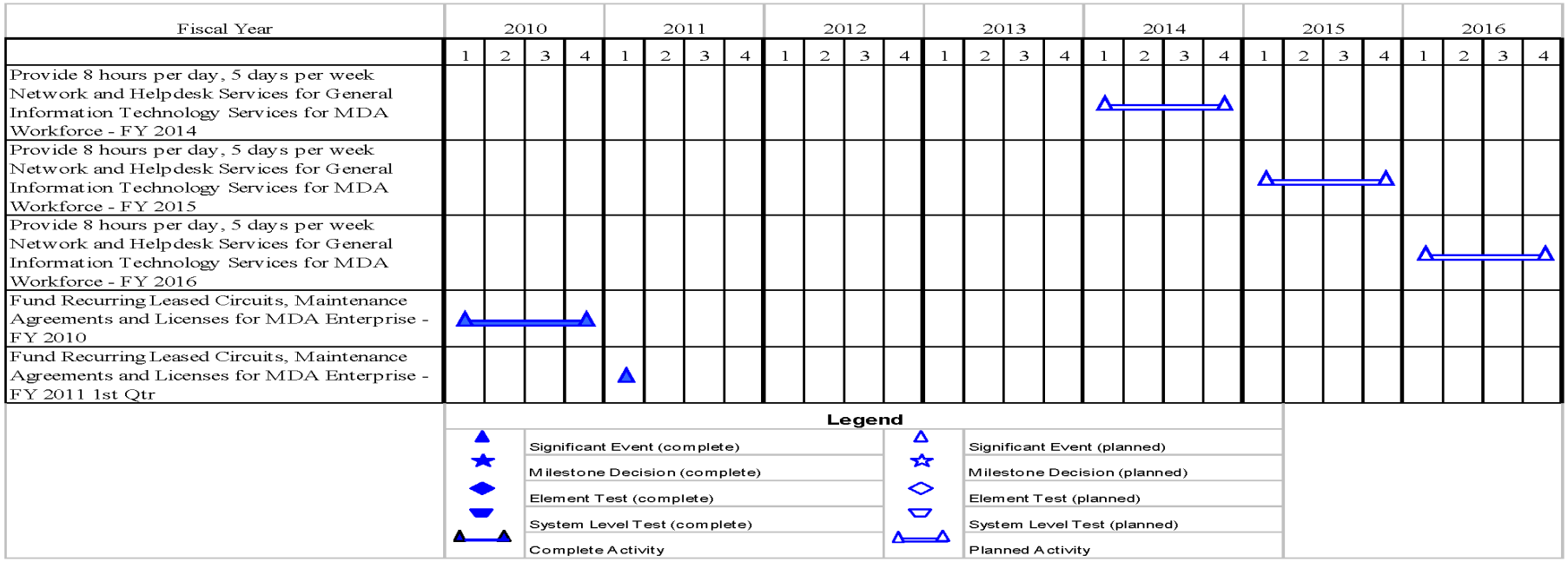

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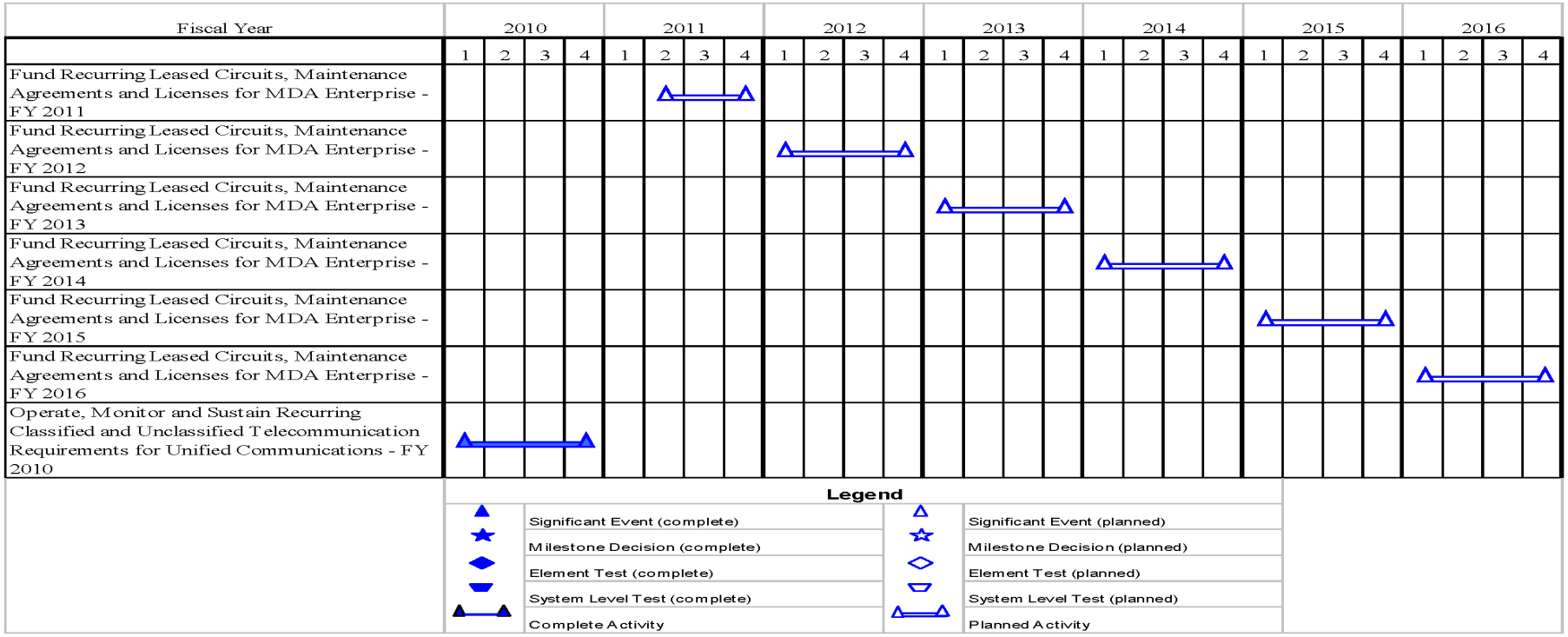

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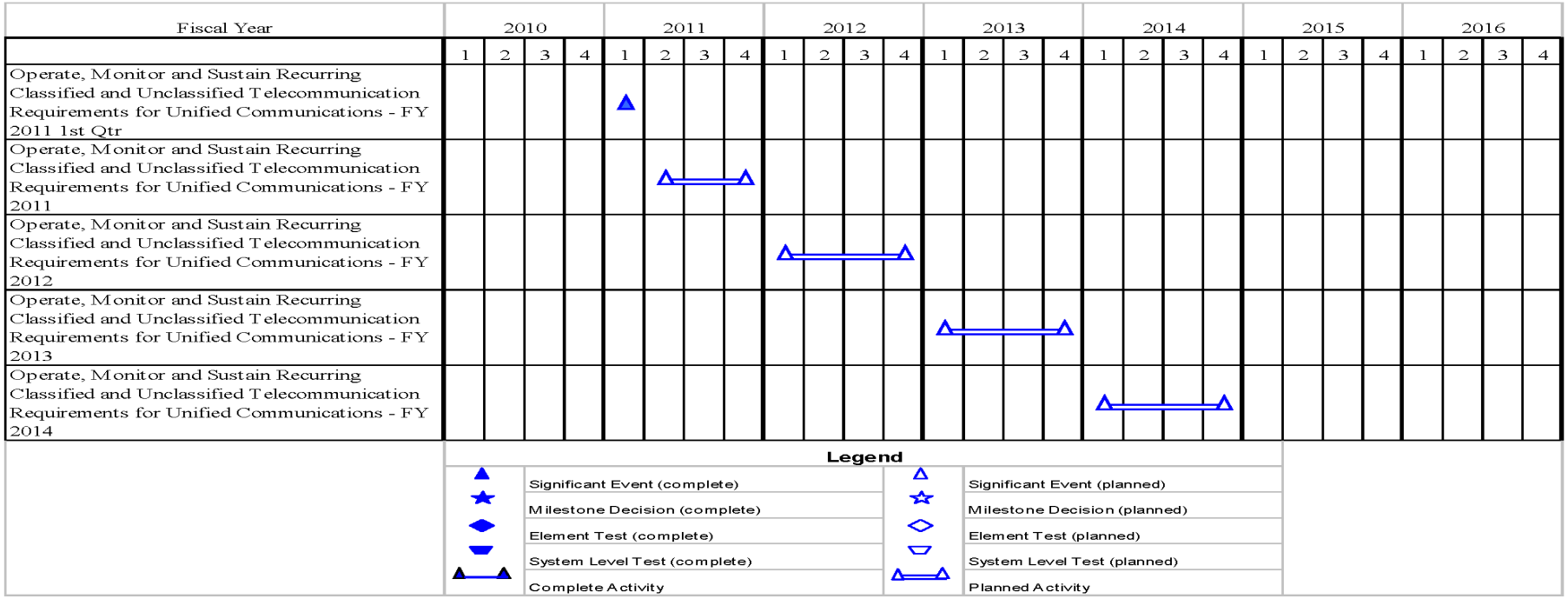

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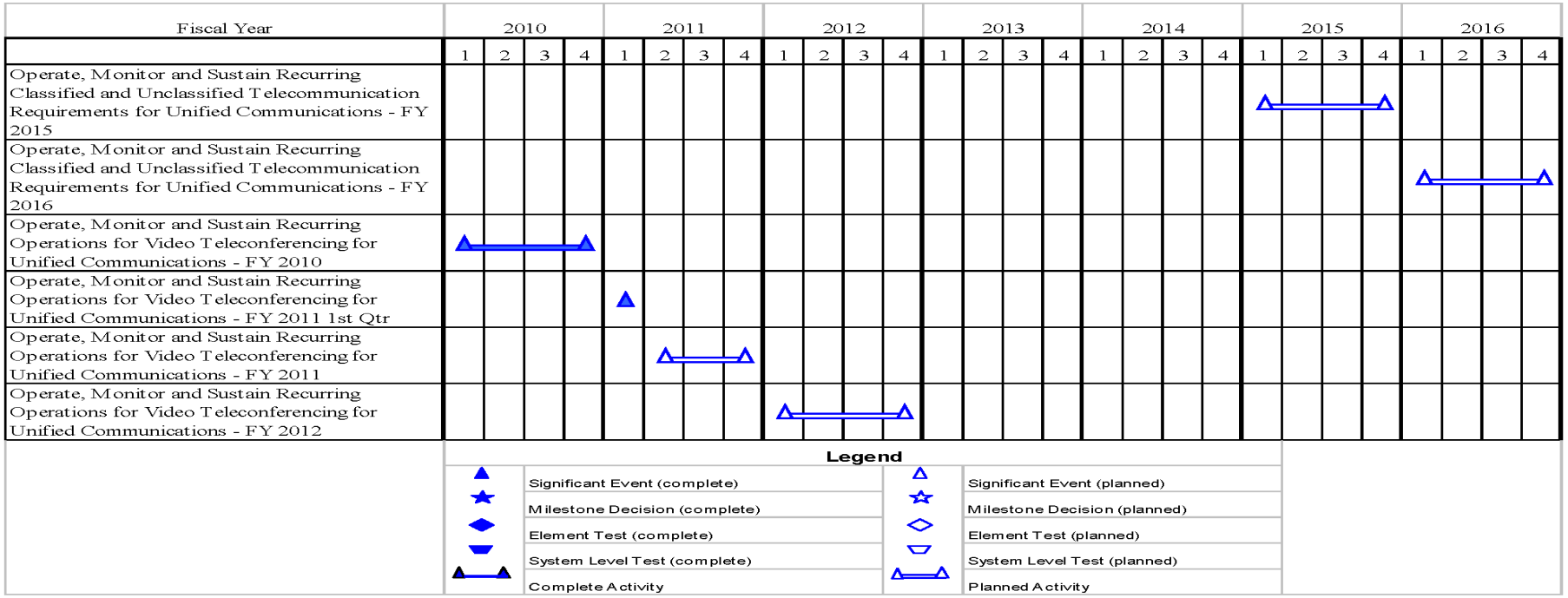

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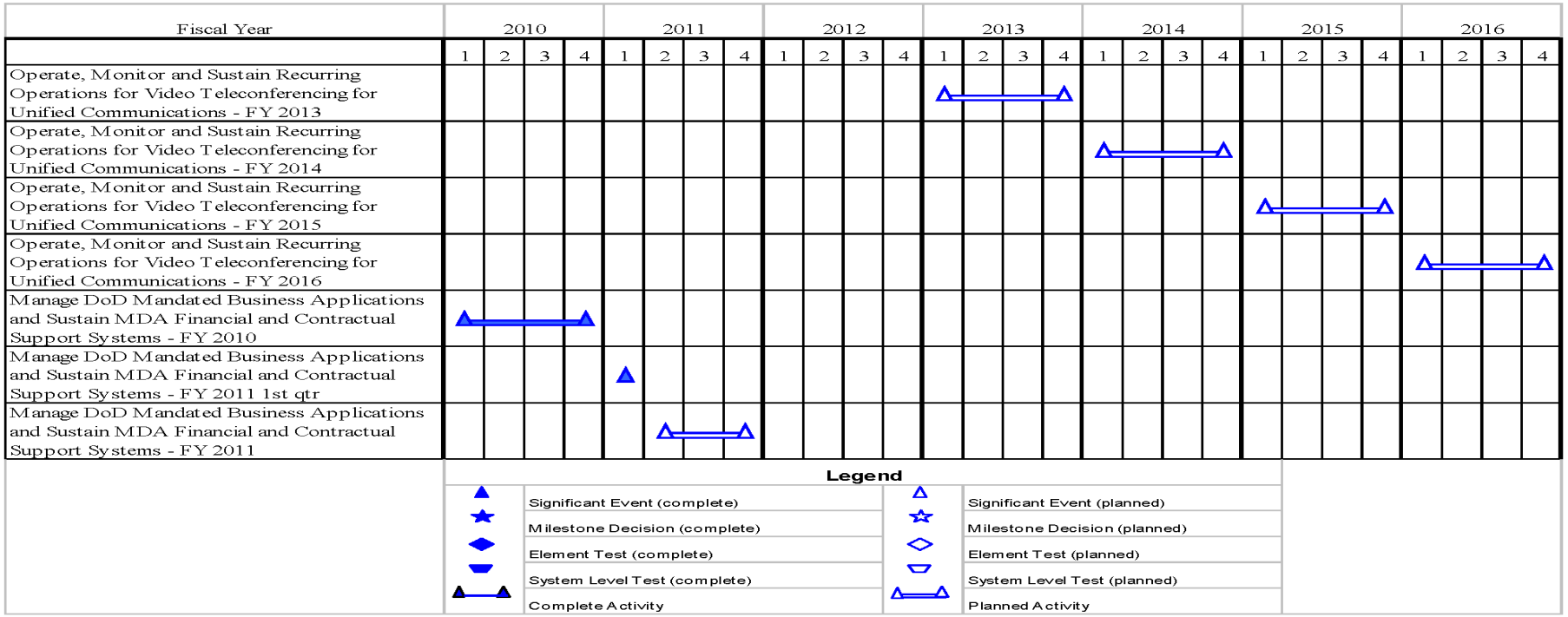

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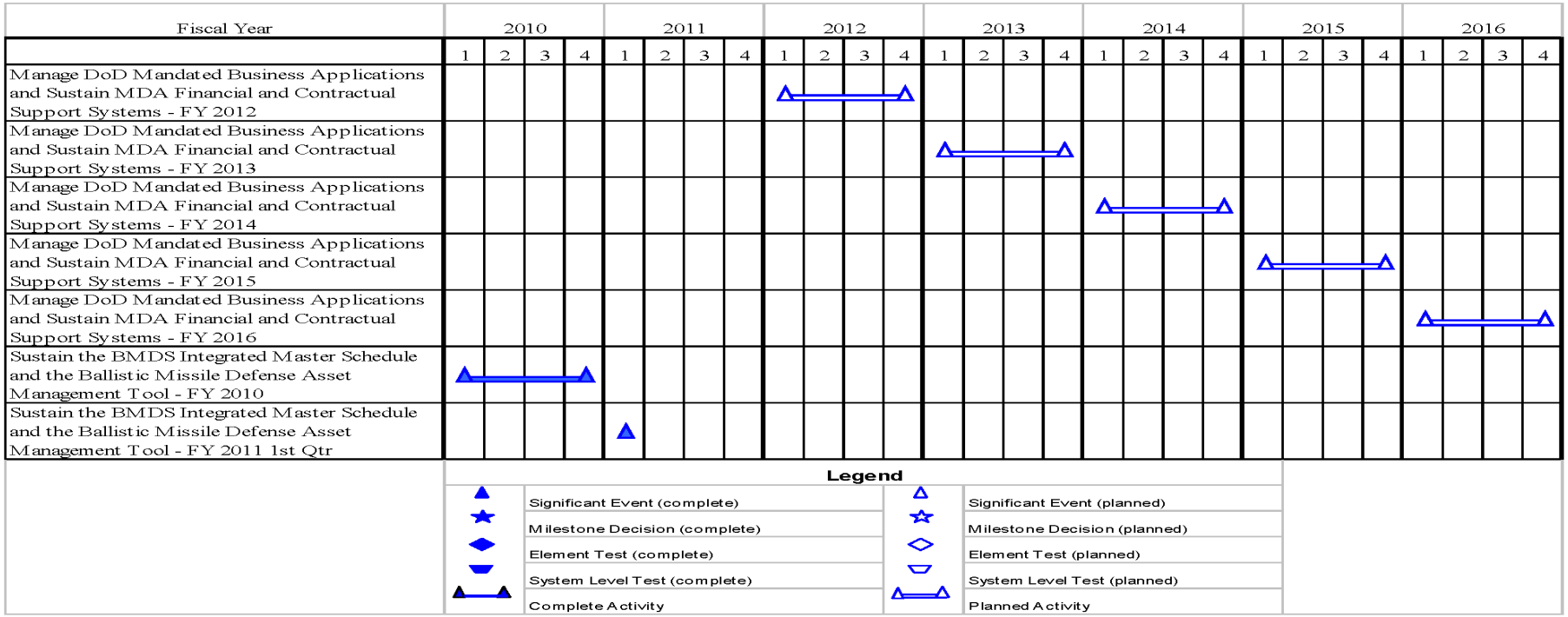

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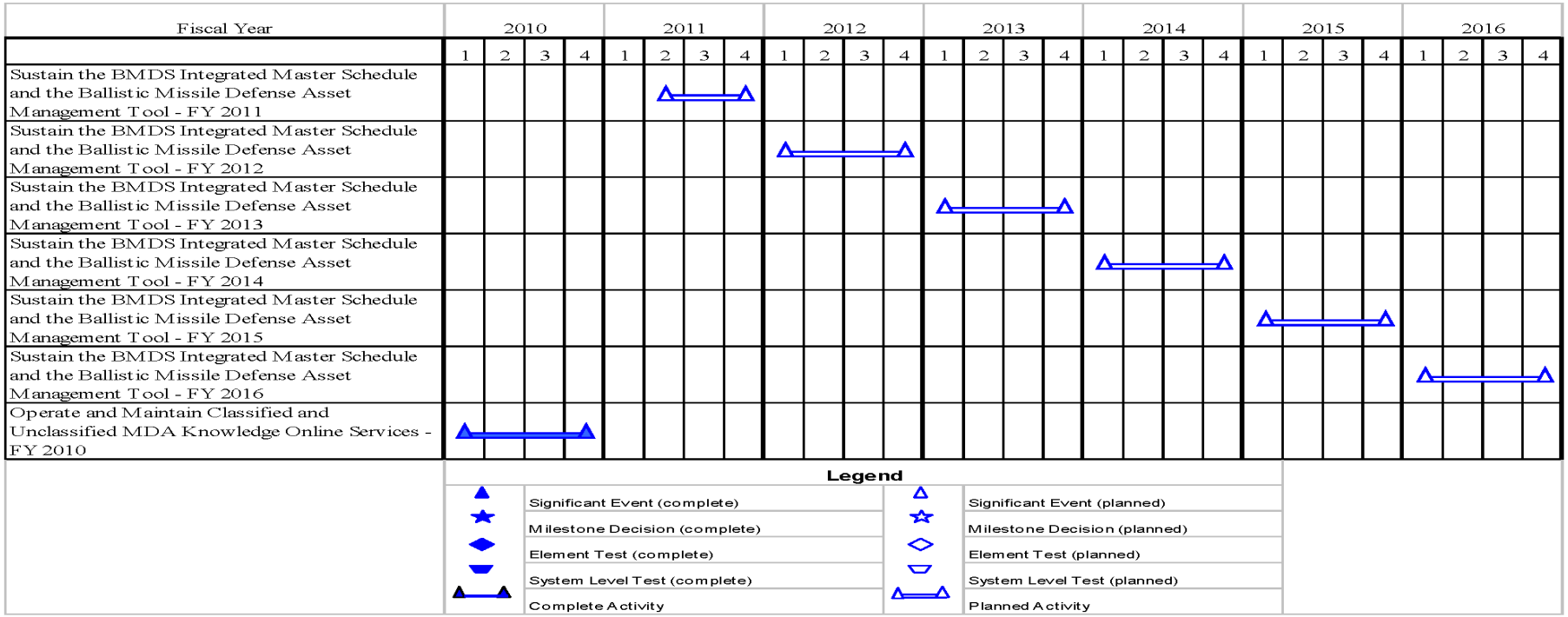

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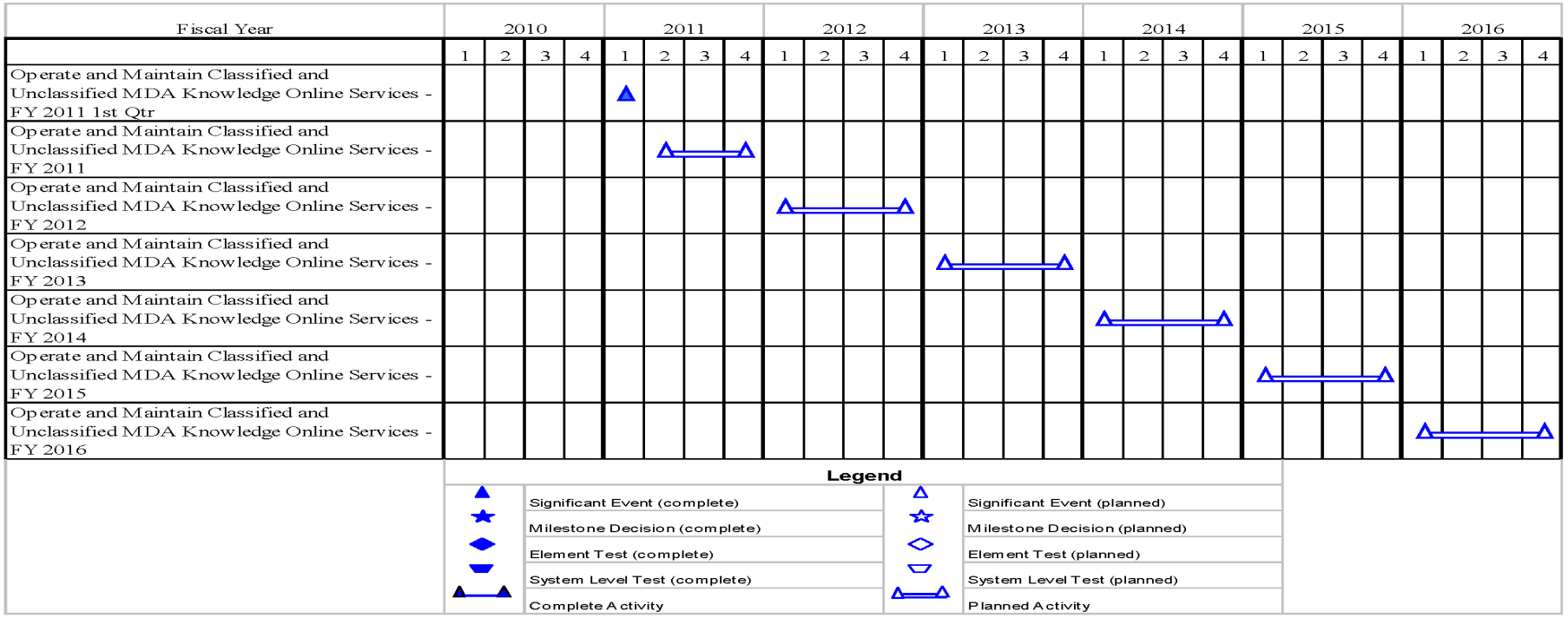

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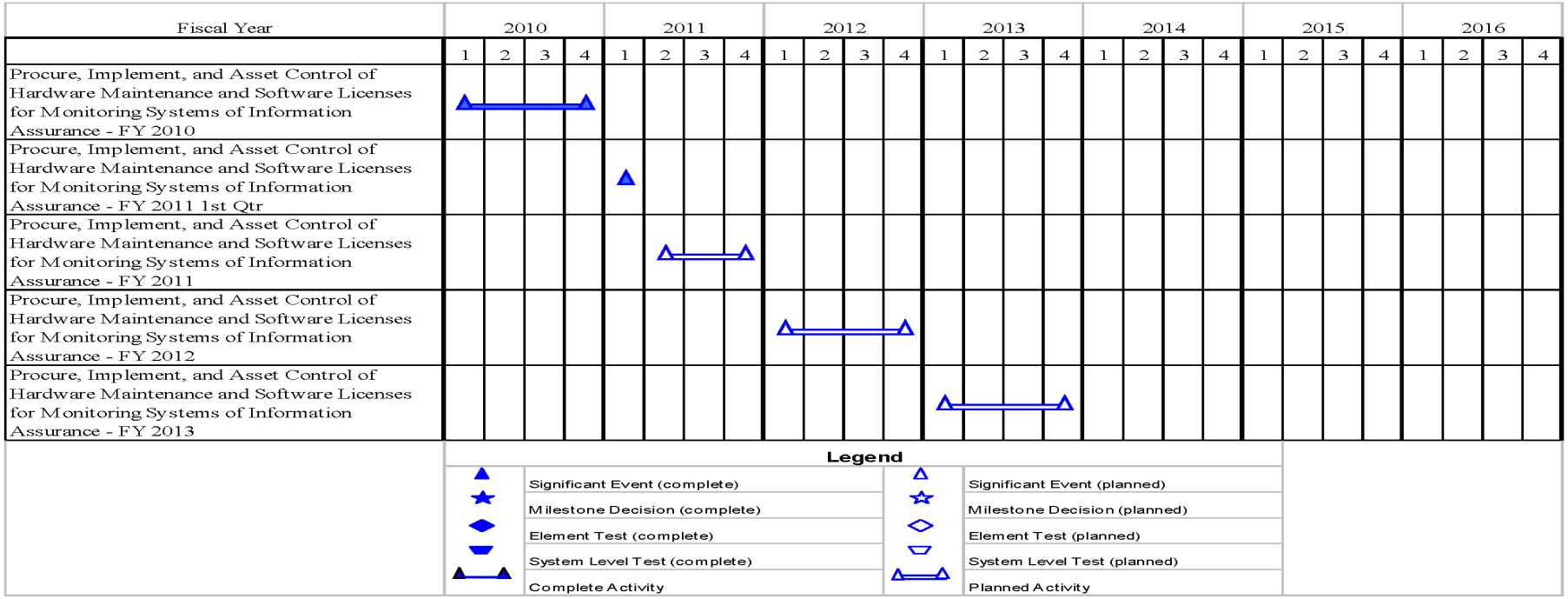

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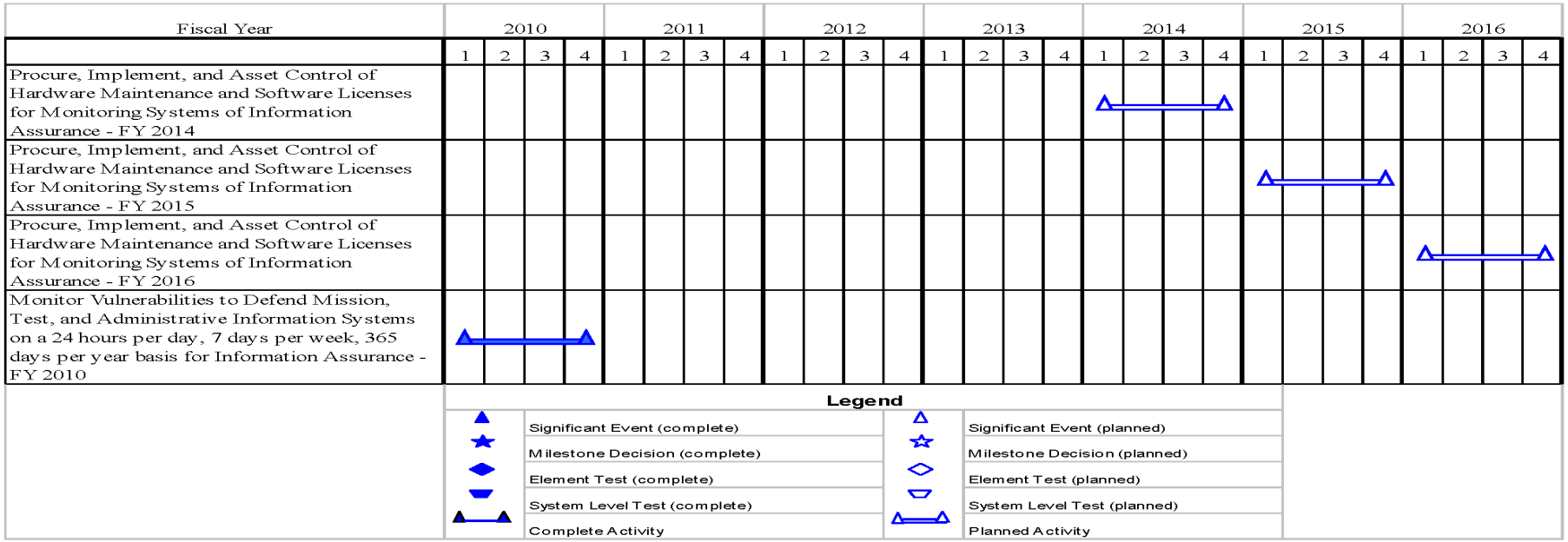

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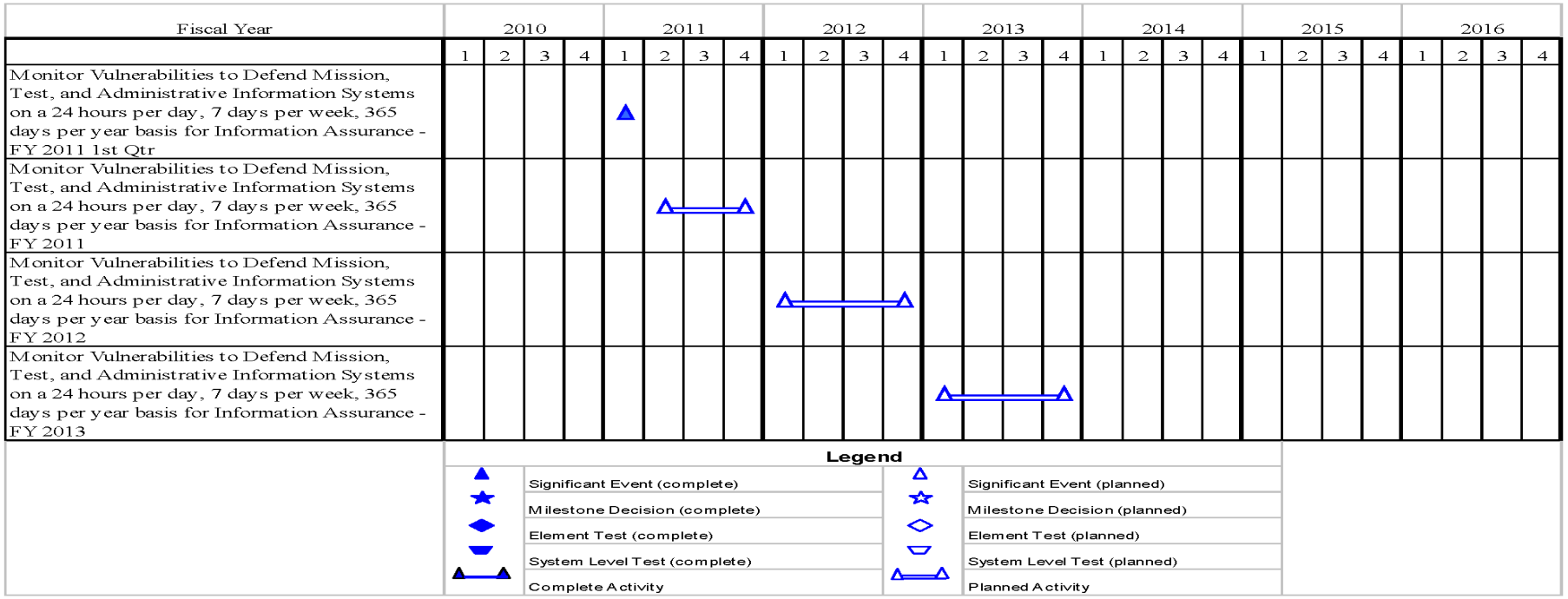

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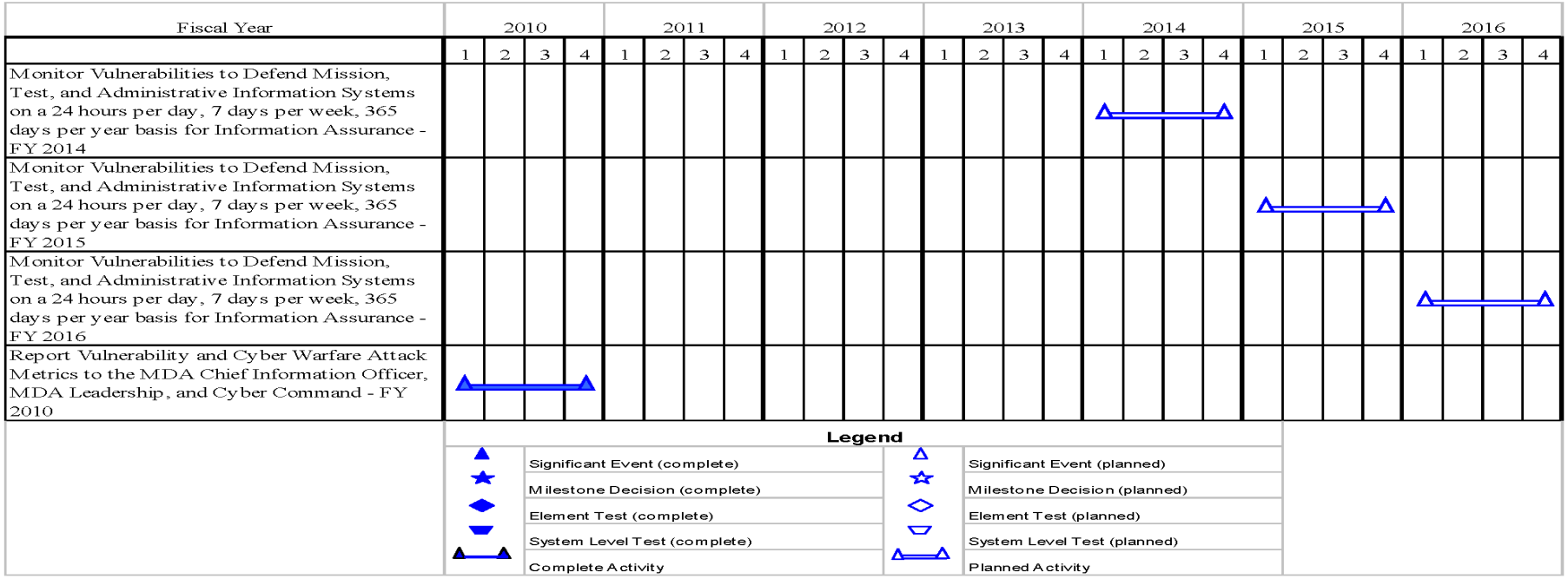

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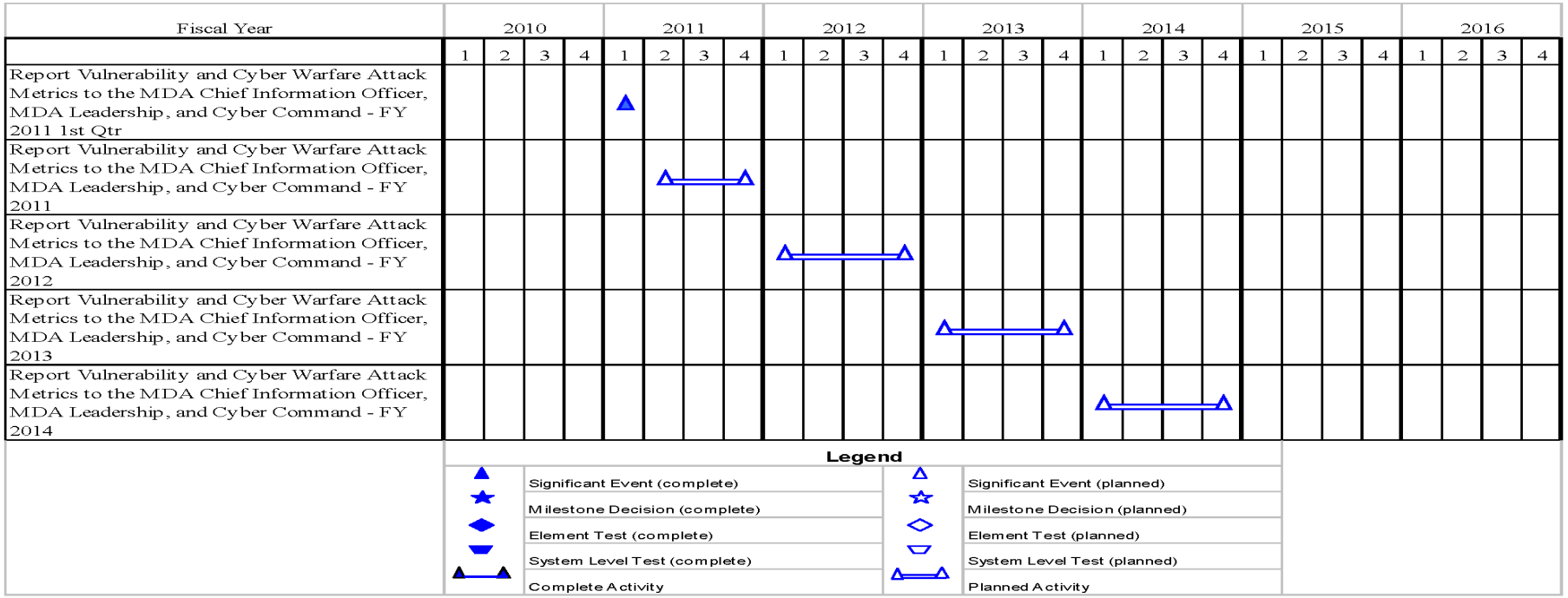

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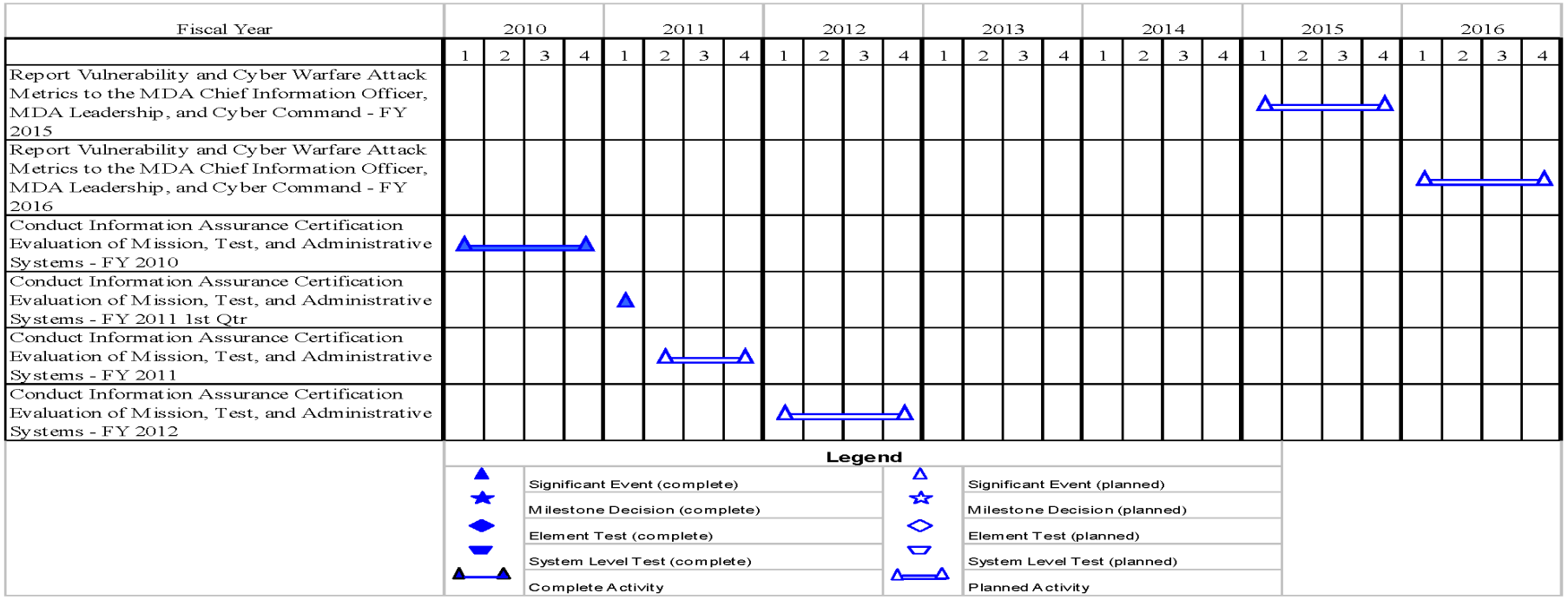

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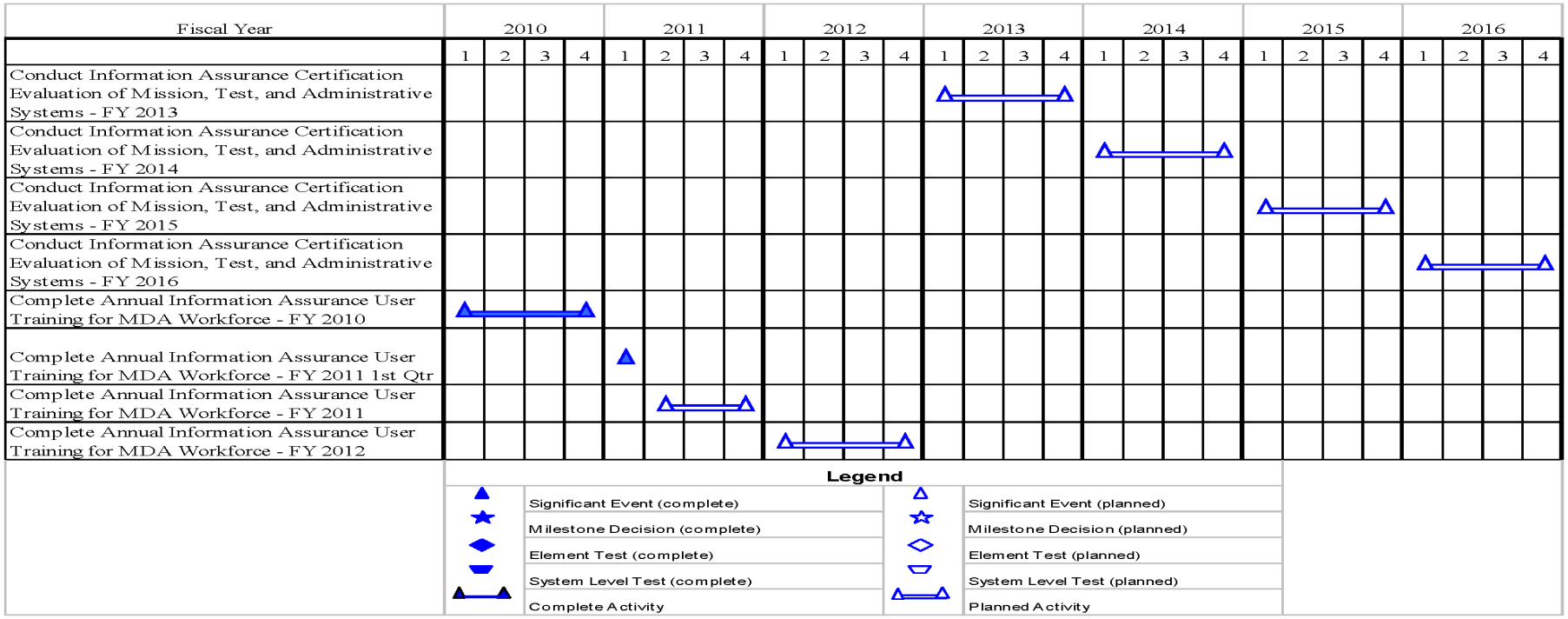

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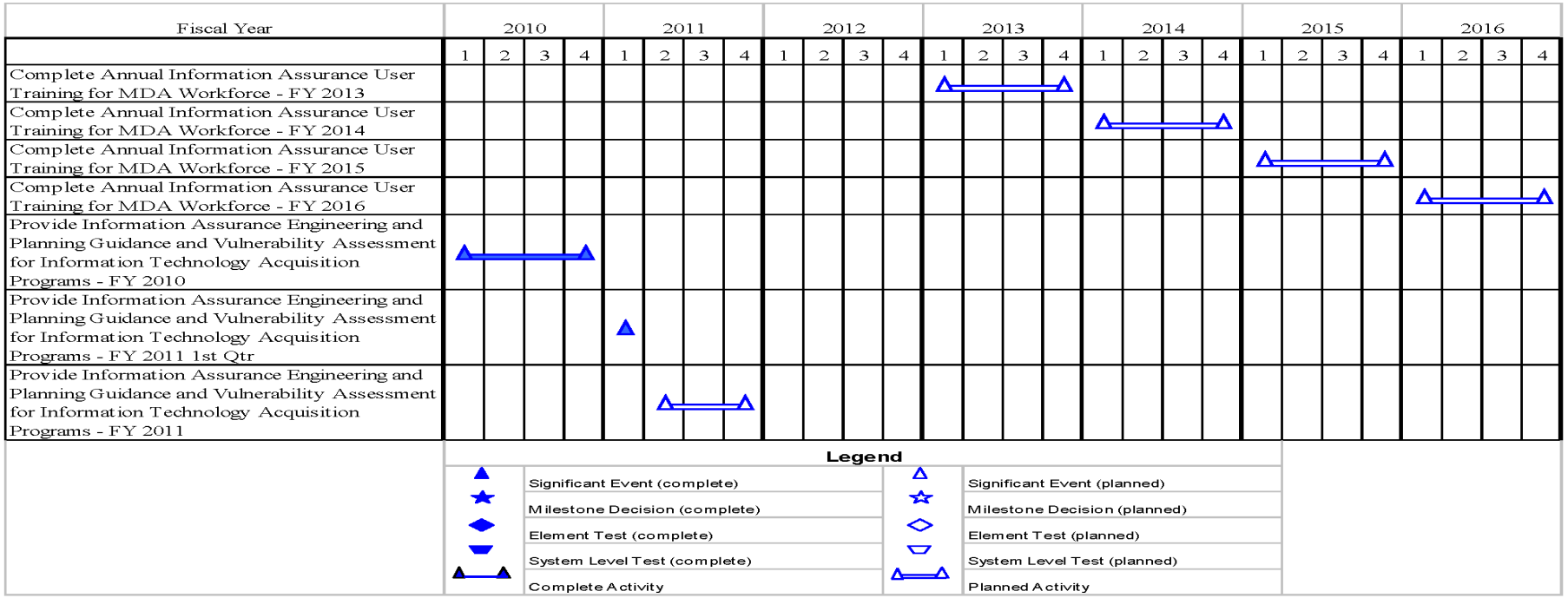

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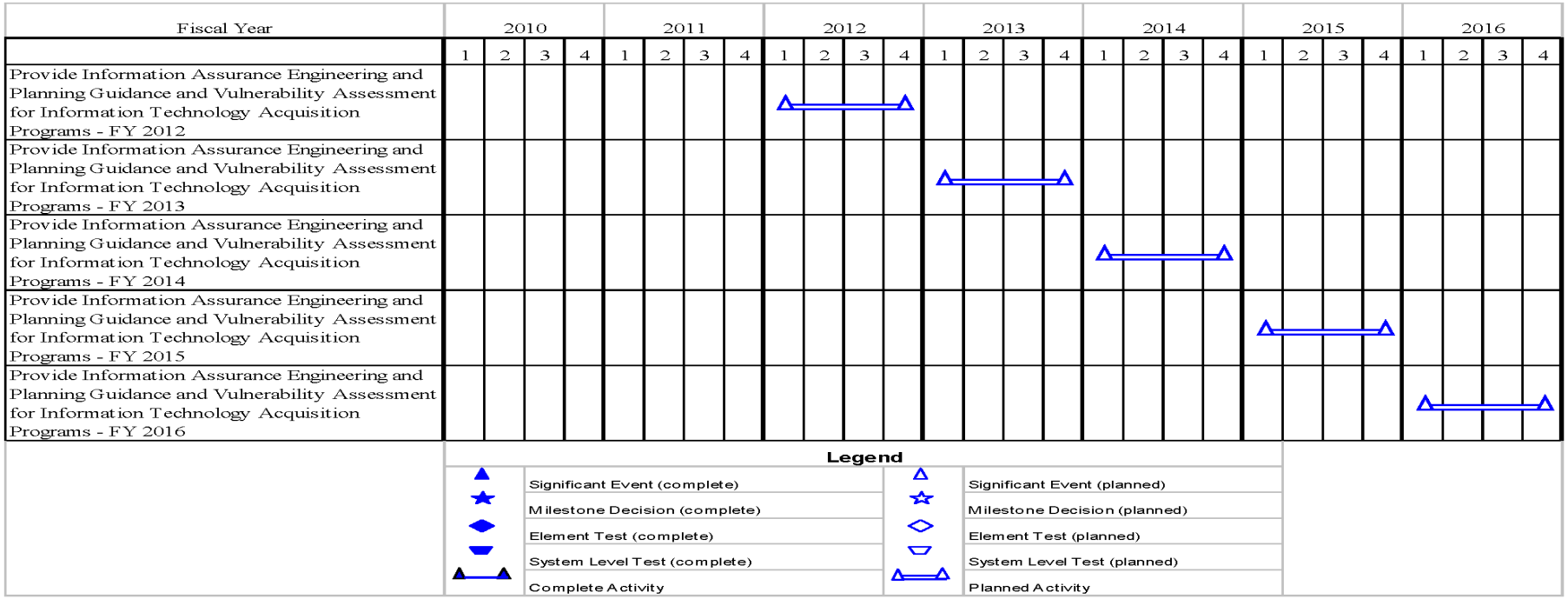

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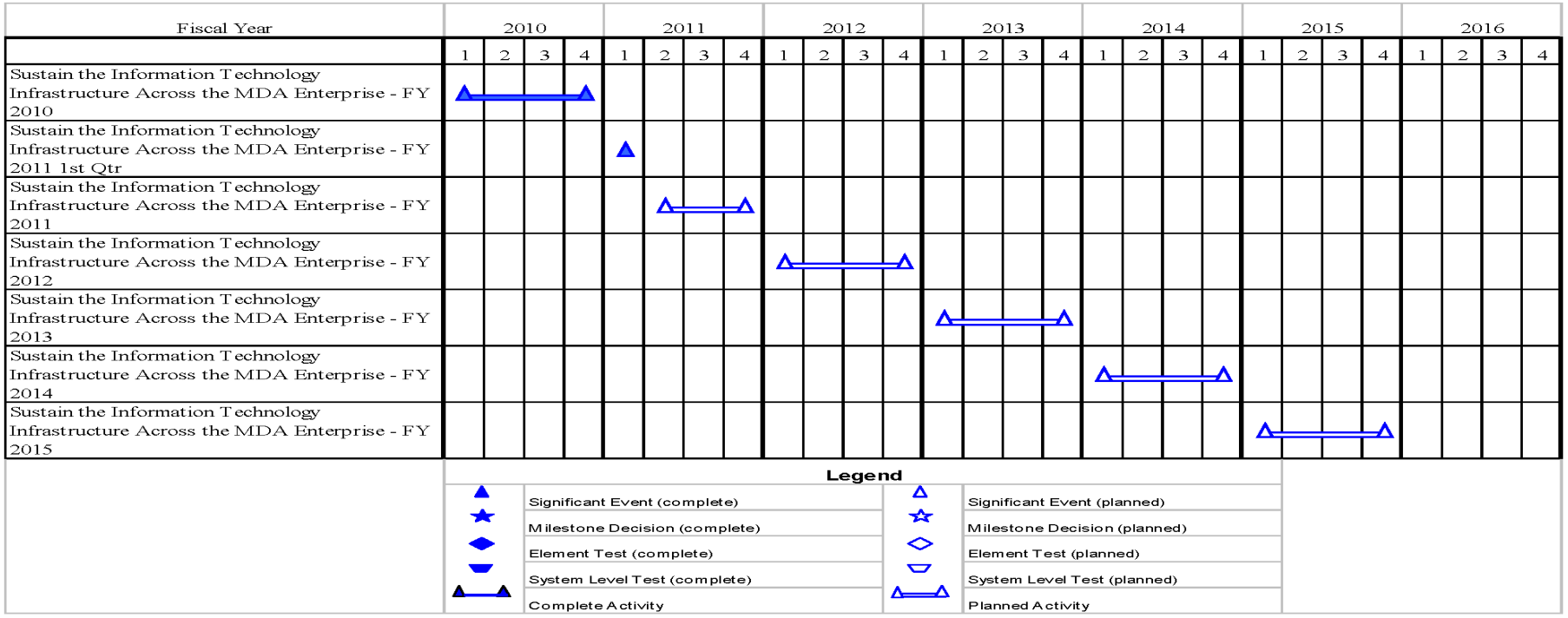

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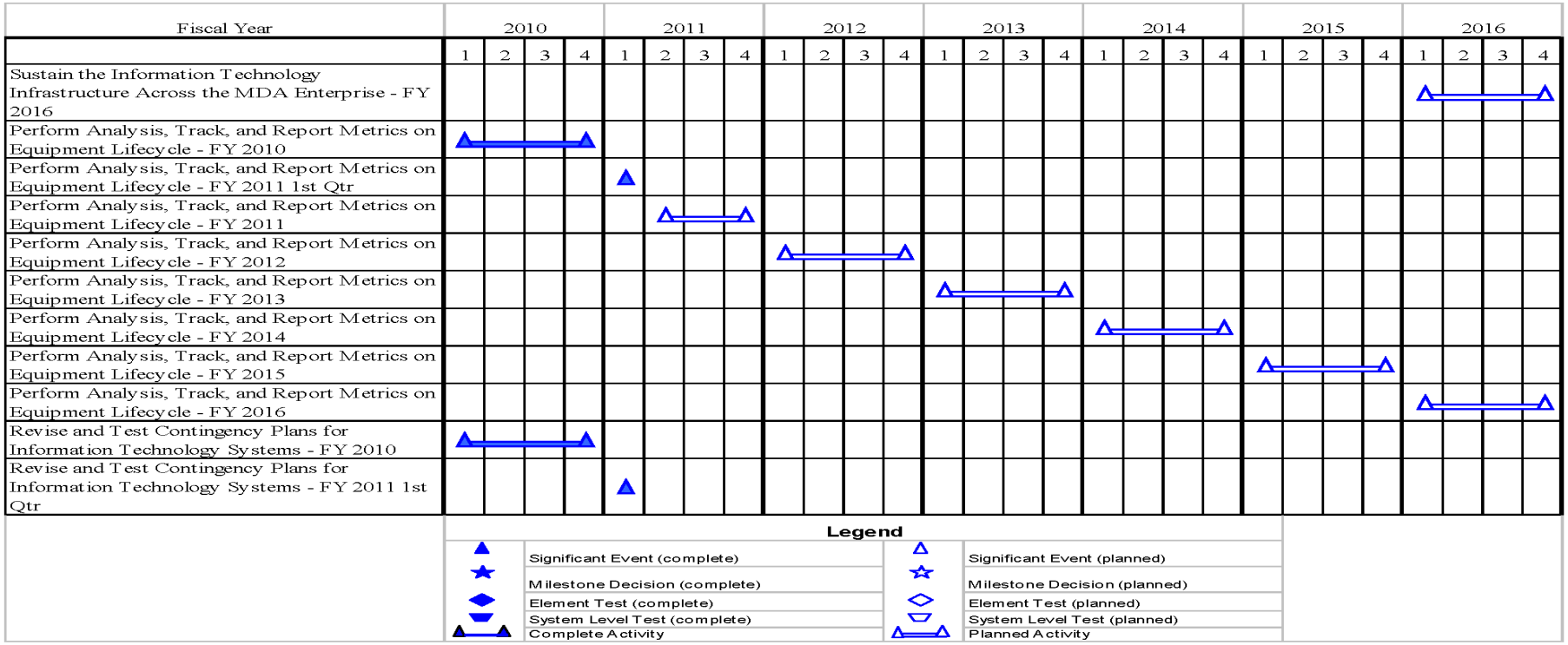

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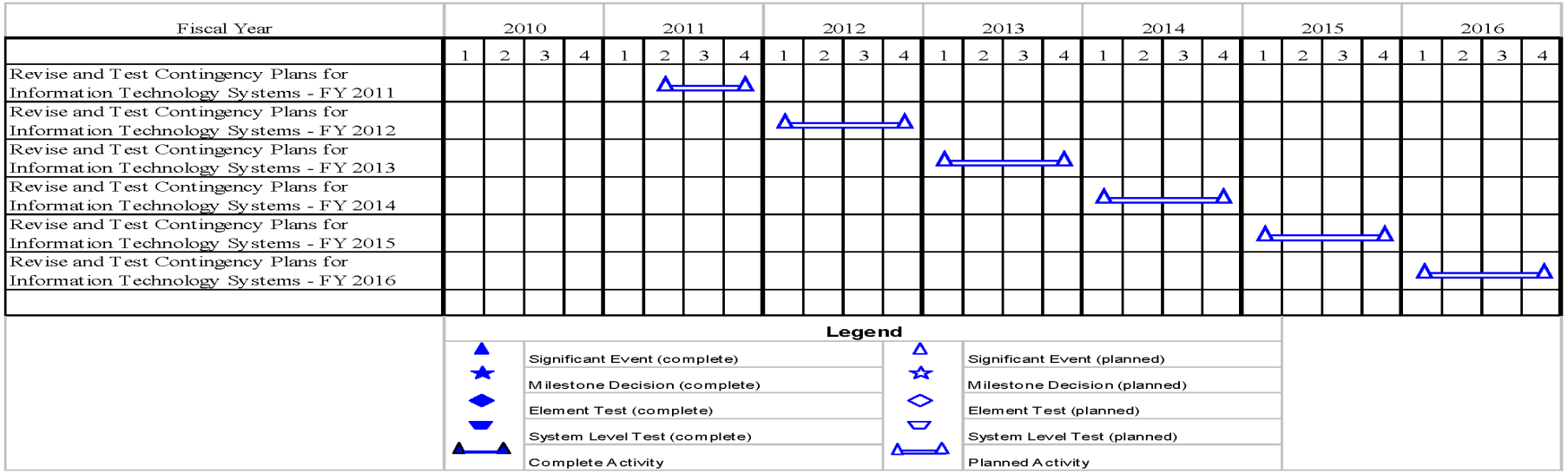

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
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Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Operate and Maintain General Information Technology Services 8 hours per day, 5 days per week - FY 2010	1	2010	4	2010
Operate and Maintain General Information Technology Services 8 hours per day, 5 days per week - FY 2011 1st qtr	1	2011	1	2011
Operate and Maintain General Information Technology Services 8 hours per day, 5 days per week - FY 2011	2	2011	4	2011
Operate and Maintain General Information Technology Services 8 hours per day, 5 days per week - FY 2012	1	2012	4	2012
Operate and Maintain General Information Technology Services 8 hours per day, 5 days per week - FY 2013	1	2013	4	2013
Operate and Maintain General Information Technology Services 8 hours per day, 5 days per week - FY 2014	1	2014	4	2014
Operate and Maintain General Information Technology Services 8 hours per day, 5 days per week - FY 2015	1	2015	4	2015
Operate and Maintain General Information Technology Services 8 hours per day, 5 days per week - FY2016	1	2016	4	2016
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - FY 2010	1	2010	4	2010
1st Qtr Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - FY 2011	1	2011	1	2011
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - FY 2011	2	2011	4	2011
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - FY 2012	1	2012	4	2012
	1	2013	4	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - FY 2013				
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - FY 2014	1	2014	4	2014
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - FY 2015	1	2015	4	2015
Implement Information Assurance Vulnerability Alert Control Improvements for General Information Technology Services - FY 2016	1	2016	4	2016
Monitor Networks for User Compliance with Department of Defense Policies	1	2011	4	2015
Procure, Implement, and Asset Control for Information Technology Operational Systems - FY 2010	1	2010	4	2010
Procure, Implement, and Asset Control for Information Technology Operational Systems - FY 2011 1st qtr	1	2011	1	2011
Procure, Implement, and Asset Control for Information Technology Operational Systems - FY 2011	2	2011	4	2011
Procure, Implement, and Asset Control for Information Technology Operational Systems - FY 2011 2nd quarter	2	2011	4	2011
Procure, Implement, and Asset Control for Information Technology Operational Systems - FY 2012	1	2012	4	2012
Procure, Implement, and Asset Control for Information Technology Operational Systems - FY 2013	1	2013	4	2013
Procure, Implement, and Asset Control for Information Technology Operational Systems - FY 2014	1	2014	4	2014
Procure, Implement, and Asset Control for Information Technology Operational Systems - FY 2015	1	2015	4	2015
Procure, Implement, and Asset Control for Information Technology Operational Systems - FY 2016	1	2016	4	2016

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD30: *BMD Information Management Systems*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Test and Implement Software Application Upgrades for General Information Technology Services	1	2011	4	2015
Provide 8 hours per day, 5 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - FY 2010	1	2010	4	2010
Provide 8 hours per day, 5 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - FY 2011 1st Qtr	1	2011	1	2011
Provide 8 hours per day, 5 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - FY 2011	2	2011	4	2011
Provide 8 hours per day, 5 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - FY 2012	1	2012	4	2012
Provide 8 hours per day, 5 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - FY 2013	1	2013	4	2013
Provide 8 hours per day, 5 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - FY 2014	1	2014	4	2014
Provide 8 hours per day, 5 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - FY 2015	1	2015	4	2015
Provide 8 hours per day, 5 days per week Network and Helpdesk Services for General Information Technology Services for MDA Workforce - FY 2016	1	2016	4	2016
Provide Planning, Budgeting, and Management Oversight of Information Technology Projects	1	2011	4	2015
Provide Web-Based Training to MDA Users	1	2011	4	2015
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - FY 2010	1	2010	4	2010
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - FY 2011 1st Qtr	1	2011	1	2011
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - FY 2011	2	2011	4	2011

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - FY 2012	1	2012	4	2012
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - FY 2013	1	2013	4	2013
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - FY 2014	1	2014	4	2014
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - FY 2015	1	2015	4	2015
Fund Recurring Leased Circuits, Maintenance Agreements and Licenses for MDA Enterprise - FY 2016	1	2016	4	2016
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - FY 2010	1	2010	4	2010
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - FY 2011 1st Qtr	1	2011	1	2011
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - FY 2011	2	2011	4	2011
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - FY 2012	1	2012	4	2012
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - FY 2013	1	2013	4	2013
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - FY 2014	1	2014	4	2014
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - FY 2015	1	2015	4	2015
Operate, Monitor and Sustain Recurring Classified and Unclassified Telecommunication Requirements for Unified Communications - FY 2016	1	2016	4	2016
	1	2010	4	2010

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD30: *BMD Information Management Systems*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications - FY 2010				
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications - FY 2011 1st Qtr	1	2011	1	2011
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications - FY 2011	2	2011	4	2011
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications - FY 2012	1	2012	4	2012
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications - FY 2013	1	2013	4	2013
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications - FY 2014	1	2014	4	2014
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications - FY 2015	1	2015	4	2015
Operate, Monitor and Sustain Recurring Operations for Video Teleconferencing for Unified Communications - FY 2016	1	2016	4	2016
Provide Engineering Services for All Unified Communications Services	1	2011	4	2015
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - FY 2010	1	2010	4	2010
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - FY 2011 1st qtr	1	2011	1	2011
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - FY 2011	2	2011	4	2011
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - FY 2012	1	2012	4	2012
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - FY 2013	1	2013	4	2013

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - FY 2014	1	2014	4	2014
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - FY 2015	1	2015	4	2015
Manage DoD Mandated Business Applications and Sustain MDA Financial and Contractual Support Systems - FY 2016	1	2016	4	2016
Manage Software Assessment Programs and Conduct Reviews for DoD Compliance	1	2011	4	2015
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - FY 2010	1	2010	4	2010
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - FY 2011 1st Qtr	1	2011	1	2011
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - FY 2011	2	2011	4	2011
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - FY 2012	1	2012	4	2012
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - FY 2013	1	2013	4	2013
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - FY 2014	1	2014	4	2014
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - FY 2015	1	2015	4	2015
Sustain the BMDS Integrated Master Schedule and the Ballistic Missile Defense Asset Management Tool - FY 2016	1	2016	4	2016
Manage MDA Web-Based Training Programs for Information Assurance, Business Applications, Security, and Ethics	1	2011	4	2015
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - FY 2010	1	2010	4	2010

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - FY 2011 1st Qtr	1	2011	1	2011
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - FY 2011	2	2011	4	2011
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - FY 2012	1	2012	4	2012
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - FY 2013	1	2013	4	2013
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - FY 2014	1	2014	4	2014
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - FY 2015	1	2015	4	2015
Operate and Maintain Classified and Unclassified MDA Knowledge Online Services - FY 2016	1	2016	4	2016
Sustain Recurring Operations and Maintenance of Graphics and Video Production Capabilities for Knowledge and Information Management	1	2011	4	2015
Procure, Implement, and Asset Control of Hardware Maintenance and Software Licenses for Monitoring Systems of Information Assurance - FY 2010	1	2010	4	2010
Procure, Implement, and Asset Control of Hardware Maintenance and Software Licenses for Monitoring Systems of Information Assurance - FY 2011 1st Qtr	1	2011	1	2011
Procure, Implement, and Asset Control of Hardware Maintenance and Software Licenses for Monitoring Systems of Information Assurance - FY 2011	2	2011	4	2011
Procure, Implement, and Asset Control of Hardware Maintenance and Software Licenses for Monitoring Systems of Information Assurance - FY 2012	1	2012	4	2012
Procure, Implement, and Asset Control of Hardware Maintenance and Software Licenses for Monitoring Systems of Information Assurance - FY 2013	1	2013	4	2013
	1	2014	4	2014

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Procure, Implement, and Asset Control of Hardware Maintenance and Software Licenses for Monitoring Systems of Information Assurance - FY 2014				
Procure, Implement, and Asset Control of Hardware Maintenance and Software Licenses for Monitoring Systems of Information Assurance - FY 2015	1	2015	4	2015
Procure, Implement, and Asset Control of Hardware Maintenance and Software Licenses for Monitoring Systems of Information Assurance - FY 2016	1	2016	4	2016
Monitor Vulnerabilities to Defend Mission, Test, and Administrative Information Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - FY 2010	1	2010	4	2010
Monitor Vulnerabilities to Defend Mission, Test, and Administrative Information Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - FY 2011 1st Qtr	1	2011	1	2011
Monitor Vulnerabilities to Defend Mission, Test, and Administrative Information Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - FY 2011	2	2011	4	2011
Monitor Vulnerabilities to Defend Mission, Test, and Administrative Information Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - FY 2012	1	2012	4	2012
Monitor Vulnerabilities to Defend Mission, Test, and Administrative Information Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - FY 2013	1	2013	4	2013
Monitor Vulnerabilities to Defend Mission, Test, and Administrative Information Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - FY 2014	1	2014	4	2014
Monitor Vulnerabilities to Defend Mission, Test, and Administrative Information Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - FY 2015	1	2015	4	2015
	1	2016	4	2016

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Monitor Vulnerabilities to Defend Mission, Test, and Administrative Information Systems on a 24 hours per day, 7 days per week, 365 days per year basis for Information Assurance - FY 2016				
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - FY 2010	1	2010	4	2010
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - FY 2011 1st Qtr	1	2011	1	2011
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - FY 2011	2	2011	4	2011
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - FY 2012	1	2012	4	2012
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - FY 2013	1	2013	4	2013
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - FY 2014	1	2014	4	2014
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - FY 2015	1	2015	4	2015
Report Vulnerability and Cyber Warfare Attack Metrics to the MDA Chief Information Officer, MDA Leadership, and Cyber Command - FY 2016	1	2016	4	2016
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - FY 2010	1	2010	4	2010
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - FY 2011 1st Qtr	1	2011	1	2011
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - FY 2011	2	2011	4	2011
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - FY 2012	1	2012	4	2012

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - FY 2013	1	2013	4	2013
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - FY 2014	1	2014	4	2014
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - FY 2015	1	2015	4	2015
Conduct Information Assurance Certification Evaluation of Mission, Test, and Administrative Systems - FY 2016	1	2016	4	2016
Maintain Information Assurance Certification Packages for Test, Administration, and Business Information Technology Systems	1	2011	4	2015
Complete Annual Information Assurance User Training for MDA Workforce - FY 2010	1	2010	4	2010
Complete Annual Information Assurance User Training for MDA Workforce - FY 2011 1st Qtr	1	2011	1	2011
Complete Annual Information Assurance User Training for MDA Workforce - FY 2011	2	2011	4	2011
Complete Annual Information Assurance User Training for MDA Workforce - FY 2012	1	2012	4	2012
Complete Annual Information Assurance User Training for MDA Workforce - FY 2013	1	2013	4	2013
Complete Annual Information Assurance User Training for MDA Workforce - FY 2014	1	2014	4	2014
Complete Annual Information Assurance User Training for MDA Workforce - FY 2015	1	2015	4	2015
Complete Annual Information Assurance User Training for MDA Workforce - FY 2016	1	2016	4	2016
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - FY 2010	1	2010	4	2010
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - FY 2011 1st Qtr	1	2011	1	2011
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - FY 2011	2	2011	4	2011
	1	2012	4	2012

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - FY 2012				
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - FY 2013	1	2013	4	2013
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - FY 2014	1	2014	4	2014
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - FY 2015	1	2015	4	2015
Provide Information Assurance Engineering and Planning Guidance and Vulnerability Assessment for Information Technology Acquisition Programs - FY 2016	1	2016	4	2016
Manage the Information Assurance Workforce Improvement Program to Certify Chief Information Officer Information Assurance Professionals	1	2011	4	2015
Sustain the Information Technology Infrastructure Across the MDA Enterprise - FY 2010	1	2010	4	2010
Sustain the Information Technology Infrastructure Across the MDA Enterprise - FY 2011 1st Qtr	1	2011	1	2011
Sustain the Information Technology Infrastructure Across the MDA Enterprise - FY 2011	2	2011	4	2011
Sustain the Information Technology Infrastructure Across the MDA Enterprise - FY 2012	1	2012	4	2012
Sustain the Information Technology Infrastructure Across the MDA Enterprise - FY 2013	1	2013	4	2013
Sustain the Information Technology Infrastructure Across the MDA Enterprise - FY 2014	1	2014	4	2014
Sustain the Information Technology Infrastructure Across the MDA Enterprise - FY 2015	1	2015	4	2015
Sustain the Information Technology Infrastructure Across the MDA Enterprise - FY 2016	1	2016	4	2016
Architect and Develop Plans to Repair General Information Technology Service and Business Systems	1	2011	4	2015
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - FY 2010	1	2010	4	2010
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - FY 2011 1st Qtr	1	2011	1	2011
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - FY 2011	2	2011	4	2011

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - FY 2012	1	2012	4	2012
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - FY 2013	1	2013	4	2013
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - FY 2014	1	2014	4	2014
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - FY 2015	1	2015	4	2015
Perform Analysis, Track, and Report Metrics on Equipment Lifecycle - FY 2016	1	2016	4	2016
Plan, Engineer, and Implement Sustainment Projects for General Information Technology Services and Business Systems	1	2011	4	2015
Revise and Test Contingency Plans for Information Technology Systems - FY 2010	1	2010	4	2010
Revise and Test Contingency Plans for Information Technology Systems - FY 2011 1st Qtr	1	2011	1	2011
Revise and Test Contingency Plans for Information Technology Systems - FY 2011	2	2011	4	2011
Revise and Test Contingency Plans for Information Technology Systems - FY 2012	1	2012	4	2012
Revise and Test Contingency Plans for Information Technology Systems - FY 2013	1	2013	4	2013
Revise and Test Contingency Plans for Information Technology Systems - FY 2014	1	2014	4	2014
Revise and Test Contingency Plans for Information Technology Systems - FY 2015	1	2015	4	2015
Revise and Test Contingency Plans for Information Technology Systems - FY 2016	1	2016	4	2016
Procure, Receive, Inventory and Manage Information Technology Consumables and Equipment	1	2011	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
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COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
YX31: *Modeling & Simulation*	47.478	-	-	-	-	-	-	-	-	0.000	47.478
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project YX31 transferred to Project MD31 in FY 2011.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See MD31 for FY 2010 Accomplishments	47.478	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	47.478	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
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COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD31: *Modeling & Simulation*	-	64.623	56.617	-	56.617	59.393	57.473	62.187	63.775	Continuing	Continuing
Quantity of RDT&E Articles	0	5	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the M&S content previously accomplished in Project YX31 for FY 2010 is now captured in Project MD31. From FY 2011 to FY 2012, the MD31 M&S Project shows an increase. This is not due to a new development effort, rather, because funding for the M&S HWIL Framework, Simulations, Models; M&S Digital Framework, Simulations, Models; and the M&S VV&A and Test Operations was realigned from the BMD Aegis PE (0603892C) Budget Project MD09.

A. Mission Description and Budget Item Justification

The mission of MDA`s Modeling & Simulation (M&S) program is to develop models and simulations of the BMDS in order to compare 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. Testing the BMDS to empirically determine its performance capabilities and limitations is very challenging and cost prohibitive; therefore, we focus on conducting tests to collect Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs) so we can Validate, Verify and Accredit (VV&A) models to determine ultimate BMDS performance and support COCOM Commander`s planning. CECs are test points identified to efficiently capture data to resolve known modeling and simulation uncertainties that limit performance prediction accuracy. EMEs are test point identified to efficiently collect data that is not modeled or modeled at high fidelity. EMEs are also test points beyond CEC collections required to achieve high modeling confidence for integrated capabilities over all engagement conditions. As a result, MDA strives to develop M&S products and capabilities that are repeatable, consistent and provide confidence in the predicted performance of the BMDS. The Phased Adaptive Approach (PAA) was developed in response to the rapid proliferation of short- and medium-range ballistic missiles in Iran, and the threat they pose to United States Allies and partners, as well as to United States deployed personnel in the Middle East and in Europe. By leveraging recent advances in sensor and interceptor technologies, the United States will aggressively counter this growing regional threat with a more powerful and agile system. The United States is pursuing a four-phased approach which will provide a more effective missile defense capability for defense of North Atlantic Treaty Organization (NATO) territories, and enhance United States homeland defense. It will be complementary of and interoperable with those missile defense capabilities being developed by NATO, and be applicable in other theaters around the world, in addition to being more adaptable and flexible in order to counter threat advances and provide increased defended areas over time. The initial phase includes the deployment of current and proven missile defense, including the sea-based Aegis Weapons System, SM-3 Block IIB, and sensors such as the forward-based Army-Navy/Transportable Radar Surveillance System (AN/TPY-2). Subsequent phases will be implemented based upon technical maturity, appropriate testing, and threat-driven requirements.

The M&S objective is to evolve the M&S to match, as appropriate, the real world performance of the BMDS and meet Warfighters needs. M&S`s distinct capabilities are ingrained throughout the BMDS Elements and provide the Warfighter and Operational Test Agency (OTA) with an evaluation capability for individual components and systems-of-systems. MDA`s M&S accredits system-level models and simulations by anchoring them to real-world events to support accurate and comprehensive assessments of the BMDS. Future M&S developments will focus on the model and simulation frameworks, BMDS Element models, threat assessments and phenomenology and lethality modeling, as well as communications and environmental modeling. The success of the missile defense program is enabled by quality

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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M&S products and capabilities that prove with certainty that the BMDS technologies work. Modeling & Simulation: MDA`s M&S systems provide analysis, decision-making and planning capabilities for Real-World Operations in support of the White House, Joint Staff, Services, NATO, COCOMs (EUCOM, PACOM, CENTCOM, STRATCOM [Military Utility Assessment]), OTAs, Director of Operational Test & Evaluation, and Allies. Targeted M&S activities support all aspects of BMDS development including BMDS design, Element modifications, flight test missions, ground tests, wargames, exercises, Performance Assessments (PAs), and Technical Assessments (TAs). Models and simulations are tailored to the specific need of a component in its current stage of development, ranging from low-to-medium fidelity analyses supporting concept definitions studies, to high-fidelity models used to support engineering development.

To execute the M&S mission requires reliance on and operation of two simulation frameworks which, when combined to meet specific M&S use case and user requirements with the appropriate fidelity, form a single Objective Simulation Architecture (OSF) version to enable BMDS performance in a simulated environment.

CECs are the test conditions that provide the greatest insight into the BMDS models` predictive capability, when compared to test results. EMEs are those ground or flight testing executed under operationally realistic conditions to collect data on those performance measures that can`t be simulated such as data on survivability, reliability, performance in extreme natural environments, and supportability, needed for the Operational Test Agency Critical Operational Issues. The BMDS M&S uses the completed CECs and EMEs data to reconstruct flight tests to perform M&S validation. These M&S Digital and HWIL tools are accredited for each application and for specific CEC and EME objectives. The tools undergo a rigorous Verification & Validation (V&V) process which includes reviewing coding and specifications, and comparing analyses against actual flight test results (anchoring). Verification & Validation planning support is required to develop the comprehensive Verification & Validation plan, test objectives development analysis execution planning, analysis for V&V reports and program office M&S certification.

The BMDS M&S System is evolving into a fully integrated End-to-End HWIL/Digital system that provides a common source for truth and event control with an Initial Operational Capability. The final integrated system will merge the Single Stimulation Framework (SSF) and Digital Simulation Architecture (DSA) into one seamless M&S product that will meet both real-time and non-real time simulation activities. This combined framework, called the Objective Simulation Framework (OSF), will host all simulated activities, events, scenarios, and Element and Threat models. MDA will use the end-to-end M&S System to conduct BMDS ground tests, PAs, TAs, component training, Wargames, flight tests, threat analysis, international events, and COCOM exercises.

The Digital and HWIL End-to-End simulation of the BMDS requires an Integrated Verification & Validation Plan and Report (at both element and system level), and a system level Accreditation Plan and Report.

System pre- and post-flight reconstruction: The M&S Program will support system pre-flight predictions for each system level flight test using the test framework set up with the BMDS configuration for a particular flight test. This provides the confidence in flight test execution by predicting Element performance and exercising Element interfaces. This work also examines the construct of the flight test to ensure the required data and data management plan will support System Post Flight Reconstruction (SPFR) and System Post-Ground Test Reconstruction (SPGR) objectives. SPFR will use a HWIL and/or a digital M&S environment to replicate the day of flight for the BMDS configuration, modified to represent the actual environment conditions and target dynamics. The results of this testing increase confidence in the

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models and simulations by anchoring the M&S output to the real world event with emphasis on the CECs and EMEs. SPFR is used for validation (anchoring) of models and simulations. SPGR will use a HWIL and/or digital M&S environment for validation (anchoring) of Ground Test models and simulations.

Interdependencies: MDA`s M&S program is key to ensuring missile defense is affordable and effective. Through the use of verified and validated models and accredited simulation tools, the MDA`s M&S program provides the cost effective means to prove and explore the performance space of the BMDS beyond what can be physically tested under current range conditions. The Single Stimulation Framework (SSF) and Digital Simulation Architecture (DSA), as stand-alone frameworks and as a combined OSF with appropriate element and component models, enhance the defensive capabilities to defend deployed forces, allies and friends against theater missile threats by enabling element integration, Warfighter training and exercises. M&S enables the concept exploration and functional analysis used to defend against threats beyond 2030 by providing the cost effective capability to support BMDS design early in the acquisition life cycle. M&S HWIL and digital frameworks provide the efficient capability to prove the missile defense capability through rigorous testing process to include pre-test, ground test, flight test and post-test activities. Through conceptual simulation activities, M&S provides the capability to design and develop technologies to hedge against future missile threats. Throughout the budget justification material, interdependencies are highlighted in order to explain fully the relationship between different parts of the proposed program and how the M&S program enables the required capabilities to meet the threat today and develop the capabilities to defeat those future threats. M&S interdependencies are key in BMDS performance evaluation strategy with models and simulations of the BMDS and require close coordination with the OTAs, Elements, COCOMs, Army, Air Force, and numerous MDA organizations.

Test: 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 determines 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 FY 2011 M&S Program focuses on further correction of the deficiencies stated in the 2008 Director of Operational Test and Evaluation (DOT&E) BMDS Assessment Report to include:
- Executing BMDS scenarios that flight testing cannot assess because of geographic and safety constraints with models and simulations
- Predicting system performance with the use of verified and validated models and simulations
- Executing SPFRs to provide empirical data to confirm system performance and to further refine and validate models and simulations
- Continuing to jointly develop accreditation criteria between MDA and OTA
- Continuing to address the V&V of threat models, radar models, kill vehicle models and lethality models

MDA Element testing is based on an integrated, comprehensive, and phased test program as outlined in MDA`s IMTP. Element systems, subsystems, and components are tested early in development and are necessary prior to conducting BMD System-level testing. M&S level testing is funded as part of a developmental program and

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funds participation in the consolidated MDA-wide System Test Program. Resources for the planning, design, execution and management of M&S in BMDS testing are provided for all flight, integrated ground, and distributed ground tests and post-test analysis and reconstruction accordance with the BMDS Test Policy, as listed in the IMTP.

Common Threat Engineering: Common threat engineering produces common and consistent adversary trajectory and signature data to enable BMDS and sub-system concept and requirements, design, verification and assessment. Common Threat data is key to the common truth used as part of the DSA and SSF to prove the BMDS. Common threat is derived from the Adversary Capability Document (ACD) and Adversary Data Packages (ADP) and drives BMDS ground tests, flight tests, digital simulations, and pre-mission analysis initiatives. The Threat Modeling Center (TMC) uses derivative ADP-based threat specifications to develop various missile models which are used to produce threat trajectory products in support of MDA events. The Threat Modeling Center model development requires frequent and multiple iterations with derivative ADP specification developers for various reasons, such as refining specifications, deriving next-order calculations, and engineering additional specifications. After missile models are developed, the model is flown using Threat Modeling Center trajectory generation tools to ensure output trajectories match the derivative ADP reference trajectories. All Threat Modeling Center models receive rigorous quality control reviews in addition to Verification & Validation reviews. After the Threat Modeling Center model is completed, the ADP is updated to include any additional threat specifications or changes. MDA M&S also supports European and Russian cooperative activities, North Korean and Iranian pre- and post-flight launch analysis, and the enhanced Israeli Interceptor program, and provides analytical support to the Agency and other government efforts in response to real world events.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: M&S Capability Development	-	8.947	7.690
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY 2010 accomplishments are reported in prior year budget project YX31 ($19.231). -Executed the M&S Requirements Engineering process -Enforced cohesive M&S Systems Engineering processes across the enterprise -Enforced M&S standards to ensure M&S effectiveness and efficiency -Lead Systems Engineering Architecture Working Group Meetings on M&S Use Case Stakeholder Requirements -Developed & maintained Mission Space Description -Provided Event-specific analyses and briefings on appropriate Event milestones to affect planning, engineering and acquisition decisions -Began a collaborative effort to define and document the BMDS-level conceptual model -Assisted in publishing the Integrated Master Test Plan -Hosted a EUCOM Communications Architecture In-Process Review -Published M&S Communications Top Level Requirements document			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Published Performance Assessment Capability Planning Specification Published Ground Test Capability Planning Specification -Published Exercise/Training Capability Planning Specification -Published Performance Assessment System Performance Specification for CD04 and beyond -Published charters for the System Engineering and Architecture Working Group and Integrated Architecture Working Group -Coordinated and processed requests to export M&S software to eight nations or international organizations -Supported Technical Interchange Meeting, provided draft language for a new PA, drafted a Project Phase Plan, and worked the execution of communications linkage to the UK under the Bilateral Activities via Secure Interactive Link BASIL PA -Developed the Acquisition Strategy, Business Case Analysis & Request for Procurement for the Objective Simulation Framework solicitation. The Objective Simulation Framework will unify the Digital & HWIL software frameworks, allowing seamless end-to-end representation of the BMDS in support of testing, training, exercises and development -Supported various Failure Review Boards to include FTG-06 -Supported the system engineering capability trades for the Phased Adaptive Approach Phase I			
FY 2011 Plans: -Verify and adjudicate stakeholder Modeling and Simulation need statements, capability statements, and capability packages for Epoch testing and assessment in PAs, Ground Test Campaigns, and Assured Response and Terminal Fury exercises -Provide updates and expand the over 170 model capability descriptions in the Missile Defense Agency`s M&S catalog -Execute traceability between the Modeling and Simulation requirements database and Modeling and Simulation product development -Develop and publish M&S Capability Planning Specification (CPS) for element integration, concept analysis, and wargames use cases -Develop and publish a M&S System Requirements Document (SRD) describing the functional requirements for the capabilities described in the CPS documents -Develop and publish a M&S System Performance Specification (SPS) describing the performance/sufficiency requirements based on the information in the SRD and CPS -Support the update and publishing of the IMTP -Support requests to export M&S software to nations or international organizations -Support Technical Interchange Meetings and the BASIL Project Arrangement with the UK -Support the system engineering capability trades for the Phased Adaptive Approach Phase II and Capability Delivery 06			
FY 2011 Accomplishments			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Updated and published CPS for PA, Ground Test, and exercise/training use cases ***FY 2012 Plans:*** -Develop and publish the Modeling and Simulations CPS, SPS, and System Interface Control Documents (ICD) for the Digital Simulation Architecture (DSA) Framework build 4.0; Phenomenology, Lethality, Environments, Threat, and Communications; and SSF build 2.0 -Verify and adjudicate stakeholder Modeling and Simulation need statements, capability statements, and capability packages for Epoch testing and assessment in PAs, Ground Test Campaigns, and Assured Response, and Terminal Fury exercises -Provide updates and expand the over 170 model capability descriptions in the Missile Defense Agency`s Modeling and Simulation catalog -Execute traceability between the Modeling and Simulation requirements database and Modeling and Simulation product development -Leverage MDA`s system engineering processes to produce mature capability documents and specifications in support of Modeling and Simulation product development to enable Missile Defense Agency ground tests, training events, BMDS exercises, BMDS wargames, BMDS PAs, and Missile Defense Agency element integration -Develop and publish CPS for element integration, concept analysis, and wargames use cases -Update and publish CPS for PA, Ground Test, and exercise/training use cases -Develop and publish SRD describing the functional requirements for the capabilities described in the CPS documents -Develop and publish M&S SPS describing the performance/sufficiency requirements based on the information in the SRD and Capability Planning Specifications -Support the update and publishing of the IMTP -Support requests to export M&S software to nations or international organizations -Support Technical Interchange Meetings and the BASIL Project Arrangement with the UK -Support the system engineering capability trades for the Phased Adaptive Approach Phase II and Capability Delivery 06			
Title: M&S Digital Framework, Simulation, Models ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** Funding for these FY 2010 accomplishments are reported in prior year budget project YX31 ($7.740). -Developed and delivered major releases of M&S digital products:	- 0	36.470 5	14.360 0

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Digital Simulation Architecture framework for use in Technical Assessment 2010 -Missile Defense Space warning Tool (models validated space-borne assets of BMDS) for use in TA10 and Warfighter Exercises -BMD International Simulation for use in International virtual BMD demonstrations, BMD education, and Warfighter wargames -Integrated, tested, functionally qualified, and delivered BMDS constructive Performance Assessment Simulation to support full-envelope BMDS performance assessment -Delivered Special Kinetic Impact Debris Distribution (KIDD) Release for DSA-P 2.1 -Released Parametric Endo/Exoatmospheric Lethality Simulation (PEELS) Target Models to Support FTT-12 and FTT-13 Analyses -Provided Post-Engagement Ground Effect Model (PEGEM) 6.2 to Turkey -Continued Product Line development, sustainment, maintenance and product support for Threat Modeling Simulation System (TMSS) and Trajectory Generator External (TGx) -Planned, produced and delivered integrated threat products for: Ground Tests, Technical Assessments, Assured Response, Terminal Fury, Global Thunder, Air and Missile Defense Exercise, Ulchi Freedom Guardian 10, Distributed Multi-Echelon Education and Training System, Post Flight Reconstruction Data and Fast Eagle -Continued software operations/maintenance of the EADSIM code base for use in Warfighter Exercises -Provided software support for Patriot System Effectiveness Model (PSEM) for use in Technical Assessment 2010 -Provided digital framework/modeling support to C2BMC software Spiral Testing for MDA`s release of C2BMC v6.4 -Procured and delivered 10 additional Performance Assessment Simulation ensemble for increased scenarios throughput ability supporting BMDS Performance Assessment, models anchoring, and validation -Planned, produced, and delivered ITPs for the execution of Ground Tests, Technical Assessments, Assured Response, Terminal Fury, and Global Thunder Air and Missile Defense Exercises, Distributed Multi-Echelon Training System (DMETS), and MDA Engineering Studies			
FY 2011 Plans: A portion of this program content is reported under project MD07 ($12.305) and MD09 ($4.365). -Develop and deliver major releases of M&S digital products: -DSA framework for use in TAs -Missile Defense Space warning Tool (MDST) for use in TAs and Warfighter exercises -Continue software operations/maintenance of the Extended Air Defense Simulation (EADSIM) code base for use in Warfighter exercises -Provide software support for Patriot System Effectiveness Model (PSEM) for use in TAs			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD31: *Modeling & Simulation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provide transitional DSA framework/modeling support to C2BMC software Spiral Testing for MDA`s release of C2BMC v8.x development -Procure, install and maintain PA Simulation ensemble for Element M&S development laboratory use in the Digital M&S Integration Center (DMIC) in Huntsville, AL ***FY 2012 Plans:*** -Develop and delivered major releases of M&S digital products: -DSA framework for use in PAs as part of the Capability Delivery-04 (CD04) Operational Test, real-time venues including Warfighter exercises, Warfighter Training, C2BMC software Spiral Testing for MDA`s release of C2BMC v8.x development, and Ground Test campaign -Missile Defense Space warning Tool (models validated space-borne assets of the BMDS) for use in PAs and Warfighter exercises -BMD International Simulation for use in International virtual BMD demonstrations, BMD education, and Warfighter wargames -Integrate, test, functionally qualify, and deliver end-to-end BMDS simulations supporting various uses: -PA Simulation (utilizing Digital Simulation Architecture, Missile Defense Space Tool, and Element-provided high-resolution models) to support full-envelope BMDS PAs -Real-time Digital Simulation (utilizing DSA, MDST, and Element-provided medium-resolution models) to support Warfighter exercises, Warfighter Training, Element spiral development, and Ground Test campaign -Operate and maintain software of the EADSIM code base for use in Warfighter exercises -Provide software support for Patriot System Effectiveness Model (PSEM) for use in PAs -Control and maintain PA Simulation ensembles for Element M&S development laboratory use in the DMIC in Huntsville, AL			
Title: M&S HWIL Framework, Simulations, Models	-	-	9.520
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** Funding for these FY2010 accomplishments are reported in prior budget year project YX31 ($16.624). -Planned, developed, integrated and deployed a common BMDS HWIL stimulation framework, the SSF and the MDSE--with the Elements for ground tests, exercises and demonstrations			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD31: *Modeling & Simulation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Developed, delivered, and supported improved Plume/Hard body codes and target models and Optical Signatures In-Line Generator (OPTISIG) test procedures, and continued to define the fuel debris model interface to Fast Line-of-Site Imagery for Target and Exhaust - Plume Signatures (FLITES) -Supported SPAWAR-Pacific, TCES participation in Ground Tests -Derived and supported implementation and verification of the BMDS System Performance Government IV&V to include the current versions of the core phenomenology and lethality models and verification benchmarking on Optical Scene Code (OSC) and OPTISIG -Conducted V&V of the BMDS HWIL Single Stimulation Framework for BMDS ground tests, exercises and demonstrations -Implemented enhancements to the SSF required for integration and test of Element Benchmarks (EBMs) (including formal qualification testing) for ground test campaigns to include identification of interdependencies -Implemented the SSF interface with two AN/TPY-2 radars and integrated into BMDS Ground Test -Integrated an SSF interface with the Ground-Based Midcourse Defense and BMDS Sensors fielded assets -Developed, deployed and integrated SSF for Ground-Based Midcourse Defense and BMDS Sensors stand-alone training -Worked initial integration of the BMDS SSF with the ARROW HWIL facility in Israel -Evolved and enhanced the SSF to provide increased Warfighter support, specifically training and exercises -Integrated the SSF with additional Allied/Coalition elements to expand distributed ground test and exercise venues -Provided System Engineering support to upgrade the BMDS stimulation framework to SSF -Completed initial integration of the BMDS stimulation framework with the additional sensors -Provided common threat representations and scenarios to meet specific event and customer requirements for the BMDS HWIL framework ***FY 2011 Plans:*** The program content in this project is reported under project MD09 ($69.937). ***FY 2012 Plans:*** A portion of the FY 2012 program content is reported under project MD09 in PB12. -Develop and integrate the HWIL SSF at COCOM, training, and exercise Host Nation locations -Integrate the BMDS HWIL SSF with the ARROW HWIL facility -Continue integration of the SSF with additional Allied/Coalition elements -Complete Cobra Dane closure interface development -Begin integration of SSF with UEWR Clear AFS -Provide for SSF sustainment, maintenance and product support			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Deploy and integrate BDMS HWIL SSF to support Ground Base Mid-Course and BMDS Sensors directorates stand-alone training and the Distributed Multi-Echelon Training System (DMETS) capability -Begin deployment and integration of BMDS HWIL SSF Objective Hardware for MDA Elements and a Releasable configuration for Allied and Coalition partners -Begin installation of BMDS HWIL SSF software capability and necessary hardware/ maintenance to support a 2nd parallel test string (Ground Test assets only) -Demonstrate initial Open Architecture redesign capabilities -Deploy and install SSF node in fielded AN/TPY-02 shelter , Combatant Command Exercise (Global Lightning 13) 3Q2013			
Title: M&S VV&A and Test Operations	-	-	15.002
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** Funding for these FY 2010 accomplishments are reported in prior year budget project YX31 ($3.883). -Provided integrated Verification, Validation, & Assessment (VV&A) of MDA M&S at the system level for specific events, to include Technical Assessment, Performance Assessment, Ground Tests that support BMDS fielding decisions, and tier one COCOM exercises -Developed integrated VV&A event Plans and Reports for each event -Worked closely with Elements, Test Community, System Engineering, and OTAs to ensure M&S for events met intended uses and objectives, and had proper VV&A documentation and evidence, to include benchmarking/anchoring pedigree -Conducted system-level V&V to include threat trajectory and signature V&V throughout the system; end-to-end environmental implementation was consistent and correct; communications and architecture behaved properly; and interoperability was adequately addressed -Developed and implemented M&S standards consistent with industry best practices -Activated and operated a problem reporting system to capture M&S anomalies; incorporated into requirements process for M&S improvements -Led BMDS VV&A working group to improve VV&A operations and ultimately improve BMDS performance -Developed and implemented metrics on system-level M&S to increase efficiencies and effectiveness			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD31: *Modeling & Simulation*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Ensured that individual BMDS elements and components were responsible for the proper VV&A of their own models ***FY 2011 Plans:*** The program content in this project is reported under project MD09 ($38.119). ***FY 2012 Plans:*** -Provide integrated VV&A of MDA M&S at the system level for specific events, to include TAs, PA, Ground Tests that support BMDS fielding decisions, and tier one COCOM exercises -Develop integrated VV&A event Plans and Reports for Focused Ground Tests, Integrated Ground Tests, PAs, and Assured Response exercise -Work closely with Elements, Test Community, System Engineering, and OTAs to ensure M&S for each event meet intended uses and objectives, and have proper VV&A documentation and evidence, to include benchmarking/anchoring pedigree -Conduct system-level V&V of threat trajectory and signature; ensure end-to-end environmental implementation is consistent and correct communications and architecture behave properly and interoperability is adequately addressed -Develop and implement M&S standards consistent with industry best practices -Develop, implement and configure control of web-based problem reporting system to capture M&S anomalies and incorporate corrections into requirements process in order to guarantee and measure M&S improvement -Lead BMDS VV&A working group to improve VV&A operations and ultimately improve BMDS performance -Develop and implement metrics for system-level M&S to increase efficiencies and effectiveness -Develop model and simulation target requirements to support CECs and EMEs test conditions			
Title: M&S Phenomenology, Lethality, Environment, Threat, Communications ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** The Phenomenology, Lethality, Environment, Threat, Communications (PLET-C) effort began in FY 2011. ***FY 2011 Plans:*** -Provide M&S tools and technical support, and modify code for model, threat, and scenario development -Provide Optical Scene Code (OSC) and the plume modeling tools to include major software fixes to support ADP development -Provide existing legacy validation for OSC and the plume modeling tools -Develop and integrate MDA Threat Systems Engineer specified capabilities-based and intelligence-credible threat models into M&S threat tools, TMSS, and TGx	- 0	19.206 0	10.045 0

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Plan and produce threat trajectory products using M&S threat tool, Threat Modeling Simulation System (TMSS), for Integrated Threat Products (ITPs) -Plan, integrate, produce, and deliver ITPs (threat trajectories and signatures) for the execution of Ground Tests and Performance/ TAs -Plan, integrate, produce, and deliver ITPs for the execution of wargames, exercises, Distributed Multi-Echelon Training System (DMETS), and MDA engineering studies -Integrate, produce, and deliver ITPs for Flight Tests ***FY 2012 Plans:*** -Plan and produce threat trajectory products using M&S threat tool, TMSS, for ITPs -Plan, integrate, produce, and deliver ITPs (threat trajectories and signatures) for the execution of Ground Tests and Performance/ TAs -Plan, integrate, produce, and deliver ITPs for the execution of wargames, exercises, Distributed Multi-Echelon Training System (DMETS), and MDA engineering studies -Integrate, produce, and deliver ITPs for Flight Tests -Complete integration of Environment modeling capabilities to provide common and consistent environmental data to digital system-level M&S events -Complete integration of remaining PLET-C functions (e.g., phenomenology, lethality, and threat) to provide common and consistent data to digital system-level M&S events -Complete Systems Engineering efforts to support integration of all PLET-C functions into HWIL frameworks -Begin integration efforts to provide PLET-C functionality to HWIL networks -Develop model and simulation target requirements to support CECs and EMEs test conditions			
Accomplishments/Planned Programs Subtotals	-	64.623	56.617

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603175C: *Ballistic Missile Defense Technology*	164.670	132.220	75.003		75.003	103.844	111.712	164.378	170.851	Continuing	Continuing
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	690.054	436.482	290.452		290.452	318.745	309.894	340.969	320.638	Continuing	Continuing
	1,022.019	1,346.181	1,161.001		1,161.001	1,040.949	925.943	856.839	875.969	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603882C: *Ballistic Missile Defense Mid-Course Segment*											
• 0603884C: *Ballistic Missile Defense Sensors*	544.352	454.859	222.374		222.374	357.271	336.514	318.321	348.944	Continuing	Continuing
• 0603888C: *Ballistic Missile Defense Test and Targets*	737.863	1,113.425	1,071.039		1,071.039	898.680	790.906	787.113	878.215	Continuing	Continuing
• 0603891C: *SPECIAL PROGRAMS - MDA*	253.157	270.189	296.554		296.554	377.845	416.052	430.969	452.448	Continuing	Continuing
• 0603892C: *BMD AEGIS*	1,418.992	1,467.278	960.267		960.267	957.992	1,001.510	970.607	1,033.710	Continuing	Continuing
• 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	148.506	112.678	96.353		96.353	53.577	47.592	32.289	34.308	Continuing	Continuing
• 0603895C: *BMD SYSTEM SPACE PROGRAM*	11.913	10.942	7.951		7.951	6.781	6.465	6.496	6.915	Continuing	Continuing
• 0603896C: *BMD C2BMC*	327.074	342.625	364.103		364.103	330.337	353.081	338.835	304.217	Continuing	Continuing
• 0603898C: *BMD JOINT WARFIGHTER SUPPORT*	58.105	68.726	41.225		41.225	58.089	55.961	56.479	60.684	Continuing	Continuing
• 0603902C: *STANDARD MISSILE-3 BLOCK IIB (SM-3 IIB)*	0.000	0.000	123.456		123.456	433.106	384.647	401.141	394.803	Continuing	Continuing
• 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	82.926	86.198	69.325		69.325	64.514	55.808	56.769	54.621	Continuing	Continuing
• 0603911C: *BMD EUROPEAN CAPABILITY*	47.342	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	47.342
• 0603913C: *ISRAELI COOPERATIVE*	195.652	121.735	106.100		106.100	99.873	95.819	96.840	103.977	Continuing	Continuing
• 0901598C: *Management Headquarters-MDA*	62.294	29.754	28.908		28.908	29.112	27.728	27.827	29.949	Continuing	Continuing

D. Acquisition Strategy

The M&S acquisition strategy utilizes full and open competition to develop, acquire and deliver the integrated architectures/frameworks while the Elements, using the same open competition methods, develop and deliver models of their systems. The Digital and HWIL product centers integrate the suite of M&S into a composite simulation capability, all based on an open architecture. M&S achieves this end-state via close collaboration between its integrating contractor teams (Digital and HWIL)

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD31: *Modeling & Simulation*

and those of the Element prime contractors, with additional technical standards and engineering oversight provided by Federally Funded Research and Development Centers and University Affiliated Research Centers. In addition, in FY 2012 the Objective Simulation Framework (OSF) contract will be awarded. This full-and-open competition will unify M&S framework development efforts to allow seamless end-to-end representation of the BMDS, across HWIL and Digital domains, to support all Use Cases at substantial savings to the Agency.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
M&S Capability Development M&S Integrated Master Plan MD31	C/FFP	ManTech:CO	-	2.155	Nov 2010	1.945	Nov 2011	-		1.945	Continuing	Continuing	Continuing
M&S Capability Development M&S Configuration & Risk Management MD31	C/FFP	ManTech:CO	2.120	2.160	Nov 2010	1.951	Nov 2011	-		1.951	Continuing	Continuing	Continuing
M&S Capability Development M&S Product Capability Documents MD31	C/FFP	Boeing:AL	7.008	4.632	Nov 2010	3.794	Nov 2011	-		3.794	Continuing	Continuing	Continuing
M&S Digital Framework, Simulation, Models Integrated M&S Capability for Performance Assessment MD31	C/CPAF	Northrop Grumman:CO	15.297	17.770	Nov 2010	10.429	Nov 2011	-		10.429	Continuing	Continuing	Continuing
M&S Digital Framework, Simulation, Models Integrated M&S Capability for International Programs MD31	C/CPAF	Northrop Grumman:CO	15.298	18.700	Nov 2010	3.931	Dec 2011	-		3.931	Continuing	Continuing	Continuing
M&S HWIL Framework, Simulations, Models Single Stimulation Framework & Objective Simulation Framework Product Development & Deployment MD31	C/CPAF	Boeing:AL	44.981	-		9.520	Nov 2011	-		9.520	Continuing	Continuing	Continuing
M&S Phenomenology, Lethality, Environment, Threat, Communications Trajectory Generator eXternal MD31	C/CPAF	Northrop Grumman:CO	1.200	3.519	Nov 2010	2.601	Nov 2011	-		2.601	Continuing	Continuing	Continuing
M&S Phenomenology, Lethality, Environment, Threat, Communications Communication Network Model Development MD31	C/CPAF	Northrop Grumman:CO	-	2.149	Nov 2010	0.300	Nov 2011	-		0.300	Continuing	Continuing	Continuing
	C/CPAF	Northrop Grumman:CO	-	2.955	Nov 2010	0.475	Nov 2011	-		0.475	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
M&S Phenomenology, Lethality, Environment, Threat, Communications PLET-C Integration, Assembly, Test & Checkout MD31													
M&S Phenomenology, Lethality, Environment, Threat, Communications Threat Modeling Simulation System MD31	C/CPAF	Northrop Grumman:CO	6.220	4.054	Nov 2010	2.627	Nov 2011	-		2.627	Continuing	Continuing	Continuing
M&S Phenomenology, Lethality, Environment, Threat, Communications Lethality/ Phenomenology Modeling MD31	MIPR	AMRDEC:AL	11.360	6.529	Dec 2010	4.042	Dec 2011	-		4.042	Continuing	Continuing	Continuing
		Subtotal	103.484	64.623		41.615		-		41.615			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
M&S VV&A and Test Operations Performance Assessment VV&A MD31	C/CPAF	Northrop Grumman:CO	3.395	-		8.195	Dec 2011	-		8.195	Continuing	Continuing	Continuing
M&S VV&A and Test Operations Ground Test VV&A MD31	C/CPAF	Northrop Grumman:CO	1.221	-		3.200	Dec 2011	-		3.200	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD31: *Modeling & Simulation*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
M&S VV&A and Test Operations M&S Accreditation MD31	C/CPAF	Northrop Grumman:CO	3.683	-		3.607	Dec 2011	-		3.607	Continuing	Continuing	Continuing
		Subtotal	8.299	-		15.002		-		15.002			

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	111.783	64.623		56.617		-		56.617			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD31: *Modeling & Simulation*

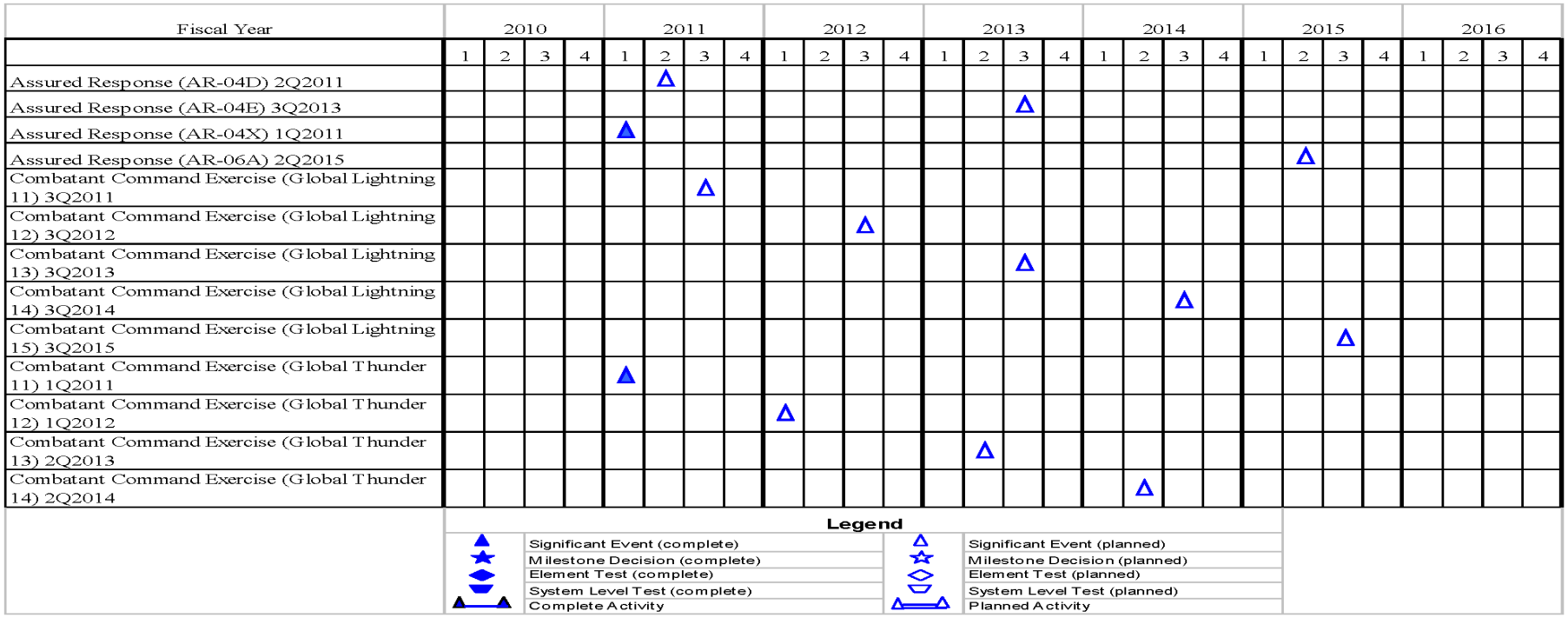


Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD31: *Modeling & Simulation*

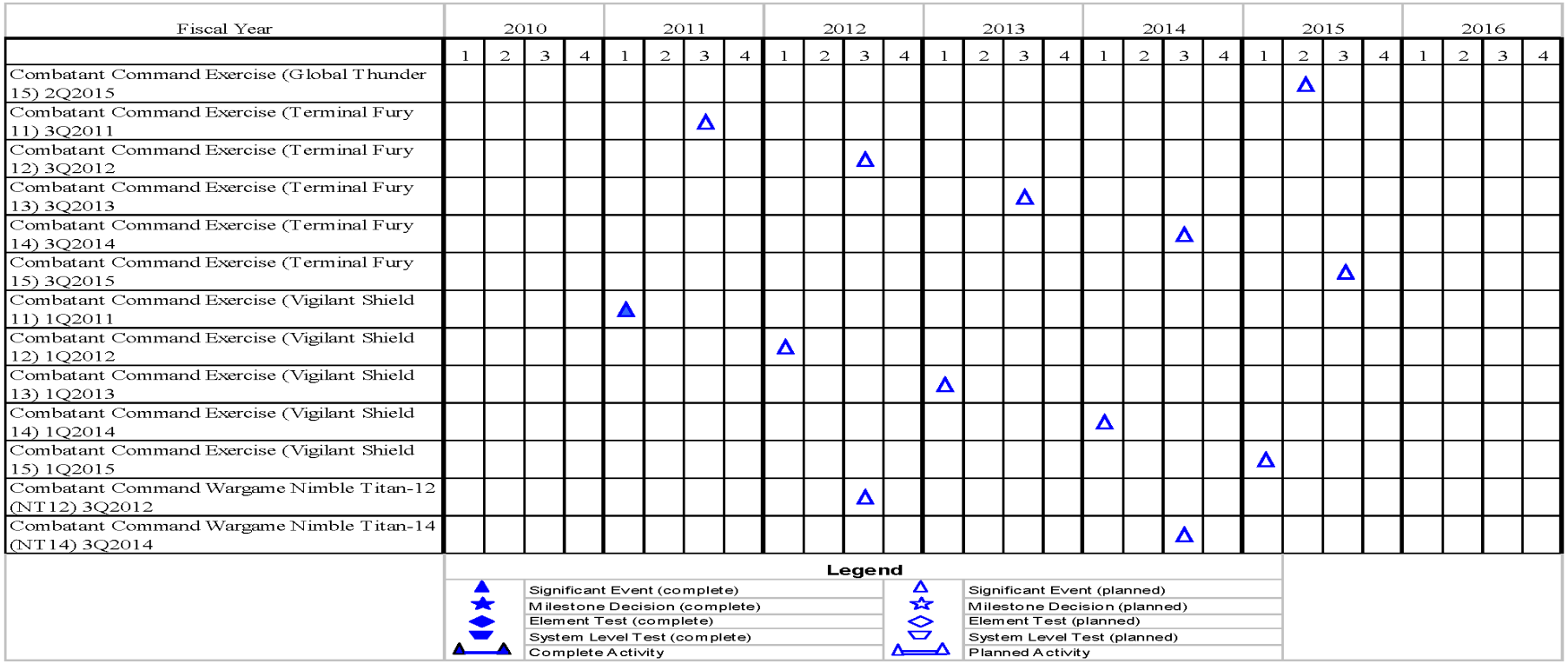
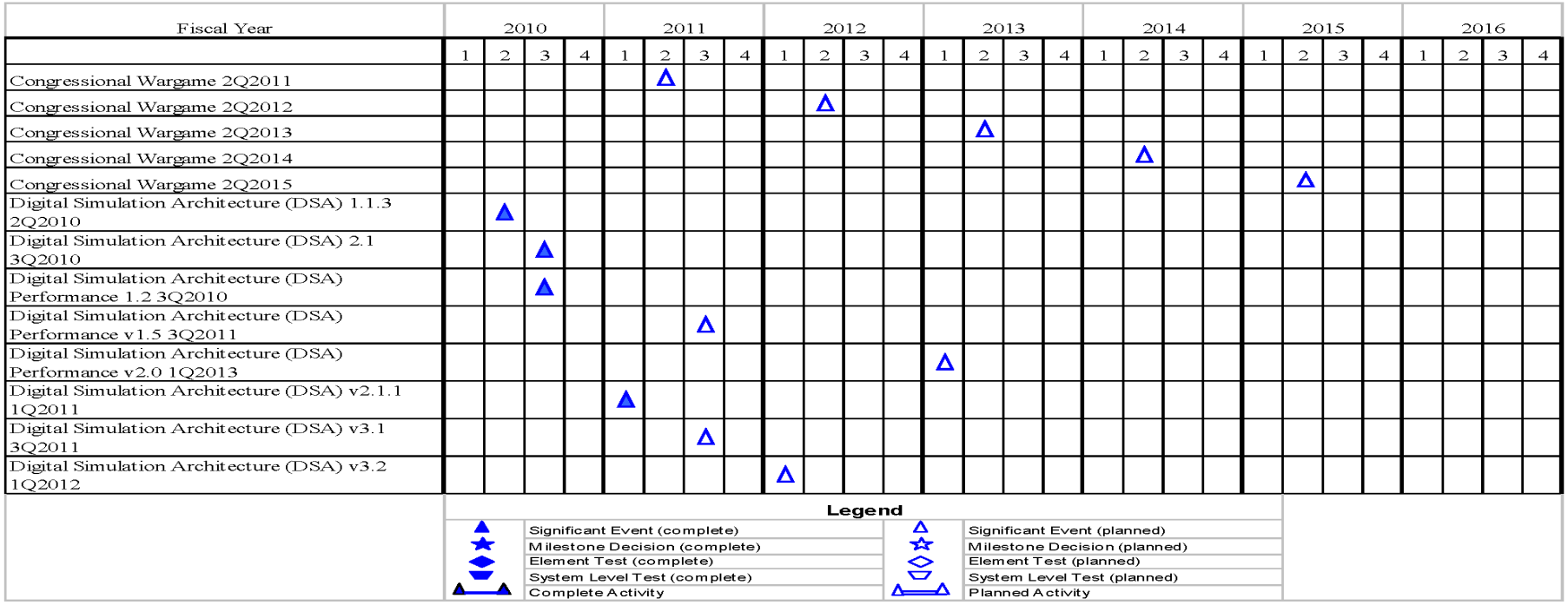


Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD31: *Modeling & Simulation*



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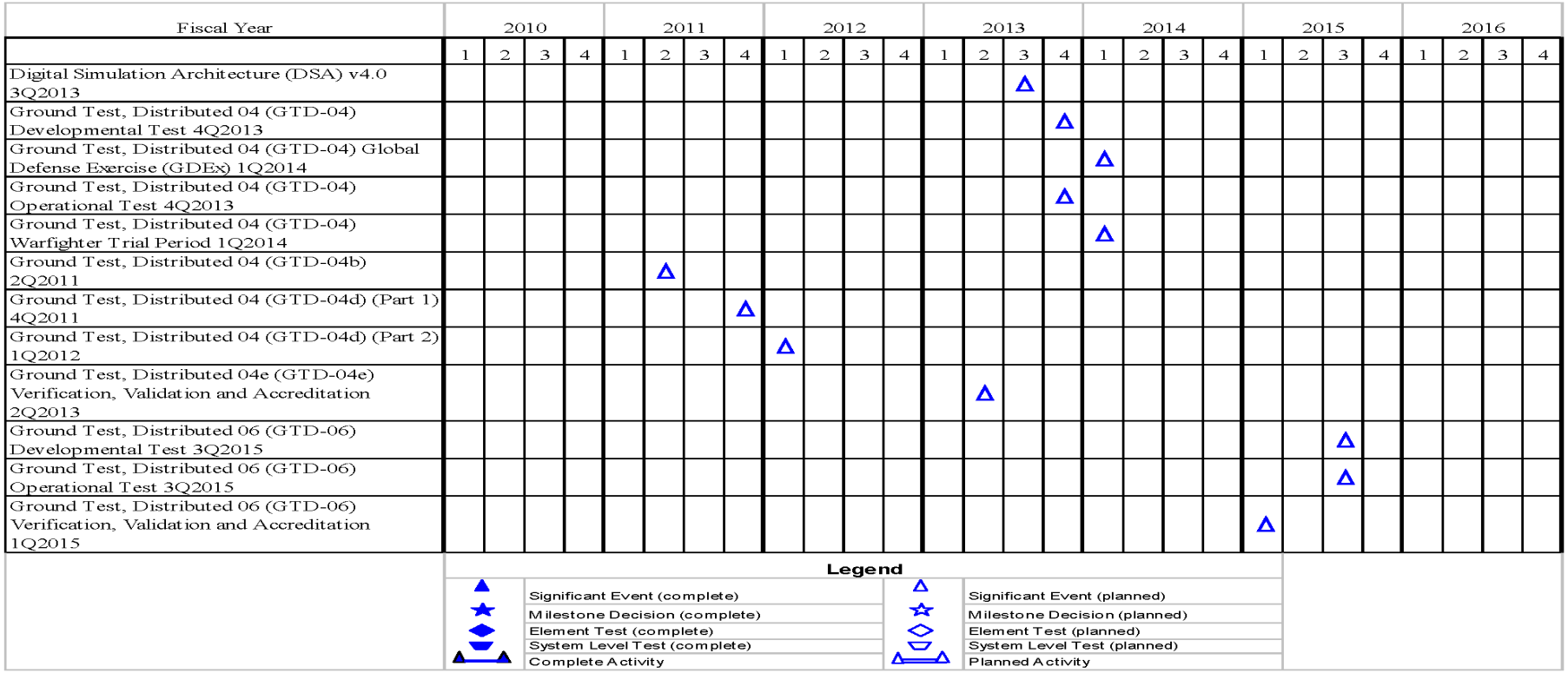

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD31: *Modeling & Simulation*

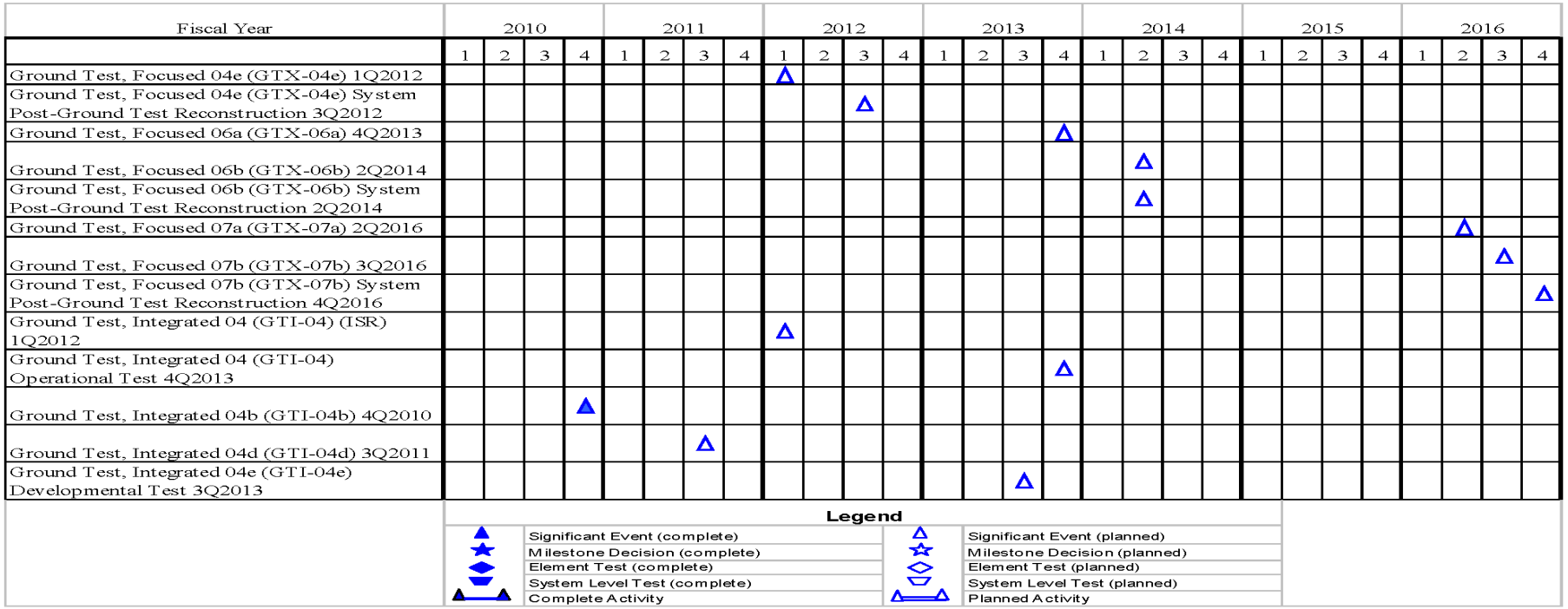

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
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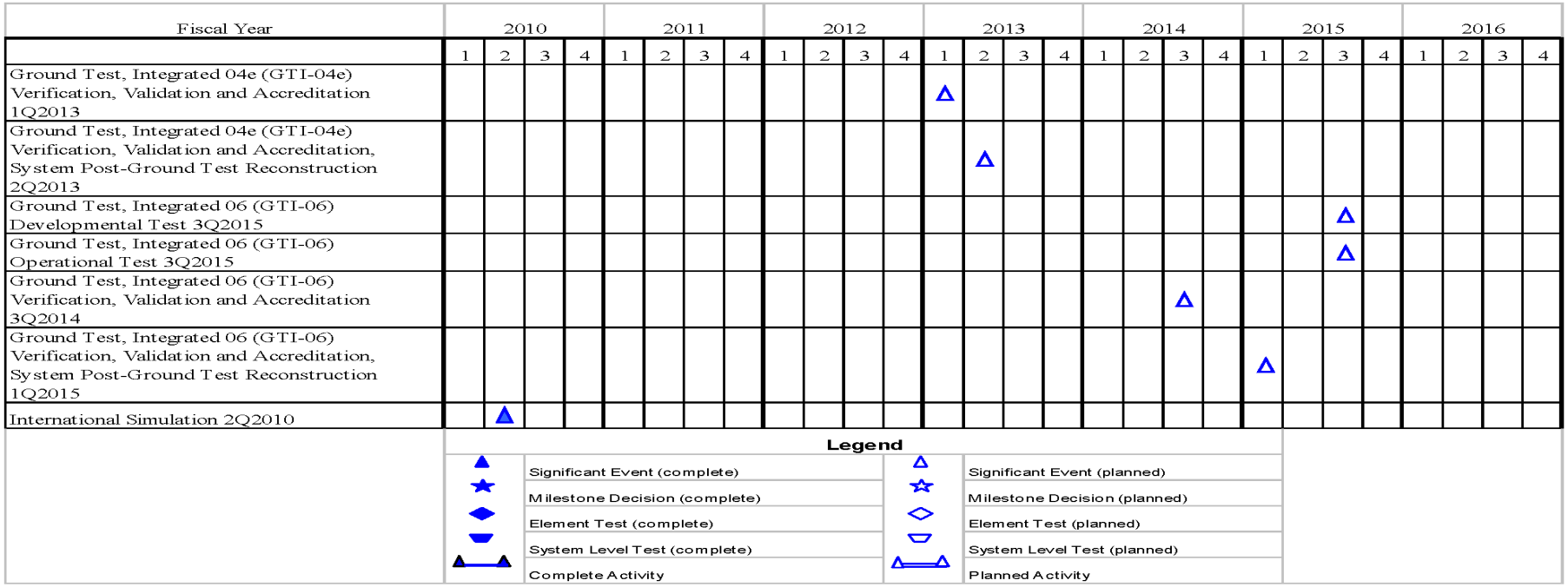

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
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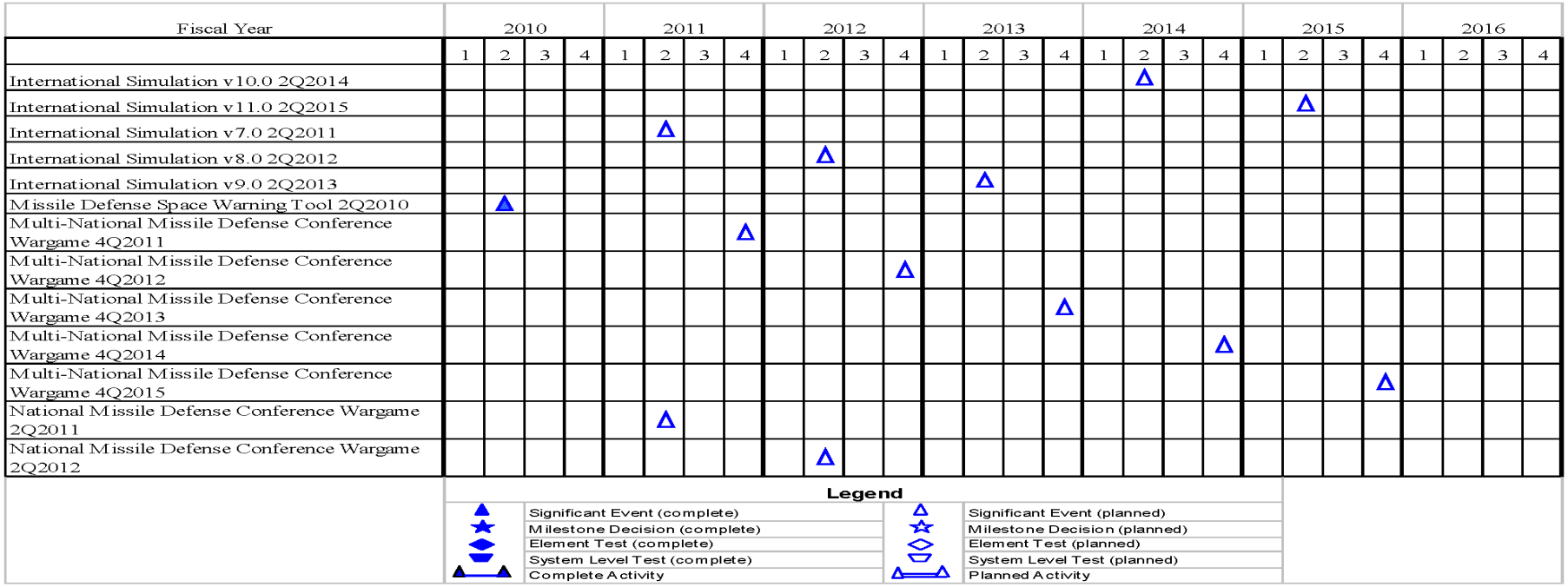

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		**DATE:** February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD31: *Modeling & Simulation*

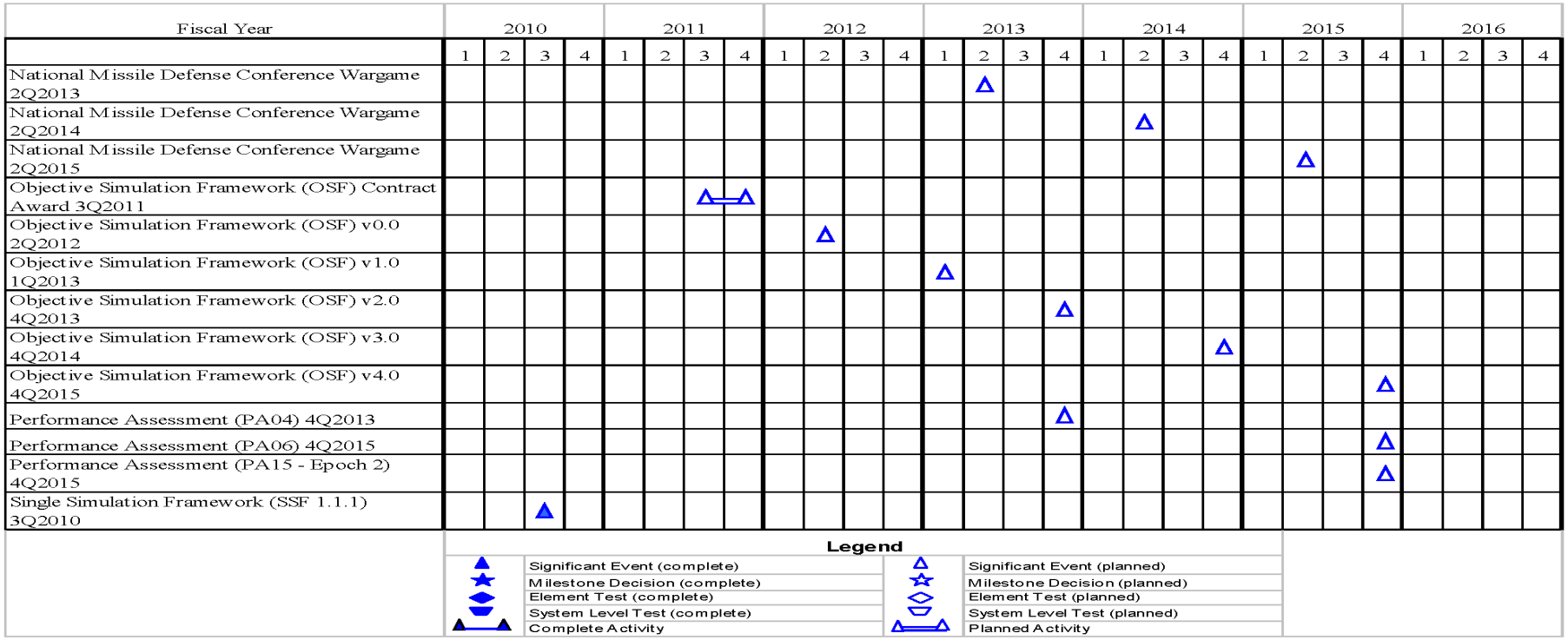

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD31: *Modeling & Simulation*

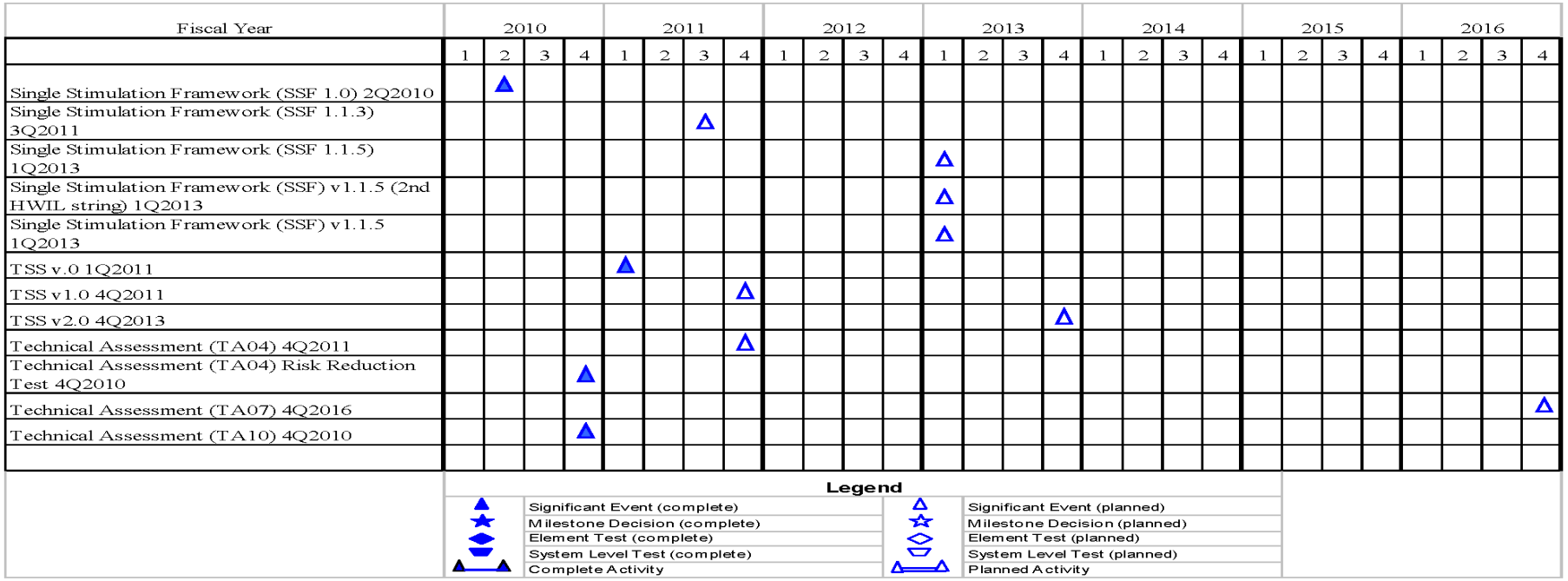

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD31: *Modeling & Simulation*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Assured Response (AR-04D) 2Q2011	2	2011	2	2011
Assured Response (AR-04E) 3Q2013	3	2013	3	2013
Assured Response (AR-04X) 1Q2011	1	2011	1	2011
Assured Response (AR-06A) 2Q2015	2	2015	2	2015
Combatant Command Exercise (Global Lightning 11) 3Q2011	3	2011	3	2011
Combatant Command Exercise (Global Lightning 12) 3Q2012	3	2012	3	2012
Combatant Command Exercise (Global Lightning 13) 3Q2013	3	2013	3	2013
Combatant Command Exercise (Global Lightning 14) 3Q2014	3	2014	3	2014
Combatant Command Exercise (Global Lightning 15) 3Q2015	3	2015	3	2015
Combatant Command Exercise (Global Thunder 11) 1Q2011	1	2011	1	2011
Combatant Command Exercise (Global Thunder 12) 1Q2012	1	2012	1	2012
Combatant Command Exercise (Global Thunder 13) 2Q2013	2	2013	2	2013
Combatant Command Exercise (Global Thunder 14) 2Q2014	2	2014	2	2014
Combatant Command Exercise (Global Thunder 15) 2Q2015	2	2015	2	2015
Combatant Command Exercise (Terminal Fury 11) 3Q2011	3	2011	3	2011
Combatant Command Exercise (Terminal Fury 12) 3Q2012	3	2012	3	2012
Combatant Command Exercise (Terminal Fury 13) 3Q2013	3	2013	3	2013
Combatant Command Exercise (Terminal Fury 14) 3Q2014	3	2014	3	2014
Combatant Command Exercise (Terminal Fury 15) 3Q2015	3	2015	3	2015
Combatant Command Exercise (Vigilant Shield 11) 1Q2011	1	2011	1	2011
Combatant Command Exercise (Vigilant Shield 12) 1Q2012	1	2012	1	2012
Combatant Command Exercise (Vigilant Shield 13) 1Q2013	1	2013	1	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Combatant Command Exercise (Vigilant Shield 14) 1Q2014	1	2014	1	2014
Combatant Command Exercise (Vigilant Shield 15) 1Q2015	1	2015	1	2015
Combatant Command Wargame Nimble Titan-12 (NT12) 3Q2012	3	2012	3	2012
Combatant Command Wargame Nimble Titan-14 (NT14) 3Q2014	3	2014	3	2014
Congressional Wargame 2Q2011	2	2011	2	2011
Congressional Wargame 2Q2012	2	2012	2	2012
Congressional Wargame 2Q2013	2	2013	2	2013
Congressional Wargame 2Q2014	2	2014	2	2014
Congressional Wargame 2Q2015	2	2015	2	2015
Digital Simulation Architecture (DSA) 1.1.3 2Q2010	2	2010	2	2010
Digital Simulation Architecture (DSA) 2.1 3Q2010	3	2010	3	2010
Digital Simulation Architecture (DSA) Performance 1.2 3Q2010	3	2010	3	2010
Digital Simulation Architecture (DSA) Performance v1.5 3Q2011	3	2011	3	2011
Digital Simulation Architecture (DSA) Performance v2.0 1Q2013	1	2013	1	2013
Digital Simulation Architecture (DSA) v2.1.1 1Q2011	1	2011	1	2011
Digital Simulation Architecture (DSA) v3.1 3Q2011	3	2011	3	2011
Digital Simulation Architecture (DSA) v3.2 1Q2012	1	2012	1	2012
Digital Simulation Architecture (DSA) v4.0 3Q2013	3	2013	3	2013
Ground Test, Distributed 04 (GTD-04) Developmental Test 4Q2013	4	2013	4	2013
Ground Test, Distributed 04 (GTD-04) Global Defense Exercise (GDEx) 1Q2014	1	2014	1	2014
Ground Test, Distributed 04 (GTD-04) Operational Test 4Q2013	4	2013	4	2013
Ground Test, Distributed 04 (GTD-04) Warfighter Trial Period 1Q2014	1	2014	1	2014
Ground Test, Distributed 04 (GTD-04b) 2Q2011	2	2011	2	2011
Ground Test, Distributed 04 (GTD-04d) (Part 1) 4Q2011	4	2011	4	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Ground Test, Distributed 04 (GTD-04d) (Part 2) 1Q2012	1	2012	1	2012
Ground Test, Distributed 04e (GTD-04e) Verification, Validation and Accreditation 2Q2013	2	2013	2	2013
Ground Test, Distributed 06 (GTD-06) Developmental Test 3Q2015	3	2015	3	2015
Ground Test, Distributed 06 (GTD-06) Operational Test 3Q2015	3	2015	3	2015
Ground Test, Distributed 06 (GTD-06) Verification, Validation and Accreditation 1Q2015	1	2015	1	2015
Ground Test, Focus, 04a (GTX-04a) 1Q2010-2Q2010	1	2010	1	2010
Ground Test, Focused 04e (GTX-04e) 1Q2012	1	2012	1	2012
Ground Test, Focused 04e (GTX-04e) System Post-Ground Test Reconstruction 3Q2012	3	2012	3	2012
Ground Test, Focused 06a (GTX-06a) 4Q2013	4	2013	4	2013
Ground Test, Focused 06b (GTX-06b) 2Q2014	2	2014	2	2014
Ground Test, Focused 06b (GTX-06b) System Post-Ground Test Reconstruction 2Q2014	2	2014	2	2014
Ground Test, Focused 07a (GTX-07a) 2Q2016	2	2016	2	2016
Ground Test, Focused 07b (GTX-07b) 3Q2016	3	2016	3	2016
Ground Test, Focused 07b (GTX-07b) System Post-Ground Test Reconstruction 4Q2016	4	2016	4	2016
Ground Test, Integrated 04 (GTI-04) (ISR) 1Q2012	1	2012	1	2012
Ground Test, Integrated 04 (GTI-04) Operational Test 4Q2013	4	2013	4	2013
Ground Test, Integrated 04b (GTI-04b) 4Q2010	4	2010	4	2010
Ground Test, Integrated 04d (GTI-04d) 3Q2011	3	2011	3	2011
Ground Test, Integrated 04e (GTI-04e) Developmental Test 3Q2013	3	2013	3	2013
Ground Test, Integrated 04e (GTI-04e) Verification, Validation and Accreditation 1Q2013	1	2013	1	2013
	2	2013	2	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Ground Test, Integrated 04e (GTI-04e) Verification, Validation and Accreditation, System Post-Ground Test Reconstruction 2Q2013				
Ground Test, Integrated 06 (GTI-06) Developmental Test 3Q2015	3	2015	3	2015
Ground Test, Integrated 06 (GTI-06) Operational Test 3Q2015	3	2015	3	2015
Ground Test, Integrated 06 (GTI-06) Verification, Validation and Accreditation 3Q2014	3	2014	3	2014
Ground Test, Integrated 06 (GTI-06) Verification, Validation and Accreditation, System Post-Ground Test Reconstruction 1Q2015	1	2015	1	2015
International Simulation 2Q2010	2	2010	2	2010
International Simulation v10.0 2Q2014	2	2014	2	2014
International Simulation v11.0 2Q2015	2	2015	2	2015
International Simulation v7.0 2Q2011	2	2011	2	2011
International Simulation v8.0 2Q2012	2	2012	2	2012
International Simulation v9.0 2Q2013	2	2013	2	2013
Missile Defense Space Warning Tool 2Q2010	2	2010	2	2010
Multi-National Missile Defense Conference Wargame 4Q2011	4	2011	4	2011
Multi-National Missile Defense Conference Wargame 4Q2012	4	2012	4	2012
Multi-National Missile Defense Conference Wargame 4Q2013	4	2013	4	2013
Multi-National Missile Defense Conference Wargame 4Q2014	4	2014	4	2014
Multi-National Missile Defense Conference Wargame 4Q2015	4	2015	4	2015
National Missile Defense Conference Wargame 2Q2011	2	2011	2	2011
National Missile Defense Conference Wargame 2Q2012	2	2012	2	2012
National Missile Defense Conference Wargame 2Q2013	2	2013	2	2013
National Missile Defense Conference Wargame 2Q2014	2	2014	2	2014
National Missile Defense Conference Wargame 2Q2015	2	2015	2	2015
Objective Simulation Framework (OSF) Contract Award 3Q2011	3	2011	4	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD31: *Modeling & Simulation*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Objective Simulation Framework (OSF) v0.0 2Q2012	2	2012	2	2012
Objective Simulation Framework (OSF) v1.0 1Q2013	1	2013	1	2013
Objective Simulation Framework (OSF) v2.0 4Q2013	4	2013	4	2013
Objective Simulation Framework (OSF) v3.0 4Q2014	4	2014	4	2014
Objective Simulation Framework (OSF) v4.0 4Q2015	4	2015	4	2015
Performance Assessment (PA04) 4Q2013	4	2013	4	2013
Performance Assessment (PA06) 4Q2015	4	2015	4	2015
Performance Assessment (PA15 - Epoch 2) 4Q2015	4	2015	4	2015
Single Simulation Framework (SSF 1.1.1) 3Q2010	3	2010	3	2010
Single Stimulation Framework (SSF 1.0) 2Q2010	2	2010	2	2010
Single Stimulation Framework (SSF 1.1.2) 2Q2011	2	2011	2	2011
Single Stimulation Framework (SSF 1.1.3) 3Q2011	3	2011	3	2011
Single Stimulation Framework (SSF 1.1.5) 1Q2013	1	2013	1	2013
Single Stimulation Framework (SSF) v1.1.5 (2nd HWIL string) 1Q2013	1	2013	1	2013
Single Stimulation Framework (SSF) v1.1.5 1Q2013	1	2013	1	2013
TSS v.0 1Q2011	1	2011	1	2011
TSS v1.0 4Q2011	4	2011	4	2011
TSS v2.0 4Q2013	4	2013	4	2013
Technical Assessment (TA04) 4Q2011	4	2011	4	2011
Technical Assessment (TA04) Risk Reduction Test 4Q2010	4	2010	4	2010
Technical Assessment (TA07) 4Q2016	4	2016	4	2016
Technical Assessment (TA10) 4Q2010	4	2010	4	2010

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT YX32: *Quality, Safety, and Mission Assurance*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
YX32: *Quality, Safety, and Mission Assurance*	29.184	-	-	-	-	-	-	-	-	0.000	29.184
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budgets structure, the content of the previously planned in Project YX32 for FY 2011-FY 2015 are now captured in Project MD32.

A. Mission Description and Budget Item Justification

Project YX32 has been transferred to Project MD32.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Quality, Safety & Mission Assurance	29.184	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	29.184	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD32: *Quality, Safety, and Mission Assurance*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD32: *Quality, Safety, and Mission Assurance*	-	32.881	33.045	-	33.045	30.725	28.548	28.091	30.078	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Provides Mission Assurance Representatives (MARs) for the MDA Director at government and contractor facilities. MARs are Government Mission Assurance and Quality experts who provide oversight of production work to the contractor`s executive management in support of the program elements, and their respective program offices. Mission Assurance Audits are conducted which focus on processes and procedures. Audits are performed for contractual requirements, internal requirements, and industry best corrective action assessments. These audits are one of MDA`s most effective methods of enabling change among the MDA contractors and suppliers. QS provides Subject Matter Experts who attend all technical reviews (i.e. Design, Test, and Mission Readiness Reviews) to ensure mission assurance principles, quality practices and procedures are implemented across the Ballistic Missile Defense System (BMDS). QS develops overarching quality guidance such as the MDA Assurance Provisions (MAP) for MDA. Vehicle pedigree documentation is reviewed to ensure all integration and testing rework and repair is performed within approved processes.

Quality - Provides on-site Quality Assurance coverage on all flight tests to ensure mission success and that all processes and procedures are adhered to and no short cuts or deviations occur. Provide quality Subject Matter Experts who attend all technical reviews (i.e. Design, Test and Mission Readiness Reviews) to ensure quality practices and procedures are implemented across BMDS. Ensures integrity and standards are maintained on all system parts and processes throughout manufacturing and implementation. Provide quality for on-site formal recording and resolution of non-conformances and anomalies during test per MDA/BMDS requirements. Initiate and lead on-site Joint Government and Industry Team field support and expertise to assist when critical sole source suppliers are failing. Team conducts initiatives to revamp sole source suppliers by assisting them to get healthy and perform at world class levels. Provide on-site Quality Assurance coverage on all ground tests to ensure mission success and that all processes and procedures are adhered to and no short cuts or deviations occur.

Safety - Responsible for system safety of the Ballistic Missile Defense System and for the Safety and Occupational Health of personnel located in the National Capital Region (NCR); Huntsville, Alabama; Fort Greely, Alaska; and Vandenberg Air Force Base (VAFB), California. Also responsible for ensuring the overall safety of the civilian, contractor and military workforce. QS provides on-site support 24 hours a day, 7 days a week, 365 days a year to ensure operational safety of systems. QS verifies that all systems are functioning and tracking against actual verified targets and that all associated processes and procedures are strictly followed.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Quality, Safety & Mission Assurance	-	32.881	33.045
Articles:	0	0	0
Description: See Description Below			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD32: *Quality, Safety, and Mission Assurance*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: Funding for FY 2010 accomplishments are reported in prior year budget Project YX32 ($29,184). -Maintained on-site quality, and mission assurance oversight at 21 critical suppliers and Government facilities -Led a series of production readiness assessments at key contractor sites, identifying substantial technical and quality process risks; also performed assessments in preparation for the Terminal High Altitude Area Defense program production decision -Continued success incorporating quality, safety and mission assurance requirements in major contracts; all new contracts awarded in 2010 contained these provisions -Originated and published BMDS Systems Safety Program Plan as means of documenting safety requirements for Build D of the BMDS -Provided quality assessments, configuration certification and non-conformance reporting for all flight and ground test operations; over several hundred BMDS Test Incident Reports identified and tracked to closure -Provided technical support for all major Failure investigations -Maintained 24 hours a day, 7 days a week, 365 days a year Ballistic Missile Defense System safety monitoring for all operations, including test and maintenance activities -Continued to infuse best industry practices into program supply chain with over 30 Lessons Learned and 13 MDA advisories (tin whiskers, counterfeit parts, manufacturing issues, moisture sensitive componets, part failures and reliability concerns) -Facilitated 52 Distributor and Supplier assessments for counterfeit part avoidance and conducted 4 Prime Contractor facility assessments for counterfeit risk reduction -Performed 13 pedigree reviews, 7 interceptor and target system component qualification assessments, 3 safety audits, 9 design reviews, and quality inspection support at select facilities ***FY 2011 Plans:*** Quality -Continue to provide non-advocate independent quality oversight/support to Agency via key engineering and configuration management forums -Perform configuration management verification and reconciliation for all major flight and ground test assets -Ensure strict process control over integration delivery and conduct of all major flight and ground tests -Identify and resolve system and/or assembly incompatibilities, non-conformances, inadequate requirement definition, insufficient requirement traceability, process adherences, and design, manufacturing, test, and quality practices Safety			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD32: *Quality, Safety, and Mission Assurance*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Maintain on-site safety oversight at key suppliers and Government facilities -Conduct safety risk assessments per the Department of Defense standards practice for system safety, of all test and operational systems to ensure catastrophic risks remain improbable -Conduct system analysis/assessments such as reliability prediction analysis, failure modes and effects criticality analysis, safety hazards analysis -Perform hazard risk assessments and manage the BMDS safety hazard tracking system -Provide technical leadership and support for Program insensitive munitions and hazard classification activities Mission Assurance -Perform non-conformance reporting, tracking, and migration for all major flight and ground tests -Provide technical expertise in internal top level decision technical meetings to identify and determine if a mission assurance/ safety/quality subject is properly represented and/or needs to be elevated to the Director -Conduct mission assurance audits, and safety audits as necessary at mission critical supplier sites BMDS Safety Officers (BSOs) -Perform 24 hours a day, 7 days a week, 365 days a year safety monitoring of operational and test systems to ensure safe transition between test and operations -Perform monitoring and tracking of non-conformance behavior of the operational system. Coordinates with Warfighter and Quality, Safety, and Mission Assurance on proper root cause and resolution of all anomalies. MDA Parts and Materials Program -Continue to enforce Program compliance to the Missile Defense Agency Part, Material and Processes Assurance Provisions (PMAP) -Continue to provide a Parts and Material knowledge center to address Program and Supplier part and material issues arising from development or fielded systems -Update the Agency`s preferred parts and materials list database to facilitate new system design and to identify part obsolescence issues Acquisition Support			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD32: *Quality, Safety, and Mission Assurance*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Ensure all new acquisitions are in compliance with the MDA Assurance Provisions (MAP), the MDA Parts, Materials and Processes Assurance Provisions and all applicable DFAR, FAR, and clauses regarding quality, safety and mission assurance -Update the Missile Defense Agency Assurance Provisions (MAP) document to incorporate design, test, manufacturing, quality, safety, and mission assurance lessons learned to further improve acquisition requirements -Improve MDA`s acquisition strategy through participation in the definition and determination of all Award Fee Boards Technical Assistance to MDA Elements -Perform independent/non-advocate reviews, such as design certification, pedigree, failure, preliminary design, critical design and technical interchange reviews to ensure compliance with industry best practices -Provide mission assurance support to major failure review boards to ensure comprehensive mitigation strategies for operational assets are employed -Continue providing Ground-Based Midcourse Defense (GMD) with Navy quality expertise for Sea-Based X-Band radar (SBX) operations. This includes a Mission Assurance Representative (MAR) on board the SBX vessel at all time -Verify robust Program controls are in place for general housekeeping and quality assurance practices including, but not limited to, foreign object debris, electrostatic discharge and contamination control. Intra-Agency & Industry Activities -Perform major stakeholder quality initiatives to improve quality of products, improve onsite processes, and internal requirements at critical sole source suppliers -Participate in the Defense Standardization Board to ensure that MDA has an equal voice in the specification and standard requirements used across the DoD -Initiate & Lead quality, safety and mission assurance forums to obtain lessons learned and understand/promote new requirements or methods Safety and Occupational Health -Ensure compliance with DoD Safety and Occupational Health regulations and requirements -Perform all required Occupational Safety and Health Inspections of MDA facilities including those in the National Capital Region, Huntsville, Al, Colorado and Vandenberg Air Force Base			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD32: *Quality, Safety, and Mission Assurance*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Maintain MDA`s Safety and Quality concerns Hotline allowing anonymous reporting of any incident effecting the health and safety of MDA employees ***FY 2012 Plans:*** Quality -Continue to provide non-advocate independent quality oversight/support to Agency key engineering and configuration management forums -Continue to perform configuration management verification and reconciliation for all major flight and ground test assets -Continue process control over integration delivery and conduct of all major flight and ground tests Safety -Continue to maintain on-site safety oversight at key suppliers and Government facilities -Conduct safety risk assessments per The Department of Defense Standards Practice for System Safety, of all test and operational systems to ensure catastrophic risks remain improbable -Conduct system analysis/assessments such as reliability prediction analysis, failure modes and effects criticality analysis, safety hazards analysis etc., to lower flight and operational system risks Mission Assurance -Continue to perform non-conformance reporting, tracking, and migration for all major flight and ground tests -Continue to provide technical expertise in internal Top Level Decision technical meetings to identify and determine if a mission assurance/safety/quality subject is properly represented and/or needs to be elevated to the Director -Continue conducting full scale Mission Assurance audits (approx 40 people for 2 weeks) and safety audits as necessary at our 23 key mission critical supplier sites BMDS Safety Officers (BSOs) -Continue performing 24 hours a day, 7 days a week, 365 days a year safety monitoring of operational and test systems to ensure safe transition between test and operations -Continue monitoring and tracking of non-conformance behavior of the operational system. Coordinates with Warfighter and Quality, Safety, and Mission Assurance on proper root cause and resolution of all anomalies			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD32: *Quality, Safety, and Mission Assurance*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
MDA Parts and Materials Program -Continue to enforce Program compliance to the Missile Defense Agency Part, Material and Processes Assurance Provisions (PMAP) -Continue to provide a Part and Material knowledge center to address Program and Supplier part and material issues arising from development or fielded systems -Continue updating the Agency`s preferred parts and materials list database to facilitate new system design and to identify part obsolescence issues Acquisition Support -Ensure all new acquisitions are in compliance with the MDA Assurance Provisions (MAP), the MDA Parts, Materials and Processes Assurance Provisions and all applicable DFAR, FAR, and clauses regarding quality, safety and mission assurance -Continue updating the Missile Defense Agency Assurance Provisions (MAP) document to incorporate design, test, manufacturing, quality, safety, and mission assurance lessons learned to further improve acquisition requirements -Continue to improve MDA`s acquisition strategy through participation in the definition and determination of all award fees Technical Assistance to MDA Elements -Continue performing independent/non-advocate reviews, such as design certification, pedigree, failure, preliminary design, critical design and technical interchange reviews to ensure compliance with industry best practices -Continue providing mission assurance support to major failure review boards to ensure comprehensive mitigation strategies for operational assets are employed -Continue providing Ground-Based Midcourse Defense (GMD) with Navy quality expertise for Sea-Based X-Band radar (SBX) operations. This includes a Mission Assurance Representative (MAR) on board the SBX vessel at all times. Intra-Agency & Industry Activities -Continue performing major stakeholder quality initiatives to improve quality of products, improve onsite processes, and internal requirements at critical sole source suppliers -Participate in the Defense Standardization Board to ensure that MDA has an equal voice in the specification and standard requirements used across the DoD			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD32: *Quality, Safety, and Mission Assurance*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continue to Initiate & Lead quality, safety and mission assurance forums to obtain lessons learned and understand/promote new requirements or methods Safety and Occupational Health -Continue ensuring compliance with DoD Safety and Occupational Health regulations and requirements -Perform all required Occupational Safety and Health Inspections of MDA facilities including those in the National Capital Region, Huntsville, AL, Colorado and Vandenberg Air Force Base -Maintain MDA`s Safety and Quality concerns Hotline allowing anonymous reporting of any incident effecting the health and safety of MDA employees Defense Efficiency - Contractor Staff Support and Civilian Staffing Reduction. As part of the Department of Defense reform agenda, reduces funds below the aggregate level reported in FY2010 controls that augment staff functions and eliminates civilian full-time equivalent positions to maintain, with limited exceptions, civilian staffing at the FY2010 level. (Total combined Reduction: $1.460M)			
Accomplishments/Planned Programs Subtotals	-	32.881	33.045

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603175C: *Ballistic Missile Defense Technology*	164.670	132.220	75.003		75.003	103.844	111.712	164.378	170.851	Continuing	Continuing
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	690.054	436.482	290.452		290.452	318.745	309.894	340.969	320.638	Continuing	Continuing
• 0603882C: *Ballistic Missile Defense Mid-Course Segment*	1,022.019	1,346.181	1,161.001		1,161.001	1,040.949	925.943	856.839	875.969	Continuing	Continuing
• 0603883C: *Ballistic Missile Defense Boost Defense Segment*	172.419	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	172.419
• 0603884C: *Ballistic Missile Defense Sensors*	544.352	454.859	222.374		222.374	357.271	336.514	318.321	348.944	Continuing	Continuing
• 0603888C: *Ballistic Missile Defense Test and Targets*	737.863	1,113.425	1,071.039		1,071.039	898.680	790.906	787.113	878.215	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603892C: *BMD AEGIS*	1,418.992	1,467.278	960.267		960.267	957.992	1,001.510	970.607	1,033.710	Continuing	Continuing
• 0603896C: *BMD C2BMC*	327.074	342.625	364.103		364.103	330.337	353.081	338.835	304.217	Continuing	Continuing
• 0603902C: *STANDARD MISSILE-3 BLOCK IIB (SM-3 IIB)*	0.000	0.000	123.456		123.456	433.106	384.647	401.141	394.803	Continuing	Continuing
• 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	82.926	86.198	69.325		69.325	64.514	55.808	56.769	54.621	Continuing	Continuing
• 0603913C: *ISRAELI COOPERATIVE*	195.652	121.735	106.100		106.100	99.873	95.819	96.840	103.977	Continuing	Continuing

D. Acquisition Strategy

The execution of an effective Quality, Safety and Mission Assurance program is carried out in collaboration with subject matter expertise found in the Government, Federally Funded Research and Development Centers (FFRDC), University Affiliated Research Centers (UARC), Contract Support Services (CSS), Advisory and Assistance Services (A&AS), and Industry.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Quality, Safety & Mission Assurance Agency Safety & Occupational Health MD32	MIPR	MDA QS:AL, CO, AK, DC	0.879	-	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance BMDS Safety (Safety Hazard Analysis & Tracking) MD32	MIPR	MDA QS:AL, AK, DC	2.824	-	Oct 2010	0.100	Oct 2011	-		0.100	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance MDIOC QSMA MD32	C/IDIQ	APT, INC.:AL	1.922	0.948	Oct 2010	0.968	Oct 2011	-		0.968	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance BMDS Mission Assurance Agency Ops (Supplier Mission Assur/Tech Experts) MD32	C/IDIQ	APT, INC.:AL	3.088	5.321	Oct 2010	5.478	Oct 2011	-		5.478	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance BMDS Quality support, requirements, MAP, Metrics MD32	C/IDIQ	AI SOLUTIONS, INC.:AL; FL; MD	0.820	2.184	Oct 2010	2.319	Oct 2011	-		2.319	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance Supplier Quality Support - MDA Assurance Reps (MARS) MD32	MIPR	MDA QS:CO,CA,MD,UT,FL,MO,AK,AL,NJ,AZ,HI,MA,AR	4.824	-	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance Agency Parts and Materials Program MD32	MIPR	MDA QS; Crane:AL, IN	1.773	1.367	Oct 2010	1.370	Oct 2011	-		1.370	Continuing	Continuing	Continuing
	MIPR	MDA QS; Corona:AL, CA	3.321	3.175	Oct 2010	0.858	Oct 2011	-		0.858	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Quality, Safety & Mission Assurance Audits & Quality On-Site Support MD32													
Quality, Safety & Mission Assurance Mission Assurance Tech Experts MD32	MIPR	MDA QS; Aerospace:AL, CA	3.496	1.899	Oct 2010	2.609	Oct 2011	-		2.609	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance BMDS Safety (Safety Hazard Analy/ Tracking) MD32	C/IDIQ	APT, INC.:AL	-	1.716	Oct 2010	1.731	Oct 2011	-		1.731	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance Mission Assurance Tech Experts MD32	C/IDIQ	APT, INC.:AL	-	1.818	Oct 2010	1.459	Oct 2011	-		1.459	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance HQ & Core Management MD32	C/CPFF	SRS:AL	-	1.924	Oct 2010	0.138	Oct 2011	-		0.138	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance HQ & Core Management - 201012174425917 MD32	MIPR	MDA QS:AL	-	0.225	Oct 2010	0.230	Oct 2011	-		0.230	Continuing	Continuing	Continuing
		Subtotal	22.947	20.577		17.260		-		17.260			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD32: *Quality, Safety, and Mission Assurance*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Quality, Safety & Mission Assurance HQ & Core Management (MDA CIV) MD32	Allot	MDA QS:AL, VA, MD, CA, AZ, HI, AK, MA, NJ, FL, AR, UT	3.457	9.422	Oct 2010	12.841	Oct 2011	-		12.841	Continuing	Continuing	Continuing
Quality, Safety & Mission Assurance Operations Support (Tvl/PCS/BB) MD32	MIPR	MDA QS:AL, CO, AK, DC, VA	2.780	2.882	Oct 2010	2.944	Oct 2011	-		2.944	Continuing	Continuing	Continuing
		Subtotal	6.237	12.304		15.785		-		15.785			

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	29.184	32.881		33.045		-		33.045			

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT ZX40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
ZX40: *Program-Wide Support*	13.456	-	-	-	-	-	-	-	-	0.000	13.456
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project ZX40 has been transferred project MD40.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	13.456	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	13.456	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603890C: *Ballistic Missile Defense Enabling Programs*	PROJECT MD40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	16.916	14.638	-	14.638	13.872	14.096	14.401	14.772	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). Includes Government Civilians, Advisory and Assistance Services, and Federally Funded Research and Development Contracts (FFRDC) providing integrity and oversight of the BMDS as well as supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2 after FY 2011), such as physical and technical security, legal services, travel and agency training, office and equipment leases, rents and utilities, data and unified communications support, supplies and maintenance, and similar operating expenses. Also includes legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.
In keeping with congressional intent, PWS is allocated among the PEs on a pro-rata basis and therefore fluctuates by year based on the total MDA budget and the individual PE`s budget amount.

Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($13,569).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	-	16.916	14.638
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($13,569).			
FY 2011 Plans: See paragraph A, Mission Description and Budget Item Justification			
FY 2012 Plans: See paragraph A, Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	16.916	14.638

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603890C: *Ballistic Missile Defense Enabling Programs*	**PROJECT** MD40: *Program-Wide Support*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603891C: *SPECIAL PROGRAMS - MDA*

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	253.157	270.189	296.554	-	296.554	377.845	416.052	430.969	452.448	Continuing	Continuing
WX27: *Special Programs*	253.157	-	-	-	-	-	-	-	-	0.000	253.157
MD27: *Special Programs*	-	270.189	296.554	-	296.554	377.845	416.052	430.969	452.448	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	250.185	270.189	269.040	-	269.040
Current President's Budget	253.157	270.189	296.554	-	296.554
Total Adjustments	2.972	-	27.514	-	27.514
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	8.529	-			
• SBIR/STTR Transfer	-5.180	-			
• Other Adjustment Detail	-0.377	-	27.514	-	27.514

Change Summary Explanation

This program has realized $13.330 million in efficiency savings.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603891C: *SPECIAL PROGRAMS - MDA*	PROJECT WX27: *Special Programs*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
WX27: *Special Programs*	253.157	-	-	-	-	-	-	-	-	0.000	253.157
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Special Programs	253.157	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	253.157	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603891C: *SPECIAL PROGRAMS - MDA*	PROJECT MD27: *Special Programs*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD27: *Special Programs*	-	270.189	296.554	-	296.554	377.845	416.052	430.969	452.448	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Special Programs	-	270.189	296.554
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: NA			
FY 2011 Plans: NA			
FY 2012 Plans: NA			
Accomplishments/Planned Programs Subtotals	-	270.189	296.554

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0603892C: *BMD AEGIS*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	1,418.992	1,467.278	960.267	-	960.267	957.992	1,001.510	970.607	1,033.710	Continuing	Continuing
BX09: *AEGIS BMD Block 2.0*	50.679	-	-	-	-	-	-	-	-	0.000	50.679
BX18: *Sea-Based Terminal BMD Block 2.0*	24.915	-	-	-	-	-	-	-	-	0.000	24.915
EX09: *AEGIS BMD Block 5.0*	1,086.209	-	-	-	-	-	-	-	-	0.000	1,086.209
WX09: *AB Capability Development*	176.598	-	-	-	-	-	-	-	-	0.000	176.598
XX09: *AEGIS BMD Sustainment*	39.981	-	-	-	-	-	-	-	-	0.000	39.981
MD09: *Aegis BMD*	-	1,412.560	906.368	-	906.368	866.467	910.277	885.600	951.748	Continuing	Continuing
MX09: *Aegis BMD Development Support*	-	-	12.600	-	12.600	51.400	46.300	43.500	37.900	0.000	191.700
ZX40: *Program-Wide Support*	40.610	-	-	-	-	-	-	-	-	0.000	40.610
MD40: *Program-Wide Support*	-	54.718	41.299	-	41.299	40.125	44.933	41.507	44.062	Continuing	Continuing

Note

In accordance with the Missile Defense Agency`s revised budget structure, the content previously planned in Projects BX09, BX18, EX09, WX09, XX09, and ZX40 for FY 2010 is now captured in Projects MD09 and MD40.

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 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 capitalizes upon and evolves from 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 Missiles (SRBM), Medium-Range Ballistic Missiles (MRBM), and Intermediate-Range Ballistic Missiles (IRBM) in the midcourse phase of flight. In support of Homeland Defense, Aegis BMD provides a Long Range Surveillance and Track (LRS&T) capability to the BMDS. Upgrades to both the Aegis BMD Weapon System and the SM-3 configuration enable Aegis BMD to provide effective, supportable defensive capability against longer range, more complex threats and an enduring Aegis Ashore defensive capability.

In support of the objective to defend allies and deployed forces from short- to medium-range threats in one region or theater, Aegis BMD provides/will provide several capabilities:

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603892C: *BMD AEGIS*

- Current

- Aegis BMD 3.6.1: Delivers an engagement capability with an SM-3 Block IA against SRBM and MRBM class threats. Delivers a Near Term Sea Based Terminal (NTSBT) capability against SRBM with a modified SM-2 Block IV. Delivers an LRS&T capability against ballistic missile threats of all ranges. Aegis BMD 3.6.1 will demonstrate launch on remote operations in FY 2011 and will have the ability to receive live fire information from the Space Tracking and Surveillance System (STSS) to support fire control operations.

- Near Term

- Aegis BMD 4.0.1 - Improves the Weapon System capability to identify and classify Ballistic Missile threat objects by introducing the Aegis BMD Signal Processor (BSP); improves BMDS Battle Management Command, Control, Communication and Computer Intelligence (BMC4I) performance; upgrades missile downlinks for improved kill assessment; increases battlespace through Launch on Remote, Aegis to Aegis engagement coordination, and automated planning data exchange with the Command, Control Battle Management and Communications (C2BMC) Planner and Maritime Integrated Air and Missile Defense Planning System (MIPS).
- SM-3 Blk IB - Improves missile capability to identify and target the threat object through All Reflective Optics (ARO), Advanced Signal Processor (ASP), and two-color missile seeker; improves missile kinetic warhead (KW) kinematic performance via the Throttleable Divert Attitude Control System (TDACS).
- Aegis BMD 5.0 - Integrates Aegis BMD 4.0.1 capability into the Navy-developed Open Architecture (OA) computing environment. This change is necessary for Aegis BMD to remain compatible with Navy as ship modernization plans are executed. Improves human-systems interface through display enhancements; eliminates the need for a separate computing system specific to the BMD mission; enables more ships to serve as candidates for the BMD mission; supports the BMDS Integrated Build D; and provides the basis for Aegis Ashore.
- Aegis BMD 5.0.1 - Enhances Aegis BMD 5.0 by restoring the terminal defense layer, increasing raid size and expanding the threat set.
- Aegis BMD computer program baseline and missile system modifications necessary to place Aegis BMD capability on land (Aegis Ashore).

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603892C: *BMD AEGIS*

- Far Term

- SM-3 Block IIA - 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). Missile development will be covered under the SCD project prior to the SM-3 Blk IIA incorporation into the Aegis BMD 5.1 upgrade to the Aegis BMD system. By Congressional direction, this content transfers to PE 0604881C, SM-3 Block IIA Co-Development, in FY10.
- Aegis BMD 5.1 - Integrates the SM-3 Blk IIA missile with an improved terminal defense capability and Open Architecture (OA) environment. The addition of the SM-3 Blk IIA missile will expand available battlespace to include IRBM and selected longer-range threats, and when combined with additional weapon system modifications, will enable an Engage-on-Remote (EoR) capability. That capability will further extend Aegis BMD by capitalizing on globally-deployed BMDS sensor assets. With the addition of the SM-3 Blk IIB, expands the threat set to include some Inter-continental Ballistic Missiles (ICBMs).
- Ship integration support for SM-3 Blk IIB development.

BMD Systems Engineering:

BMD Systems Engineering provides System Description Document 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 (integrated Builds B, C and D) is monitored in a series of requirements and design reviews both at the system and element levels. Aegis BMD system engineers adapted this data to input into validated and a accredited 6-Degree of Freedom (DOF) system models.

The Missile Defense Agency evolves Ballistic Missile Defense System (BMDS) capabilities in versions known as ``Builds.`` Each Build allocates functional requirements to the BMDS subsystems (e.g., Aegis BMD) to achieve the system-level integration needed for flexible, efficient, and effective ballistic missile defense.

Common Threat Engineering:

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603892C: *BMD AEGIS*

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 MDA 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.

Modeling & Simulation:

Aegis BMD has validated and accredited 6-DOF system models that support element level system engineering. These models provided input to the larger set of BMDS level models. Modeling and simulation (M&S) activities support all phases of Aegis BMD`s development, including development of Aegis Weapon System (AWS) and SM-3 variants, flight test missions, ground tests, war games, exercises, and performance assessment. Models and simulations are tailored to the specific need of a component in its current phase of development, ranging from low-to-medium fidelity analyses supporting concept definition studies, to high-fidelity models used to support engineering development, or testing and are integrated into the BMD Digital Simulations Architecture. Digital simulations support Performance Assessment (PA) and Technical Assessment (TA) events, which provide critical system level performance data relative to all elements, the system engineer, M&S developers, Operational Test Agencies (OTA) and Warfighter. Further, the M&S Digital tools are accredited for each application and for specific objectives; tools are put through a rigorous verification and validation process, reviewing coding and specifications, and comparing analyses against actual flight test results. Planning support is required to assist in the Verification and Validation (V&V) plan development, test execution, analysis for V&V reports and Program Office M&S Certification. The Digital End-to-End simulation of the BMDS requires a PA Integrated V&V Plan and Report (both element and system level), a PA/TA-system level Accreditation Plan and Report, and support to PA/TA Non-MDA Elements. BMDS Hardware In The Loop (HWIL) is used to proof out the construct of the flight test to ensure if the required data and data management plan will support System Post Flight Reconstruction (SPFR) objectives. SPFR will use a HWIL and/or a Digital M&S Environment to replicate the day of flight for the BMDS configuration, modified to represent the actual environmental conditions and target dynamics observed in flight. The results of this testing are used to increase confidence in the models and simulations by anchoring the M&S results with emphasis on the critical engagement conditions (CECs) and empirical measurement events (EMEs) collected in test events. SPFR is used for validation (anchoring) of models and simulations.

Proving Missile Defense:

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603892C: *BMD AEGIS*

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.

FY12 budget request recognizes that historical execution rates will result in FY11 funds available to support in FY12. The accomplishments reflect the use of FY11 funding in addition to the FY12 request.

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	1,435.717	1,467.278	1,021.878	-	1,021.878
Current President's Budget	1,418.992	1,467.278	960.267	-	960.267
Total Adjustments	-16.725	-	-61.611	-	-61.611
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	7.667	-			
• SBIR/STTR Transfer	-21.901	-			
• Other Adjustment Detail	-2.491	-	-61.611	-	-61.611

Change Summary Explanation

The FY 2012 $61.611 million dollar reduction includes $106.636 million in efficiency saving and MDA programmatic changes.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603892C: *BMD AEGIS*	PROJECT BX09: *AEGIS BMD Block 2.0*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
BX09: *AEGIS BMD Block 2.0*	50.679	-	-	-	-	-	-	-	-	0.000	50.679
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project BX09 has been transferred to project MD09.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Aegis BMD Block 2.0	50.679	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: See MD09 for FY 2010 Accomplishments.			
Accomplishments/Planned Programs Subtotals	50.679	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603892C: *BMD AEGIS*	PROJECT BX18: *Sea-Based Terminal BMD Block 2.0*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
BX18: *Sea-Based Terminal BMD Block 2.0*	24.915	-	-	-	-	-	-	-	-	0.000	24.915
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project BX18 has been transferred to project MD09.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Sea-Based Terminals BMD Block 2.0	24.915	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: See MD09 for FY 2010 Accomplishments.			
Accomplishments/Planned Programs Subtotals	24.915	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603892C: *BMD AEGIS*	PROJECT EX09: *AEGIS BMD Block 5.0*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
EX09: *AEGIS BMD Block 5.0*	1,086.209	-	-	-	-	-	-	-	-	0.000	1,086.209
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project EX09 has been transferred to project MD09.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Aegis BMD Block 5.0	1,086.209	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: See MD09 for FY 2010 Accomplishments.			
Accomplishments/Planned Programs Subtotals	1,086.209	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603892C: *BMD AEGIS*	PROJECT WX09: *AB Capability Development*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
WX09: *AB Capability Development*	176.598	-	-	-	-	-	-	-	-	0.000	176.598
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project WX09 has been transferred to project MD09.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: AB Capability Development	176.598	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: See MD09 for FY 2010 Accomplishments.			
Accomplishments/Planned Programs Subtotals	176.598	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603892C: *BMD AEGIS*	PROJECT XX09: *AEGIS BMD Sustainment*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
XX09: *AEGIS BMD Sustainment*	39.981	-	-	-	-	-	-	-	-	0.000	39.981
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project XX09 has been transferred to project MD09.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Aegis BMD Sustainment	39.981	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: Project XX09 has been transferred to project MD09.			
Accomplishments/Planned Programs Subtotals	39.981	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

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COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD09: *Aegis BMD*	-	1,412.560	906.368	-	906.368	866.467	910.277	885.600	951.748	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

FY 2010 Program, $1,378,382

A. Mission Description and Budget Item Justification

Aegis BMD continues development of a sea-based BMD capability in project MD09, in support of the Missile Defense Agency`s mission to protect the homeland, deployed forces, friends and allies from ballistic missile threats of all ranges and in all stages of flight. Aegis BMD efforts will primarily fall into two categories of BMD initiatives:

Enhance Missile Defense to Defend Deployed Forces, Allies and Friends Against Theater Threats:

-Aegis BMD 3.6.1 deployed now, element of the Phase Adaptive Approached (PAA) phase I, midcourse and terminal layer defense.
-Aegis BMD 4.0.1 improved radar tracking accuracy and RF discrimination and increased raid capacity using Aegis BMD Signal Processor (BSP).
-SM-3 Blk IB improved kinetic warhead.
-Aegis BMD 5.0 integrates BMD capability into the Navy`s Aegis Modernization Program.
-Aegis BMD 5.0.1 expands threat set and further increased the raid size, adds improved terminal defense capability.
-Aegis BMD 5.1 implementation of SM-3 Blk IIA tactical capability.
-Initial manufacturing of SM-3 Blk IB missiles.
-BMD shipset installations aboard US Navy Cruisers and Destroyers.
-Adaptation of Aegis BMD for use on land.

Prove Missile Defense Works:

-Aegis BMD element-level testing.
-Participation in BMD System ground tests.
-Element Modeling & Simulation.

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Aegis BMD 3.6.1 provides midcourse defense against SRBM, MRBM and IRBMs using the SM-3 Blk IA and terminal defense against SRBM with SM-2 Blk IV Missile. This configuration is deployed today supporting Combatant Commanders (COCOM) needs. It is key element of PAA phase I for defense of Europe and supports defense of friends and allies in the Pacific and other areas. Planned efforts include increasing the number the number of ships to 23 and continued integration with other element of the BMDS.

Aegis BMD 4.0.1 SM-3 Blk IB will address more sophisticated and evolving threats. The ship receives a new signal processor that increases radar resolution to provide more accurate and discriminated track information and triples the possible number of simultaneous ballistic missile engagements over Aegis BMD 3.6.1 and revise existing launch on remote logic where SM-3 can be fired or flown based on off board sensor (e.g. AN/TPY-2, another Aegis BMD Ship, ABIR and STSS). The SM-3 receives a new kinetic warhead that includes a 2 color seeker, throttable engine and upgraded signal processor. Aegis BMD 4.0.1 does not include a terminal defense capability.

Aegis BMD 4.0.1 will deliver in two spirals. Spiral two will continue through the System Engineering Development and Testing process and culminate as an operationally-certified system capable of BMD engagements using either the SM-3 Blk IA or IB missile.

Other capability enhancements include functionality to support BMDS integrated Builds C and D:

-Improvements in BMDS Command and C2BMC to ensure future BMDS sensor enhancements and the resulting discrimination capabilities are able to be communicated, correlated, and acted upon. Improved engagement coordination capability with THAAD and Patriot to conserve upper tier missiles, including Patriot upper tier debris mitigation.
-Analysis for planned upgrades to the SM-3 missile to expand battlespace and improve discrimination, divert, and probability of mission success.
-Supports BMDS Integrated Build C functionality: In Aegis BMD, this functionality includes deliberate and crisis Ballistic Missile Defense planning, Warfighter situational awareness, and the initial capability to control Regional BMD engagement between local assets and near-term improvements to threat discrimination.
-Supports Integrated BMDS Build D functionality: In Aegis BMD, this functionality includes the Aegis BMD System (4.0.1 and Standard Missile (SM-3 Blk IB)) that provides significant improvements to both Radio Frequency (RF) and Infrared (IR) discrimination allowing for engagement of complex threats. Additional improvements to Aegis increase its ability to launch SM-3 interceptors on BMD System sensor data and improve Aegis coordination with the THAAD and Patriot weapon systems in the region. Approved additions to integrated Build D support initial Aegis BMD Ashore with control of engagement debris and refinements to BMD engagement coordination.

Aegis BMD 5.0 will integrate Aegis BMD 4.0.1 capability into the Navy-developed OA computing environment. This change is necessary for Aegis BMD to remain compatible with Navy as Navy ship modernization plans are executed. This change will improve human-systems interface through display enhancements and eliminate

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the need for a separate computing system specific to the BMD mission. This will also enable more ships to serve as candidates for the BMD mission. Aegis BMD 5.0 will support the BMDS Integrated Build D and provide the basis for Aegis Ashore.

Aegis BMD 5.0 will be enhanced by restoring the terminal defense layer, increasing raid capacity size and expanding the threat set to include those for PAA Phase II for defense of Europe and support of deployed forces, friends and allies and to increase this capability by delivering evolutionary improvements as part of Ballistic Missile Defense System (BMDS) upgrades.

Aegis BMD 5.1 will integrate the SM-3 Blk IIA missile with an improved terminal defense capability and OA Aegis BMD Weapon System, incorporating other Weapon System improvements:

-Defeat a wide variety of ballistic missiles in the presence of countermeasures: SRBMs, MRBMs, and IRBMs.
-Increased battlespace with the SM-3 Blk IIA.
-Engage on Remote (EoR) engagements allows use active and passive off board sensor information to launch and guide the SM-3 to final intercept. EoR engagements will use more of the SM-3`s kinematic envelope expanding battlespace, will increase the theoretical number of threats engaged over previous baselines both matching communications upgrades and make the overall architecture more resilient to adversary attempts to penetrate the BMDS.
-Enhanced conventional discrimination.
-Early Intercept (Organic).
-Increased BMDS interoperability.
-Enhanced Sea-Based Terminals.

Aegis BMD 5.1 with the addition of the SM-3 Blk IIB expands the threat set to include some Inter-continental Ballistic Missiles (ICBMs)
.
Aegis BMD supports an autonomous engagement against SRBMs and MRBMs without requiring external cueing. It supports an engagement against SRBMs and MRBMs using data from other BMDS elements and external sensors. Aegis BMD will also provide target track data to support Ground-based Interceptor Launch and Engagement against LRBMs.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Aegis BMD 4.0.1 Development	-	142.723	53.691
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments:			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Conducted Aegis BMD 4.0.1 Demo and received final report from Aegis TECHREP -Conducted Aegis BMD 4.0.1 Engineering Assessment -Participated in Target of Opportunity Testing in JFTM-3 and FTX-06 -Continued to support systems engineering efforts to incorporate interoperability enhancements including: Navy Multi Band Terminal and Advanced EHF. -Continued interoperability studies with BMDS elements, automated mission planner data exchange with C2BMC and Maritime Integrated Air and Missile Defense Planning System (MIPS), utilization of improved space cue track data, and real world operations. -Conducted Navy and Joint Service-level communications testing to evaluate interoperability with the overall BMDS and Navy elements. -Continued evaluation of External Sensors Laboratory (ESL) space cue impacts on Aegis BMD performance. -Supported system integration efforts with BMDS space cues provided by new Overhead Persistent Infrared (OPIR) sensors and the ELS. -Completed Aegis BMD 4.0.1 Hardware installation on test ship -Completed Aegis BMD 4.0.1 Hardware installation at Wallops Island to support certification. Funding for these FY 2010 accomplishments are reported in prior year budget project EX09. ($351,024) ***FY 2011 Plans:*** -Test of BMD 4.0.1. -Prepare for the Computer Program Acceptance Panel (CPAP). -Prepare for and execute FTM-16 ,the first BMD 4.0.1/SM-3 Blk IB flight test (Developmental Test (DT) Assist. -Deliver BMD 4.0.1 Computer Program Quality Assurance (QA) version #5. -Prepare for and Support the Deployment Certification. -Prepare for and Support the Platform Certification. -Deliver Final Technical Manuals for BMD 4.0.1. -Continue interoperability studies with BMDS elements, automated mission planner data exchange with C2BMC and MIPS utilization of improved space cue track data and real world operations. ***FY 2012 Plans:*** -Prepare for and conduct Aegis Flight Test (FTM)-19 E2 and FTM-20 E2 (DT/OT) to validate system level requirements. -Plan for FES-01, (launch a SM-3 based on STSS data).			
Title: Aegis BMD 5.0 Development	-	227.726	164.416
Articles:	0	0	0

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Description: See Description Below ***FY 2010 Accomplishments:*** -Updated technical specifications (some in Unified Modeling Language). -Updated A-Spec & B-1 from PDR, Baseline Master Test and Evaluation Program Plan (MTEPP). -Conducted Aegis BMD 5.0 Critical Design Review to review and gain approval for the contractor`s approach and progress toward meeting the Aegis BMD 5.0 requirements. -Conducted Aegis BMD 5.0 Test Planning Review to review contractor`s plan (MTEPP) and assess program readiness to commence computer program testing at the development and test sites (CSEDS). -Conducted Aegis BMD 5.0 In-Process Review (IPR). -Continued interoperability studies with BMDS elements, automated mission planner data exchange with C2BMC and MIPS, utilization of improved space cue track data, and real world operations. -Provided interoperability subject matter expertise supporting execution of flight test mission plan development and data analysis. -Conducted Navy and Joint Service-level communications testing to evaluate interoperability with the overall BMDS and Navy elements. -Completed development of C4I web services in GCCS-M to support Aegis BMD mission planning and satellite ephemeris data updates. -Continued evaluation and support of BMD data path enhancements aboard ship and at land-based communication sites. -Continued evaluation of ESL BMDS OPIR BOA space cue impacts on Aegis BMD performance. -Continued to support system integration efforts with other BMDS elements to maximize interoperability with the overall BMDS. -Supported system integration efforts with BMDS space cues provide by new Overhead Persistent Infrared (OPIR) sensors and the ELS. -Supported systems engineering efforts to incorporate interoperability. Funding for these FY 2010 accomplishments are reported in prior year budget project EX09 and WX09. ($231,798) ***FY 2011 Plans:*** -Continue the development and testing of BMD 5.0. -Design and develop computer program functionality changes. -Incorporate the functional capability into BMD 5.0 baseline development. -Prepare for and support the IPR #5, where it is anticipated that permission will be granted to code through completion. Additionally IPR #5 will serve as the Critical Design Review for BMD Guarded Unit. -Prepare for and support the Anti-Air Warfare (AAW) Radar Demonstration.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Prepare for the Multi-Mission Signal Processor Radar Exercise (MMSP Radar Ex) which will demonstrate/evaluate MMSP performance with Aegis Modernization (ACB-12) computer programs in both the AAW and BMD 5.0 modes. -Support systems engineering efforts to incorporate interoperability enhancements including: Navy Multi Band Terminal and Advance EHF. -Conduct Navy and Joint Service-Level communications testing to evaluate interoperability with the overall BMDS and Navy elements. -Initiate design effort to increase raid size capacity, expand threat set and incorporated terminal defense. ***FY 2012 Plans:*** -Conduct Multi-Mission Signal Processor Radar Exercise. -Prepare for and support the Test Readiness Review (TRR) #1, as part of the roadmap to demo in anticipation of Aegis Modernization (ACB-12). -Prepare for and conduct Mission Readiness Assessment #1. -Prepare for Aegis Modernization (ACB-12) demonstration, which is an Anti-Air Warfare (AAW) and BMD functionality test. -Complete BMD integration into ACB-12 to include full BMD functionality. -Conduct testing to prove full functionality of BMD components. -Conduct Prime Item Development Specs (PIDS)/Critical Item Development Specs (CIDS) testing. Starting system level specification verification.			
Title: Aegis BMD 5.1 Development	-	119.585	37.810
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** -Continued development of Aegis BMD 5.1 ECS to a System Readiness Review (SRR) level of maturity -Continued system performance analysis -Refined concept development of solutions to support ECS requirements feasibility in preparation for a SRR. -Continued execution of the modeling and simulation plan for Aegis BMD 5.1. -Continued collaboration with the BMDS Systems Engineering data to support BMDS test and assessment planning, including trajectory and signature data supporting system and subsystem requirements. -Continued early systems engineering and performance analysis of Aegis BMD 5.1 to support the SCD PDR level of maturity. -Continued Command, Control, Battle Management and Communications task related to the development of the Aegis BMD 5.1. -Supported generation of ONIR requirements to incorporate advanced algorithm and new sensors capabilities.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continued systems engineering efforts to develop advanced track discrimination, correlation, and data fusion improvements. -Supported system integration efforts with other BMDS elements to maximize interoperability with the overall BMDS. Funding for these FY 2010 accomplishments are reported in prior year budget project WX09. ($11,090) ***FY 2011 Plans:*** -Make final preparations for the BMD 5.1 SRR and conduct the BMD 5.1 SRR. -Close out action items from the 5.1 SRR and complete analysis necessary to finalize the Element Capability Specification (ECS) level requirements. -Flow ECS level requirements down to the Aegis BMD 5.1 System Level Specification Document (A-Spec) and conduct systems engineering necessary to develop the BMD 5.1 A-Spec. -Conduct analysis, modeling and simulation, and concept development to support early systems engineering development to reduce technical risk for BMD 5.1 Engage on Remote (EoR) and Early Intercept (EI) organic capabilities. -Initiate preparation for the BMD 5.1 System Design Review (SDR) by developing the BMD 5.1 SDR data review package. -Conduct system level performance analysis in preparation for the SCD PDR,using early engineering surrogate BMD 5.1 AWS data. -Conduct Vertical Launch System (VLS) system engineering, analysis, and design activities in support of VLS SRR. Prepare for and conduct VLS SRR. ***FY 2012 Plans:*** -Continue systems engineering and analysis to refine Aegis BMD 5.1 A-Spec. -Continue analysis and design of AWS/VLS/Missile interfaces and specifications. -Conduct VLS systems engineering, analysis, and design activities in support of VLS SDR. -Continue analysis and systems engineering for development of Aegis BMD 5.1 EoR and Early Intercept (EI) capabilities, and BMDS integration. -Continue preparation for BMD 5.1 SDR; complete SDR data package and conduct Navy Review Team (NRT) review. Conduct system-level performance analysis in preparation for the SCD CDR, using updated surrogate BMD 5.1 AWS data. -Prepare for and conduct VLS SDR.			
Title: SM-3 Blk IB Development	-	255.168	56.070
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments:			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continued SM-3 Blk IB element integration. -Began assembly of one (1) SM-3 Blk IB Pathfinder missile for Aegis Flight Test (FTM)-16 in FY 2011 -Began manufacturing of missile canisters. Funding for these FY 2010 accomplishments are reported in prior year budget project EX09. ($332,288) ***FY 2011 Plans:*** -Complete kinetic warhead (KW) System Integration Test (SIT), an end to end closed loop KW test. -Complete SM-3 Blk IB Missile Developmental Verification Tests (DVT). -Complete SM-3 Blk IB TDACS Qualification tests 1&2. -Complete SM-3 Blk IB Hazard Assessment Tests (HAT). -Conduct SM-3 Blk IB Manufacturing Readiness Review (MRR). -Deliver one (1) SM-3 Blk IB Pathfinder round for use in FTM-16. -Conduct FTM-16 initial flight test of SM-3 Blk IB Pathfinder missile. -Deliver three (3) additional SM-3 Blk IB Flight Test Rounds. -Participation in JFTM-4 Events 1-3. ***FY 2012 Plans:*** -Start production line rate increase from 2 to 4 per month. -Prepare for and conduct FTM-19 E2 and FTM-20 E2 (DT/OT), engagements against complex SRBMs. -Complete additional SM-3 Blk IB ground test (HAT, Quals, and DVT).			
Title: Aegis BMD Testing	-	42.672	78.892
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** N/A ***FY 2011 Plans:*** -Conduct U.S. participation in JFTM-04 (Japanese FMS Test). -Conduct Aegis BMD-specific analyses during pre- and post-mission analysis phases. -Support Aegis BMD-specific modeling and simulation of predicted system performance for testing. -Begin test planning for FY 2012 Aegis flight test missions: prepare target, develop models and simulations, and ready the range for test.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Participate in TOO testing. -Participate in the BMD System ground test program. -Participate in BMD special technology experiments. ***FY 2012 Plans:*** -Conduct Aegis BMD-specific analysis during pre- and post-mission analysis phases. -Support Aegis BMD-specific modeling and simulation of predicted system performance for testing. -Begin test planning for FY 2013 Aegis flight test missions: prepare target, develop models and simulations, and ready the range for test. -Participate in TOO testing. -Participate as a sensor in the BMD System flight test program. -Participate in the BMD System ground test program. -Participate in BMD special technology experiments.			
Title: Fielding - AWS	-	99.030	155.473
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** RDT&E Articles: One (1) upgrade to the BSP Engineering Development Model (EDM). -Procured four (4) Aegis BMD 3.6.1 shipsets. -Procured two (2) Aegis BMD 4.0.1 shipsets. -Supported a Aegis BMD 4.0.1 EDM upgrade on USS LAKE ERIE to support DEMO/CERT configuration. -Procured 1 shipset of Aegis BMD 5.0 unique equipment to support first Aegis Modernization (AMOD destroyer). Funding for these FY 2010 accomplishment are reported in prior year budget project EX09. ($170,304) ***FY 2011 Plans:*** -Install two (2) BMD 3.6.1 shipset. -Procure two (2) BMD 4.0.1 shipsets (including BMD Signal Processor (BSP)). -Procure two (2) shipsets of BMD 5.0 equipment to support U.S. Navy Aegis Modernization (AMOD) schedule. -Support USS LAKE ERIE Engineering Development Model (EDM) upgrades to achieve BMD 4.0.1 tactical configuration.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Begin development efforts to add BMD capability to USN Baseline 4 Cruisers entering AMOD in 2014. ***FY 2012 Plans:*** -Install two (2) BMD 3.6.1 shipsets. -Procure four (4) BMD 4.0.1 equipped shipsets. -Install two (2) BMD 4.0.1 equipped shipsets. -Procure five (5) BMD 5.0 equipped shipsets. -Install one (1) BMD 5.0 equipped shipset.			
Title: SM-3 Manufacturing	-	164.897	110.810
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** RDT&E Articles: Eight (8) SM-3 Blk IA Missiles -Delivered remaining eight (8) SM-3 Blk IA missiles. Funds for these FY 2010 accomplishments are reported in prior year budget project EX09. ($65,739) ***FY 2011 Plans:*** -Procure thirty (30) SM-3 Blk IB missiles. -Begin manufacturing of thirty (30) SM-3 Blk IB missiles. ***FY 2012 Plans:*** -Deliver twelve (12) of thirty (30) SM-3 Blk IB missiles. -Continue manufacturing the remainder of thirty (30) SM-3 Blk IB missiles begun in FY11 for delivery in FY13.			
Title: SM-3 Production Support	-	44.902	45.401
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** N/A ***FY 2011 Plans:***			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continue to monitor performance of SM-3 Block IA. -Monitor obsolete material replacement effort. -Conduct ground tests for lot qualification of components. -Continue manufacturing of SM-3 VLS canisters. -Participate in FTM-15. ***FY 2012 Plans:*** -Continue to monitor performance of SM-3 Blk IA & IB. -Monitor obsolete material replacement effort. -Design alternatives for obsolete material replacement efforts. -Conduct ground tests for lot qualification of components. -Participate in Flight Test Operation (FTO) -1. -Provide in-service engineering support for SM-3 Blk IA missiles.			
Title: Fleet Integration	-	27.902	13.441
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** -Provide In-service Engineering support to Aegis BMD: Weapon System and VLS. -Provide operational and maintenance training for Aegis BMD ship crews. -Provide logistics support (including technical manuals, spares and reliability, maintainability, and availability analysis and products) for Aegis BMD: Weapon System and VLS. -Provide leadership and engineering/technical support to conduct Aegis Combat Systems Assessments. -Respond to Fleet issues related Aegis BMD installations, BMD operations and BMD events. Funding for these FY 2010 accomplishments are reported in prior year budget project XX09. ($24,358) ***FY 2011 Plans:*** -Provide In-service Engineering support to Aegis BMD: Weapon System and VLS. -Provide operational and maintenance training for Aegis BMD ship crews. -Provide logistics support (including technical manuals, spares, and Reliability, Maintainability, and Availability analysis and products) for Aegis BMD: Weapon System and VLS. -Provide leadership and engineering/technical support to conduct Aegis Combat Systems Assessments.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Respond to Fleet issues related to Aegis BMD installations, BMD operations and BMD events. ***FY 2012 Plans:*** -Provide In-service Engineering support to Aegis BMD: Weapon System and VLS. -Provide operational and maintenance training for Aegis BMD ship crews. -Provide logistics support (including technical manuals, spares, and Reliability, Maintainability, and Availability analysis and products) for Aegis BMD: Weapon System and VLS. -Provide leadership and engineering/technical support to conduct Aegis Combat Systems Assessments. -Respond to Fleet issues related to Aegis BMD installations, BMD operations and BMD events.			
Title: SM-3 Operations & Support ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** -Provided In-service Engineering support to Aegis BMD: SM-3 missile. -Provided operational and maintenance training for Aegis BMD ship crews. -Provided logistics support (including technical manuals and spares) for Aegis BMD: SM-3 Missile. -Responded to Fleet issues related to Aegis BMD operations and BMD events. Funds for these FY 2010 Accomplishments are reported in prior year budget project XX09. ($78,603) ***FY 2011 Plans:*** -Provide In-service Engineering support to Aegis BMD: SM-3 missile. -Provide operational and maintenance training for Aegis BMD ship crews. -Provide logistics support (including technical manuals, spares, and Reliability, Maintainability, and Availability analysis and products) for Aegis BMD: SM-3 missile. -Provide leadership and engineering/technical support to conduct Aegis Combat Systems Assessments. -Respond to Fleet issues related to Aegis BMD installations, BMD operations and BMD events. ***FY 2012 Plans:*** Funds for FY 2012 Accomplishments are reported in budget project MX09.	- 0	36.400 0	- 0
Title: M&S HWIL Framework, Simulations, Models ***Articles:***	- 0	69.937 0	55.460 0

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Description: See Description Below ***FY 2010 Accomplishments:*** N/A ***FY 2011 Plans:*** -Deploy and integrate the common BMDS HWIL simulation framework--Single Simulation Framework (SSF) with the Elements for BMDS ground and flight tests and training -Develop and integrate the HWIL Single Simulation Framework (SSF) at COCOM, training, and exercise Host Nation locations -Maintain the Missile Defense System Exerciser (MDSE) framework for support of MDA exercises until SSF has absorbed the MDSE mission area (FY12) -Incorporate an Single Simulation Framework (SSF) Releasable version to support Israeli Program Host Nation implementation -Provide capability to integrate the BMDS stimulation framework with the ARROW HWIL facility in Israel -Integrate the SSF with additional Allied/Coalition elements to expand distributed BMDS ground test and exercise venues -Provide an HWIL Post Flight Reconstruction capability (through SSF) -Incorporate real time PLET-C environment model upgrades into the HWIL SSF -Initiate implementation of the Cobra Dane closure interface development -Plan the integration of SSF with UEWR CLEAR AFS -Conduct BMDS HWIL SSF V&V and data analysis for BMDS ground tests and demos -Continue development of the SSF to support execution of increasingly more complex BMDS ground test campaigns; identify interdependencies required for execution -Complete integration of the SSF with the Ground-based Missile Defense fielded assets -Initiate integration of the common Radar Digital Signal Injection System with X-Band radars -Plan integration of the SSF with the DSA into the Objective Simulation Framework (OSF) -Plan and provide for SSF sustainment, maintenance and product support -Implement support of wide band debris for BMDS sensors in SSF -Integrate the BMDS SSF with additional MDA sensors, as they come on-line -Support Event Execution Control System (EECS) capability development for the BMDS Concurrent Test, Training and Operations (CTTO) implementation -Continued development, deployment and integration of SSF for GM/SN stand-along training and DMETS -Conduct initial SSF Objective Hardware performance assessment -In support of the MDA Integrated Master Test Plan (IMTP) develop an SSF software capability for a 2nd parallel test string -Initiate Open Architecture redesign of SSF			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Initiate improved Instantaneous Object Processing capability ***FY 2012 Plans:*** -Complete deployment and integration of BMDS HWIL stimulation framework--Single Simulation Framework (SSF) with Elements for BMDS ground, flight tests and training -Implement upgrades to the BMDS HWIL SSF that support execution of increasingly more complex BMDS ground test campaigns -Demonstrate the SSF has incorporated MDSE framework capabilities to support MDA exercises -Provide Single Simulation Framework (SSF) support to Post Flight Reconstruction activities -Complete Cobra Dane closure interface development -Conduct BMDS HWIL SSF V&V and data analysis for BMDS ground tests and demos -Begin integration of the SSF with the DSA into the OSF -Begin Optimistic Sensor Model (OSM) integration into SSF -Provide for SSF sustainment, maintenance and product support -Integrate the BMDS HWIL SSF with additional MDA and non-MDA Elements, as they are integrated into the BMDS architecture -Continue Event Execution Control System (EECS) capability development for the BMDS Concurrent Test, Training and Operations (CTTO) implementation -Deploy and integrate BDMS HWIL SSF to support GM and SN stand-alone training and the DMETS capability -Begin deployment and integration of BMDS HWIL SSF Objective Hardware for MDA Elements and a Releasable configuration for Allied and Coalition partners -Begin installation of BMDS HWIL SSF software capability (funded by MDA/DESH) and necessary hardware/ maintenance (funded by MDA/DTR) to support a 2nd parallel test string (Ground Test assets only). -Demonstrate initial OA redesign capabilities -Demonstrate improved Instantaneous Object Processing capabilities -Deploy and install SSF node in fielded AN/TPY-02 shelter -Begin development of Real Time, scaled Real Time, non Real Time operational modes			
Title: BMDS Level Testing ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** This task provides funding for Aegis BMD flight testing, as well as Aegis BMD participation in BMDS level testing. Each of these test opportunities provides valuable system performance information in support of Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs).	- 0	110.161 0	99.884 0

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Participated in FMS flight mission JFTM-3 campaign consisting of 2 ARAV-B tracking exercises (TRACKEX), anti-air warfare (AAW) TRACKEX, and engagement of a Medium Range Target (MRT) with an SM-3 Blk IA. -Participated in TOO testing -Participated as a sensor in BMD System testing: -FTX-16: simulated SM-3 engagement with an ERALT target with one BMD 3.6.1 ship using STSS as a cueing sensor -CV2 USFT-4: multiple Arrow engagements involving a Short Range Air Launch Target (SRALT) and another ballistic missile target -FES-1: Track and simulate engagement with STSS in the fire control loop Funding for these FY 2010 accomplishments are reported in prior year budget project EX09. ($104,053)			
FY 2011 Plans: -Conduct FTM-15 flight test mission: -Exercise of Phase 1 capability of the Phased Adaptive Approach. -Conduct a BMD 3.6.1 engagement and intercept with an SM-3 Blk IA missile against an MRBM target -BMDS connectivity with AN/TPY-2 via C2BMC -Conduct FTM-16 flight test mission: - -Conduct a BMD 4.0.1 engagement and intercept of a Medium Range Target (MRT) emulating a separating target with an SM-3 Blk IB missile. -Conduct a BMD 4.0.1 simulated SM-3 Blk IB engagement against an ARAV-C++, an SRBM target. -Conduct a BMD 4.0.1 AAW exercise using SM-2 Blk IIIA missile against a cruise missile target. -Complete pre-flight analysis to verify mission scenarios and to predict future performance. -Prepare and complete missile delivery package for the Mission Control Panel reviews. -Perform post-flight analysis to validate high-fidelity models and simulations.			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Complete post-flight analysis to support Mission Data Reviews (MDRs). -Participate in GMD Intercept Flight Test (FTG)-06a. ***FY 2012 Plans:*** -Conduct FTM-19 E2 and FTM-20 E2 (DT/OT) -Conduct a BMD 4.0.1 (CG) engagement and intercept against a ARAV-C SRBM target with an SM-3 Blk IB missile. -Conduct a BMD 4.0.1 (CG) engagement and intercept against a ARAV-C++ SRBM target with an SM-3 Blk IB missile -Conduct FTO-1, an BMDS level OT event.			
Title: Systems Engineering & Integration	-	26.588	19.794
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** N/A ***FY 2011 Plans:*** -Produce all the threat data required to enable Ballistic Missile Defense System Ground Tests for PAA Phase 1 (GT-04D), Flight -Tests, Ballistic Missile Defense System Performance Assessment, war games and exercises as documented in the BMDS Integrated Master Test Plan -Produce parametric threat space and scenario data for Element and Component design and assessment for Ballistic Missile Defense System in accordance to the Phased Adaptive Approach -Validate that Ballistic Missile Defense System test targets (such as FTG-06a, FTM-15, and FTT-10B) are threat representative -Continue planning and coordination for real-time track demonstrations using an unmanned aerial vehicle (UAV) (associated with scheduled BMDS test events) using an existing airborne platform -Start threat systems engineering work to support future systems design. -Aegis Ashore was moved to PE 0604880C, budget project MD68. ***FY 2012 Plans:*** -Produce all the threat data required to enable Ballistic Missile Defense System Ground Tests (GT-05), Flight Tests, Ballistic Missile Defense System Performance Assessment, war games and exercises as documented in the BMDS Integrated Master Test Plan -Produce parametric threat space and scenario data for Element and Component design and assessment for Ballistic Missile Defense System in accordance to the Phased Adaptive Approach			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Validate that Ballistic Missile Defense System test targets (FTG-08, FTT-13, and FTM-23) are threat representative -Continue threat systems engineering work to support future systems design			
Title: Aegis BMD 3.6.1 Development	-	2.385	-
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** -Complete checkout of Aegis BMD 3.6.1 - capable Cruisers and Destroyers. -Complete crew training. -Evaluated External Sensors Laboratory (ESL) BMDS Overhead Persistent Infrared (OPIR) Architecture (BOA) space cue impacts in Aegis BMD performance. -Provided on-going support for contingency operations. -Provided subject matter expertise support for the fielded Aegis BMD 3.6.1 baseline -Supported systems engineering efforts to incorporate interoperability enhancements including: -Navy Multi-Band Terminal -Advanced EHF -Continued support of system integration efforts with other BMDS elements to maximize interoperability with the overall BMDS. -Aegis Ashore accomplishments for FY 2010 are reflected in PE 0604880C budget project MD68. Funding for these FY 2010 accomplishments are reported in prior year budget project BX18 and BX09. ($9,125) ***FY 2011 Plans:*** -Complete pre-flight analysis to verify mission scenarios and to predict flight performance. -Prepare for and execute FTM-15 (DT/OT). -Continue evaluation and support for BMD data path enhancements aboard ship and at land-based communication sites. -Continue to evaluate ESL BMDS OPIR BOA space cue impacts on Aegis BMD performance. -Provide ongoing support for contingency operations. -Provide subject matter expert support for the fielded Aegis BMD 3.6.1 baseline. ***FY 2012 Plans:*** N/A			
Title: M&S Digital Framework, Simulation, Models	-	4.365	4.540

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** N/A ***FY 2011 Plans:*** Develop and deliver major releases of M&S digital products: -Digital Simulation Architecture framework for use in Technical Assessments -Missile Defense Space warning Tool (MDST) for use in Technical Assessments and warfighter Exercises -BMD International Simulation for use in International virtual BMD demonstrations, BMD education, and warfighter wargames -Integrate, test, functionally qualify, and deliver BMDS constructive Performance Assessment Simulation (utilizing DSA and MDST) to support full-envelope BMDS performance assessment for Technical Assessments -Continue software operations/maintenance of the Extended Air Defense Simulation (EADSIM) code base for use in warfighter exercises -Provide software support for PATRIOT System Effectiveness Model (PSEM) for use in Technical Assessments -Provide transitional DSA framework/modeling support to C2BMC software Spiral Testing for MDA`s release of C2BMC v8.x development -Procure, install and maintain Performance Assessment Simulation ``ensembles`` for Element M&S development laboratory use in the Digital M&S Integration Center (DMIC) in Huntsville, AL ***FY 2012 Plans:*** Integrate, test, functionally qualify, and deliver end-to-end BMDS simulations supporting various uses: Performance Assessment Simulation (utilizing DSA, MDST, and Element-provided high-resolution models) to support full-envelope BMDS performance assessment for Performance Assessment events Real-time Digital Simulation (utilizing DSA, MDST, and Element-provided medium-resolution models) to support warfighter Exercises, warfighter Training, Element spiral development, and Ground Test campaign			
Title: M&S VV&A and Test Operations	-	38.119	10.686
Articles:	0	0	0
Description: See Description Below			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: N/A ***FY 2011 Plans:*** -Planned/On-going: Provide integrated VV&A of MDA M&S at the system level for specific events, to include Technical Assessment, Performance Assessment, Ground Tests that support BMDS fielding decisions, and tier one COCOM exercises. -Planned/On-going: Develop integrated VV&A event Plans and Reports for Focused Ground Tests, Integrated Ground Tests, Performance Assessments and Assured Response -Planned/On-going: Plan and specify system post-flight reconstructions events so as to optimize the body of evidence and analysis supporting system-level BMDS accreditation; perform all system-level VV&A associated with Post Ground Test Reconstructions and System Post Flight Digital Reconstructions -Planned/On-going: Work closely with Elements, Test Community, System Engineering, and OTA to ensure M&S for each event meets intended uses and objectives, and has proper VV&A documentation and evidence, to include benchmarking/anchoring pedigree -Planned/On-going: Conduct system-level verification and validation of threat trajectory and signature; end-to-end environmental implementation is consistent and correct; communications and architecture behave properly; and interoperability is adequately addressed -Planned/On-going: Develop and implement M&S standards consistent with industry best practices -Planned/On-going: Conduct annual review of BMDS Element VV&A programs -Planned/On-going: Develop, implement and configure control of web-based problem reporting system to capture M&S anomalies and incorporate corrections into requirements process in order to guarantee and measure M&S improvement -Planned/On-going: Lead BMDS VV&A working group to improve VV&A operations and ultimately improve BMDS performance -Planned/On-going: Develop and implement metrics for system-level M&S to increase efficiencies and effectiveness			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Planned/On-going: Ensure that individual BMDS elements and components properly VV&A their own models ***FY 2012 Plans:*** -Provide integrated VV&A of MDA M&S at the system level for specific events, to include Technical Assessment, Performance Assessment, Ground Tests that support BMDS fielding decisions, and tier one COCOM exercises: GTX-04e, GTI-04e, PA-04, PA-06, and AR-06x -Develop integrated VV&A event Plans and Reports for GTX-04e, GTI-04e, PA-04, PA-06, and AR-06x -Plan and specify system post-flight reconstructions and pre-mission testing events so as to optimize the body of evidence and analysis supporting system-level BMDS accreditation; perform all system-level VV&A associated with these events: GTX-04e SPGR, FTG-08 HWIL SPFR, FTG-08 Digital SPFR, FTM-19 HWIL SPFR, FTM-19 Digital SPFR, GTI-04e SPGR -Work closely with Elements, Test Community, System Engineering, and OTA to ensure M&S for each event meets intended uses and objectives, and has proper VV&A documentation and evidence, to include benchmarking/anchoring pedigree -Conduct system-level verification and validation of threat trajectory and signature; end-to-end environmental implementation is consistent and correct; communications and architecture behave properly; and interoperability is adequately addressed -Develop and implement M&S standards consistent with industry best practices -Conduct annual review of BMDS Element VV&A programs -Develop, implement and configure control of web-based problem reporting system to capture M&S anomalies and incorporate corrections into requirements process in order to guarantee and measure M&S improvement -Lead BMDS VV&A working group to improve VV&A operations and ultimately improve BMDS performance -Develop and implement metrics for system-level M&S to increase efficiencies and effectiveness -Ensure that individual BMDS elements and components properly VV&A their own models			
Accomplishments/Planned Programs Subtotals	-	1,412.560	906.368

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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603884C: *Ballistic Missile Defense Sensors*	544.352	454.859	222.374		222.374	357.271	336.514	318.321	348.944	Continuing	Continuing
• 0603888C: *Ballistic Missile Defense Test and Targets*	737.863	1,113.425	1,071.039		1,071.039	898.680	790.906	787.113	878.215	Continuing	Continuing
• 0603890C: *Ballistic Missile Defense Enabling Programs*	355.870	402.769	373.563		373.563	331.203	314.193	336.749	346.560	Continuing	Continuing
• 0603896C: *BMD C2BMC*	327.074	342.625	364.103		364.103	330.337	353.081	338.835	304.217	Continuing	Continuing
• Line Number 34: *AEGIS BMD*	225.625	94.080	565.393		565.393	675.126	737.440	807.883	1,025.521	Continuing	Continuing

D. Acquisition Strategy

The Aegis BMD element acquisition approach supports evolutionary development, continuously building upon demonstrated capabilities to advance overall BMDS capability. After considering all the technical and management aspects of the program and to meet the requirements presented by an evolving ballistic missile threat, the Aegis BMD program awarded sole source contracts to Raytheon and Lockheed Martin to continue development of the SM-3 missile and the Aegis BMD Weapon System, respectively.

Competition will be maximized for procurement of any products or services in FY 2012, as appropriate.

The M&S acquisition strategy utilizes full and open competition to develop, acquire and deliver the integrated architectures/frameworks, as well as develop and deliver models of AEGIS systems. The Digital and HWIL product centers integrate the suite of M&S into a composite simulation capability, all based on an open architecture. M&S achieves this end-state via close collaboration between its integrating contractor teams (Digital and HWIL) and those of the AEGIS BMD prime contractors, with additional technical standards and engineering oversight provided by Federally Funded Research and Development Centers and University Affiliated Research Centers. In addition, in FY12 the Objective Simulation Framework (OSF) contract will be awarded. This full-and-open competition will unify M&S framework development efforts to allow seamless end-to-end representation of the BMDS, across HWIL and Digital domains, to support all Use Cases at substantial savings to the Agency.

E. Performance Metrics

N/A

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT MD09	MIPR	NSWC/ DD:DAHLGREN, VA	45.235	14.444	Oct 2010	3.500	Oct 2011	-		3.500	Continuing	Continuing	Continuing
Aegis BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098184870177 MD09	MIPR	NSWC/PHD:PT. HUENEME, CA	8.929	0.883	Oct 2010	0.600	Oct 2011	-		0.600	Continuing	Continuing	Continuing
Aegis BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098184870181 MD09	MIPR	JHU/APL/ MD:COLUMBIA, MD	14.901	3.005	Oct 2010	4.000	Oct 2011	-		4.000	Continuing	Continuing	Continuing
Aegis BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT MD09	MIPR	VARIOUS:NJ, VA, CA	-	10.818	Oct 2010	10.208	Oct 2011	-		10.208	Continuing	Continuing	Continuing
Aegis BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 2009818529913 MD09	SS/CPIF	LOCKHEED MARTIN:MOORESTOWN, NJ	581.407	52.025	Oct 2010	6.000	Oct 2011	-		6.000	Continuing	Continuing	Continuing
Aegis BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT MD09	SS/CPAF	RAYTHEON/ AZ:TUCSON, AZ	-	1.900	Oct 2010	-		-		-	Continuing	Continuing	Continuing
Aegis BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20107192145978 MD09	MIPR	AEGIS BMD:DAHLGREN, VA	30.888	22.999	Oct 2010	13.369	Oct 2011	-		13.369	Continuing	Continuing	Continuing
Aegis BMD 5.0 Development BMD 5.0 DEVELOPMENT MD09	SS/CPIF	LOCKHEED MARTIN:MOORESTOWN, NJ	267.776	135.125	Oct 2010	56.325	Oct 2011	-		56.325	Continuing	Continuing	Continuing
Aegis BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20107152175802 MD09	MIPR	NSWC/ DD:DAHLGREN, VA	15.808	7.254	Oct 2010	7.303	Oct 2011	-		7.303	Continuing	Continuing	Continuing
Aegis BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20107152175806 MD09	MIPR	NSWC/PHD:PT. HUENEME, CA	-	1.084	Oct 2010	0.370	Oct 2011	-		0.370	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20107152175811 MD09	MIPR	JHU/APL/ MD:COLUMBIA, MD	16.790	5.230	Oct 2010	2.260	Oct 2011	-		2.260	Continuing	Continuing	Continuing
Aegis BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20107152175816 MD09	MIPR	VARIOUS:NJ, VA, CA	17.280	27.314	Oct 2010	41.150	Oct 2011	-		41.150	Continuing	Continuing	Continuing
Aegis BMD 5.0 Development BMD 5.0 DEVELOPMENT MD09	C/CPAF	RAYTHEON/ AZ:TUCSON, AZ	-	0.030	Oct 2010	-		-		-	0.000	0.030	0.000
Aegis BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20107192160744 MD09	SS/CPAF	RAYTHEON/ AZ:TUCSON, AZ	-	4.000	Oct 2010	5.237	Oct 2011	-		5.237	Continuing	Continuing	Continuing
Aegis BMD 5.0 Development BMD 5.0 DEVELOPMENT MD09	MIPR	AEGIS BMD:AZ, VA, CA	-	-		10.175	Oct 2011	-		10.175	Continuing	Continuing	Continuing
Aegis BMD 5.1 Development BMD 5.1 DEVELOPMENT MD09	MIPR	NSWC/ DD:DAHLGREN, VA	17.054	7.895	Oct 2010	1.649	Oct 2011	-		1.649	Continuing	Continuing	Continuing
Aegis BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098185276634 MD09	MIPR	NSWC/PHD:PT HUENEME, CA	0.349	0.700	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
Aegis BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098185276644 MD09	MIPR	JHU/APL/ MD:COLUMBIA, MD	13.323	7.380	Oct 2010	1.524	Oct 2011	-		1.524	Continuing	Continuing	Continuing
Aegis BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098185276648 MD09	SS/CPAF	LOCKHEED MARTIN:MOORESTOWN, NJ	46.943	63.430	Oct 2010	8.841	Oct 2011	-		8.841	Continuing	Continuing	Continuing
Aegis BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098185276658 MD09	SS/CPAF	RAYTHEON/ AZ:TUCSON, AZ	-	0.210	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
Aegis BMD 5.1 Development VARIOUS MD09	MIPR	VARIOUS:NJ, VA, CA	-	4.541	Oct 2010	9.164	Oct 2011	-		9.164	Continuing	Continuing	Continuing
	MIPR	AEGIS BMD:AZ, VA, CA	49.605	-		4.802	Oct 2011	-		4.802	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis BMD 5.1 Development BMD 5.1 DEVELOPMENT MD09													
SM-3 Blk IB Development SM-3 BLK IB DEVELOPMENT MD09	SS/CPAF	Raytheon:Tucson, AZ	512.977	158.595	Oct 2010	21.762	Oct 2011	-		21.762	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 BLK IB DEVELOPMENT - 20098184846516 MD09	MIPR	NSWC/DD:Dahlgren, VA	21.110	4.122	Oct 2010	0.649	Oct 2011	-		0.649	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 BLK IB DEVELOPMENT - 2009818484652 MD09	MIPR	JHU/APL/MD:Columbia, MD	21.585	12.262	Oct 2010	1.791	Oct 2011	-		1.791	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 BLK IB DEVELOPMENT - 20098184846525 MD09	MIPR	NSWC/PHD:Port Huneme, CA	6.603	1.754	Oct 2010	0.931	Oct 2011	-		0.931	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 BLK IB DEVELOPMENT - 20098184846531 MD09	MIPR	VARIOUS:VA, AZ, CA	10.105	4.915	Oct 2010	3.143	Oct 2011	-		3.143	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 BLK IB DEVELOPMENT MD09	MIPR	AEGIS BMD:VA, AZ, CA	44.372	22.000	Oct 2010	6.352	Oct 2011	-		6.352	Continuing	Continuing	Continuing
Aegis BMD Testing Aegis BMD Testing MD09	MIPR	NSWC/ DD:DAHLGREN, VA	-	3.621	Oct 2010	0.425		-		0.425	Continuing	Continuing	Continuing
Aegis BMD Testing Aegis BMD Testing - 20108254188681 MD09	MIPR	NSWC/PHD:PT. HUENEME, CA	-	2.853	Oct 2010	-		-		-	0.000	2.853	0.000
Aegis BMD Testing Aegis BMD Testing - 20108254188688 MD09	MIPR	JHU/APL/ MD:COLUMBIA, MD	-	7.971	Oct 2010	3.250		-		3.250	Continuing	Continuing	Continuing
Aegis BMD Testing Aegis BMD Testing - 20108254188694 MD09	MIPR	Various:NJ, VA, CA	-	4.181	Oct 2010	48.592		-		48.592	Continuing	Continuing	Continuing
	MIPR	SPAWAR:SAN DIEGO, CA	-	1.016	Oct 2010	-		-		-	0.000	1.016	0.000

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis BMD Testing Aegis BMD Testing - 20108254188698 MD09													
Aegis BMD Testing Aegis BMD Testing - 20108254188703 MD09	MIPR	Corona:Corona, CA	-	1.383	Oct 2010	-		-		-	0.000	1.383	0.000
Aegis BMD Testing Aegis BMD Testing MD09	C/CPAF	Lockheed Martin:Moorestown, NJ	-	-		0.825	Oct 2011	-		0.825	Continuing	Continuing	Continuing
Aegis BMD Testing Aegis BMD Testing - 20108254205089 MD09	MIPR	Aegis BMD:VA, AZ, CA	-	-		25.800	Oct 2011	-		25.800	Continuing	Continuing	Continuing
Fielding - AWS AWS FIELDING MD09	SS/CPIF	Lockheed Martin:Moorestown, NJ	89.449	56.400	Oct 2010	74.957	Oct 2011	-		74.957	Continuing	Continuing	Continuing
Fielding - AWS AWS FIELDING - 20098184698109 MD09	MIPR	NSWC/PHD:Port Hueneme, CA	25.171	5.000	Oct 2010	11.106	Oct 2011	-		11.106	Continuing	Continuing	Continuing
Fielding - AWS AWS FIELDING - 20098184698114 MD09	MIPR	NSWC/DD:Dahlgren, VA	14.995	10.000	Oct 2010	6.353	Oct 2011	-		6.353	Continuing	Continuing	Continuing
Fielding - AWS AWS FIELDING - 20098184698117 MD09	C/CPAF	Raytheon:Washington, DC	-	3.800	Oct 2010	11.106	Oct 2011	-		11.106	Continuing	Continuing	Continuing
Fielding - AWS AWS FIELDING - 20098184698123 MD09	MIPR	PEO IWS:Minneapolis, MN	-	2.300	Oct 2010	3.184	Oct 2011	-		3.184	Continuing	Continuing	Continuing
Fielding - AWS AWS FIELDING - 20098184698133 MD09	MIPR	AEGIS TECHREP:Moorestown, NJ	-	1.700	Oct 2010	1.600	Oct 2011	-		1.600	Continuing	Continuing	Continuing
Fielding - AWS AWS FIELDING - 20098184698138 MD09	MIPR	Various:NJ, VA, CA	52.547	19.830	Oct 2010	47.167	Oct 2011	-		47.167	Continuing	Continuing	Continuing
SM-3 Manufacturing SM-3 BLK IB MANUFACTURING MD09	SS/CPAF	Raytheon:Tucson, AZ	94.645	161.007	Oct 2010	100.040	Oct 2011	-		100.040	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SM-3 Manufacturing SM-3 BLK IB MANUFACTURING - 20098184912603 MD09	MIPR	NSWC/DD:Port Hueneme, CA	2.056	1.945	Oct 2010	0.409	Oct 2011	-		0.409	Continuing	Continuing	Continuing
SM-3 Manufacturing SM-3 BLK IB MANUFACTURING - 20098184912608 MD09	MIPR	Various:MD, AZ	9.815	1.945	Oct 2010	10.361	Oct 2011	-		10.361	Continuing	Continuing	Continuing
SM-3 Production Support PRODUCTION SUPPORT - CANISTERS MD09	MIPR	PEO IWS:Minneapolis, MN	-	15.800	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
SM-3 Production Support PRODUCTION SUPPORT - PRODUCTION ENGINEERING MD09	SS/CPAF	Raytheon:Tucson, AZ	-	29.102	Oct 2010	45.401	Oct 2011	-		45.401	Continuing	Continuing	Continuing
Fleet Integration AWS O&S MD09	SS/CPIF	Lockheed Martin:Moorestown, NJ	34.265	10.500	Oct 2010	4.590	Oct 2011	-		4.590	Continuing	Continuing	Continuing
Fleet Integration AWS O&S - 20098185191909 MD09	MIPR	NSWC/DD:Dahlgren, VA	2.342	2.602	Oct 2010	0.794	Oct 2011	-		0.794	Continuing	Continuing	Continuing
Fleet Integration FLEET INTEGRATION MD09	MIPR	JHU/APL/MD:Columbia, MD	1.229	2.070	Oct 2010	1.010	Oct 2011	-		1.010	Continuing	Continuing	Continuing
Fleet Integration FLEET INTEGRATION - 20098185191927 MD09	MIPR	CSCS:Dahlgren, VA	5.833	2.837	Oct 2010	1.322	Oct 2011	-		1.322	Continuing	Continuing	Continuing
Fleet Integration FLEET INTEGRATION - 20098185191938 MD09	MIPR	NSWC/DD:Dahlgren, VA	7.284	3.535	Oct 2010	1.634	Oct 2011	-		1.634	Continuing	Continuing	Continuing
Fleet Integration FLEET INTEGRATION - 20098185191945 MD09	MIPR	NSWC/PHD:Port Hueneme, CA	11.829	3.198	Oct 2010	1.588	Oct 2011	-		1.588	Continuing	Continuing	Continuing
Fleet Integration FLEET INTEGRATION - 20098185191952 MD09	MIPR	Various:VA, MD, CA, HI	5.235	3.160	Oct 2010	1.467	Oct 2011	-		1.467	Continuing	Continuing	Continuing
Fleet Integration AWS O&S MD09	MIPR	VARIOUS:VA, NJ, CA	-	-		1.036	Oct 2011	-		1.036	Continuing	Continuing	Continuing

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SM-3 Operations & Support SM-3 O&S - MAINTENANCE MD09	SS/CPAF	Raytheon:Tucson, AZ	7.237	6.400	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
SM-3 Operations & Support SM-3 O&S - SPARES MD09	SS/CPAF	Raytheon:Tucson, AZ	32.971	30.000	Oct 2010	-	Oct 2011	-		-	Continuing	Continuing	Continuing
M&S HWIL Framework, Simulations, Models Single Stimulation Framework & Objective Simulation Framework, Procure, Install, Test MD09	C/CPAF	Boeing:AL	44.981	55.690	Oct 2010	55.460		-		55.460	Continuing	Continuing	Continuing
M&S HWIL Framework, Simulations, Models DSA/SSF Integration MD09	C/CPAF	Boeing:AL	7.259	14.247	Oct 2010	-	Feb 2012	-		-	Continuing	Continuing	Continuing
Systems Engineering & Integration Industry MD09	C/CPAF	Boeing:VA	-	12.117		-		-		-	Continuing	Continuing	Continuing
Systems Engineering & Integration CSS MD09	C/CPFF	CSC:VA	-	7.811		-		-		-	Continuing	Continuing	Continuing
Systems Engineering & Integration CSS - 200912165600225 MD09	C/CPFF	Cobham:CA	-	6.660		-		-		-	Continuing	Continuing	Continuing
Systems Engineering & Integration SEI&T MD09	MIPR	MDA:ARLINGTON, VA	-	-	Oct 2010	19.794	Oct 2011	-		19.794	Continuing	Continuing	Continuing
Aegis BMD 3.6.1 Development BMD 3.6.1 DEVELOPMENT MD09	MIPR	NSWC/ DD:DAHLGREN, VA	36.316	0.631	Oct 2010	-		-		-	0.000	36.947	0.000
Aegis BMD 3.6.1 Development BMD 3.6.1 DEVELOPMENT - 20107164850459 MD09	MIPR	NSWC/PHD:PT. HUENME, CA	23.017	0.283	Oct 2010	-		-		-	0.000	23.300	0.000
Aegis BMD 3.6.1 Development BMD 3.6.1 DEVELOPMENT - 20107164850464 MD09	MIPR	JHU/APL/ MD:COLUMBIA, MD	41.290	0.330	Oct 2010	-		-		-	0.000	41.620	0.000

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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis BMD 3.6.1 Development BMD 3.6.1 DEVELOPMENT - 20107164850469 MD09	MIPR	VARIOUS:NJ, VA, CA	91.009	1.141	Oct 2010	-		-		-	0.000	92.150	0.000
M&S Digital Framework, Simulation, Models Digital Simulation Architecture MD09	C/CPAF	Northrop Grumman:CO	4.056	4.365		4.540		-		4.540	Continuing	Continuing	Continuing
		Subtotal	2,387.871	1,071.346		704.916		-		704.916			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT MD09	MIPR	MDA:Arlington, VA	34.591	1.653	Oct 2010	2.132	Oct 2011	-		2.132	Continuing	Continuing	Continuing
Aegis BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098184410791 MD09	MIPR	NAVSEA:Washington, DC	15.876	2.086	Oct 2010	1.468	Oct 2011	-		1.468	Continuing	Continuing	Continuing
Aegis BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098184410797 MD09	C/CPFF	GDIT:Dahlgren, VA	66.760	6.058	Oct 2010	3.165	Oct 2011	-		3.165	Continuing	Continuing	Continuing
Aegis BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098184410803 MD09	C/CPFF	Paradigm:Dahlgren, VA	16.122	1.699	Oct 2010	1.252	Oct 2011	-		1.252	Continuing	Continuing	Continuing
Aegis BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098184410811 MD09	C/CPFF	Gryphon:Dahlgren, VA	3.529	0.272	Oct 2010	0.215	Oct 2011	-		0.215	Continuing	Continuing	Continuing
Aegis BMD 4.0.1 Development BMD	MIPR	Various:Dahlgren, VA	-	4.817	Oct 2010	-		-		-	0.000	4.817	0.000

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
4.0.1 DEVELOPMENT - 20098184410817 MD09													
Aegis BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098184410825 MD09	C/CPIF	Lockheed Martin:Arlington, VA	1.765	0.241	Oct 2010	-		-		-	0.000	2.006	0.000
Aegis BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098184410834 MD09	C/CPAF	Raytheon:Arlington, VA	1.765	0.195	Oct 2010	-		-		-	0.000	1.960	0.000
Aegis BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098184410842 MD09	MIPR	Aegis BMD:Dahlgren, VA	-	2.628	Oct 2010	0.520	Oct 2011	-		0.520	Continuing	Continuing	Continuing
Aegis BMD 4.0.1 Development BMD 4.0.1 DEVELOPMENT - 20098184410848 MD09	MIPR	MDA Various:Arlington, VA	-	17.000	Oct 2010	7.262	Oct 2011	-		7.262	Continuing	Continuing	Continuing
Aegis BMD 5.0 Development BMD 5.0 DEVELOPMENT MD09	MIPR	MDA:Arlington, VA	9.614	2.436	Oct 2010	7.146	Oct 2011	-		7.146	Continuing	Continuing	Continuing
Aegis BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098184413988 MD09	MIPR	NAVSEA:Washington, DC	4.464	3.071	Oct 2010	3.349	Oct 2011	-		3.349	Continuing	Continuing	Continuing
Aegis BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098184413994 MD09	C/CPFF	GDIT:Dahlgren, VA	-	8.921	Oct 2010	9.488	Oct 2011	-		9.488	Continuing	Continuing	Continuing
Aegis BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098184414005 MD09	C/CPFF	Paradigm:Dahlgren, VA	4.327	2.502	Oct 2010	2.857	Oct 2011	-		2.857	Continuing	Continuing	Continuing
Aegis BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098184414009 MD09	C/CPFF	Gryphon:Dahlgren, VA	0.993	0.401	Oct 2010	0.491	Oct 2011	-		0.491	Continuing	Continuing	Continuing
	MIPR	Various:Dahlgren, VA	-	9.022	Oct 2010	-		-		-	0.000	9.022	0.000

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098184414017 MD09													
Aegis BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098184414022 MD09	C/CPIF	Lockheed Martin:Arlington, VA	0.495	0.354	Oct 2010	-		-		-	0.000	0.849	0.000
Aegis BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098184414028 MD09	C/CPAF	Raytheon:Arlington, VA	-	0.287	Oct 2010	-		-		-	0.000	0.287	0.000
Aegis BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098184414033 MD09	MIPR	Aegis BMD:Dahlgren, VA	16.900	3.695	Oct 2010	0.711	Oct 2011	-		0.711	Continuing	Continuing	Continuing
Aegis BMD 5.0 Development BMD 5.0 DEVELOPMENT - 20098184414048 MD09	MIPR	MDA Various:Arlington, VA	-	17.000	Oct 2010	17.554	Oct 2011	-		17.554	Continuing	Continuing	Continuing
Aegis BMD 5.1 Development BMD 5.1 DEVELOPMENT MD09	MIPR	MDA:Arlington, VA	-	1.547	Oct 2010	1.836	Oct 2011	-		1.836	Continuing	Continuing	Continuing
Aegis BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098184460966 MD09	MIPR	NAVSEA:Washington, DC	-	1.949	Oct 2010	0.688	Oct 2011	-		0.688	Continuing	Continuing	Continuing
Aegis BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098184460972 MD09	C/CPFF	GDIT:Dahlgren, VA	-	5.661	Oct 2010	2.349	Oct 2011	-		2.349	Continuing	Continuing	Continuing
Aegis BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098184460977 MD09	C/CPFF	Paradigm:Dahlgren, VA	-	1.587	Oct 2010	0.734	Oct 2011	-		0.734	Continuing	Continuing	Continuing
Aegis BMD 5.1 Development BMD 5.1 DEVELOPMENT - 2009818446098 MD09	C/CPFF	Gryphon:Dahlgren, VA	-	0.255	Oct 2010	0.216	Oct 2011	-		0.216	Continuing	Continuing	Continuing
Aegis BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098184460984 MD09	MIPR	Various:Dahlgren, VA	-	4.545	Oct 2010	1.524	Oct 2011	-		1.524	Continuing	Continuing	Continuing
	C/CPIF		-	0.225	Oct 2010	-		-		-	0.000	0.225	0.000

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Support ($ in Millions)

				FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 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
Aegis BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098184460989 MD09		Lockheed Martin:Arlington, VA											
Aegis BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098184460995 MD09	C/CPAF	Raytheon:Arlington, VA	-	0.182	Oct 2010	-		-		-	0.000	0.182	0.000
Aegis BMD 5.1 Development BMD 5.1 DEVELOPMENT - 200981844610 MD09	MIPR	Aegis BMD:Dahlgren, VA	-	2.478	Oct 2010	0.051	Oct 2011	-		0.051	Continuing	Continuing	Continuing
Aegis BMD 5.1 Development BMD 5.1 DEVELOPMENT - 20098184461008 MD09	MIPR	MDA Various:Arlington, VA	-	17.000	Oct 2010	4.432	Oct 2011	-		4.432	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 BLK IB DEVELOPMENT MD09	MIPR	MDA:Arlington, VA	14.562	2.698	Oct 2010	3.648	Oct 2011	-		3.648	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 BLK IB DEVELOPMENT - 20098184490094 MD09	MIPR	NAVSEA:Washington, DC	60.960	3.404	Oct 2010	1.614	Oct 2011	-		1.614	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 BLK IB DEVELOPMENT - 20098184490097 MD09	C/CPFF	GDIT:Dahlgren, VA	15.026	9.886	Oct 2010	4.842	Oct 2011	-		4.842	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 BLK IB DEVELOPMENT - 20098184490102 MD09	C/CPFF	Paradigm:Dahlgren, VA	3.235	2.772	Oct 2010	1.156	Oct 2011	-		1.156	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 BLK IB DEVELOPMENT - 20098184490106 MD09	C/CPFF	Gryphon:Dahlgren, VA	-	0.445	Oct 2010	0.458	Oct 2011	-		0.458	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 BLK IB DEVELOPMENT - 20098184490111 MD09	MIPR	Various:Dahlgren, VA	1.617	7.436	Oct 2010	-		-		-	0.000	9.053	0.000
SM-3 Blk IB Development SM-3 BLK IB DEVELOPMENT - 20098184490116 MD09	C/CPIF	Lockheed Martin:Arlington, VA	1.617	0.392	Oct 2010	-		-		-	0.000	2.009	0.000
	C/CPAF	Raytheon:Arlington, VA	-	0.318	Oct 2010	-		-		-	0.000	0.318	0.000

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SM-3 Blk IB Development SM-3 BLK IB DEVELOPMENT - 20098184490122 MD09													
SM-3 Blk IB Development SM-3 BLK IB DEVELOPMENT - 20098184490127 MD09	MIPR	Aegis BMD:Dahlgren, VA	31.755	5.300	Oct 2010	0.604	Oct 2011	-		0.604	Continuing	Continuing	Continuing
SM-3 Blk IB Development SM-3 BLK IB DEVELOPMENT - 20098184490131 MD09	MIPR	MDA Various:Arlington, VA	-	18.869	Oct 2010	9.120	Oct 2011	-		9.120	Continuing	Continuing	Continuing
Aegis BMD Testing TESTING MD09	MIPR	MDA:Arlington, VA	-	1.984	Oct 2010	-		-		-	0.000	1.984	0.000
Aegis BMD Testing TESTING - 20098184514422 MD09	MIPR	NAVSEA:Washington, DC	1.528	2.504	Oct 2010	-		-		-	0.000	4.032	0.000
Aegis BMD Testing TESTING - 20098184514427 MD09	C/CPFF	GDIT:Dahlgren, VA	6.598	7.270	Oct 2010	-		-		-	0.000	13.868	0.000
Aegis BMD Testing TESTING - 20098184514434 MD09	C/CPFF	Paradigm:Dahlgren, VA	1.582	2.039	Oct 2010	-		-		-	0.000	3.621	0.000
Aegis BMD Testing TESTING - 20098184514442 MD09	C/CPFF	Gryphon:Dahlgren, VA	0.340	0.327	Oct 2010	-		-		-	0.000	0.667	0.000
Aegis BMD Testing TESTING - 20098184514461 MD09	C/CPIF	Lockheed Martin:Arlington, VA	0.170	0.289	Oct 2010	-		-		-	0.000	0.459	0.000
Aegis BMD Testing TESTING - 20098184514466 MD09	C/CPAF	Raytheon:Arlington, VA	0.170	0.234	Oct 2010	-		-		-	0.000	0.404	0.000
Aegis BMD Testing TESTING - 20098184514481 MD09	MIPR	MDA Various:Arlington, VA	2.581	7.000	Oct 2010	-		-		-	0.000	9.581	0.000
		Subtotal	318.942	192.934		90.882		-		90.882			

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603892C: *BMD AEGIS*	PROJECT MD09: *Aegis BMD*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BMDS Level Testing BMDS Level Testing MD09	MIPR	NSWC/ DD:DAHLGREN, VA	16.497	10.021	Oct 2010	11.048	Oct 2011	-		11.048	Continuing	Continuing	Continuing
BMDS Level Testing BMDS Level Testing - 20108254289191 MD09	MIPR	NSWC/PHD:PT. HUENEME, CA	5.639	10.502	Oct 2010	11.600	Oct 2011	-		11.600	Continuing	Continuing	Continuing
BMDS Level Testing BMDS Level Testing - 20108254289197 MD09	MIPR	JHU/APL/ MD:COLUMBIA, MD	13.696	16.809	Oct 2010	17.925	Oct 2011	-		17.925	Continuing	Continuing	Continuing
BMDS Level Testing BMDS Level Testing - 20108254289202 MD09	MIPR	Various:NJ, VA, CA HI	19.420	31.567	Oct 2010	41.116	Oct 2011	-		41.116	Continuing	Continuing	Continuing
BMDS Level Testing BMDS Level Testing - 20108254289206 MD09	SS/CPIF	Lockheed Martin:Moorestown, NJ	16.285	22.200	Oct 2010	10.570	Oct 2011	-		10.570	Continuing	Continuing	Continuing
BMDS Level Testing BMDS Level Testing - 20108254289211 MD09	MIPR	SPAWAR:San Diego, CA	4.033	1.372	Oct 2010	6.575	Oct 2011	-		6.575	Continuing	Continuing	Continuing
BMDS Level Testing BMDS Level Testing - 20108254289216 MD09	SS/CPAF	Raytheon:Tucson, AZ	-	4.500	Oct 2010	-		-		-	0.000	4.500	0.000
BMDS Level Testing BMDS Level Testing - 2010825428922 MD09	MIPR	PMRF:Barking Sands, Kauai, HI	-	7.000	Oct 2010	-		-		-	0.000	7.000	0.000
BMDS Level Testing BMDS Level Testing - 20108254289227 MD09	MIPR	NAWC/PM:PT. MUGU, CA	-	2.700	Oct 2010	1.050	Oct 2011	-		1.050	Continuing	Continuing	Continuing
BMDS Level Testing BMDS Level Testing - 20108254289231 MD09	MIPR	MDA/ DTR:HUNTSVILLE, AL	-	3.490	Oct 2010	-		-		-	0.000	3.490	0.000
M&S VV&A and Test Operations M&S VV&A and Test Operations MD09	C/CPAF	Northrop Grumman:Various	8.299	38.119	Oct 2010	10.686	Oct 2011	-		10.686	73.741	130.845	67.478
		Subtotal	83.869	148.280		110.570		-		110.570			

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603892C: *BMD AEGIS*	PROJECT MD09: *Aegis BMD*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	2,790.682	1,412.560		906.368		-		906.368			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603892C: *BMD AEGIS*	**PROJECT** MD09: *Aegis BMD*

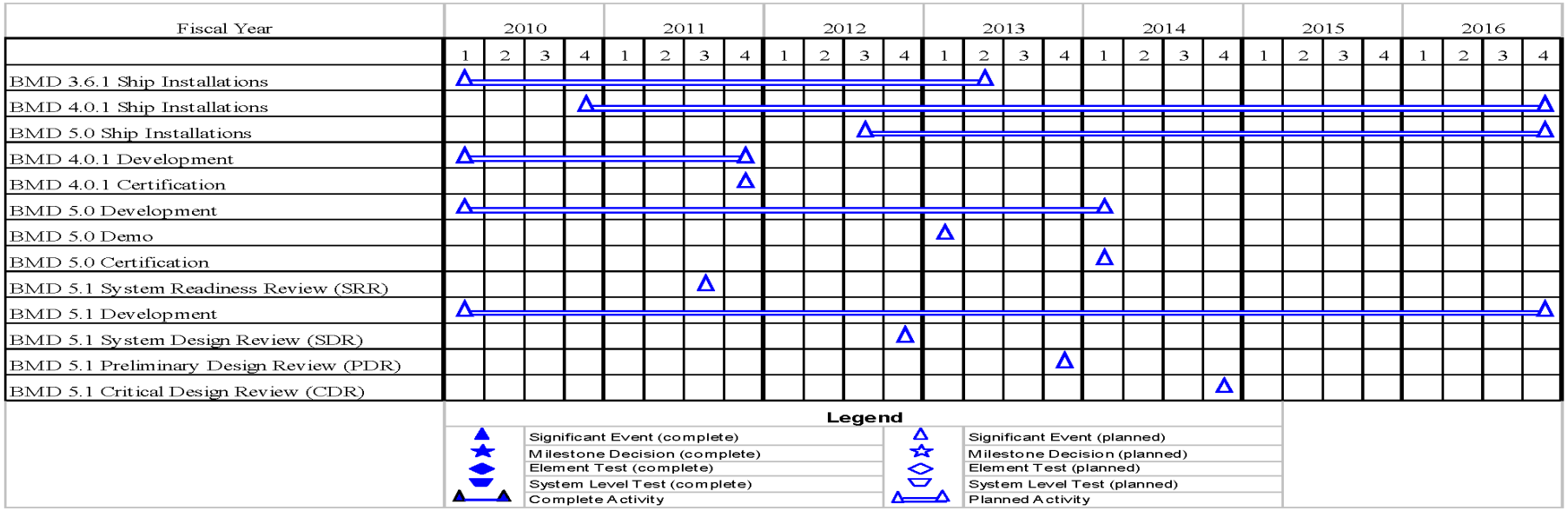

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603892C: *BMD AEGIS*	**PROJECT** MD09: *Aegis BMD*

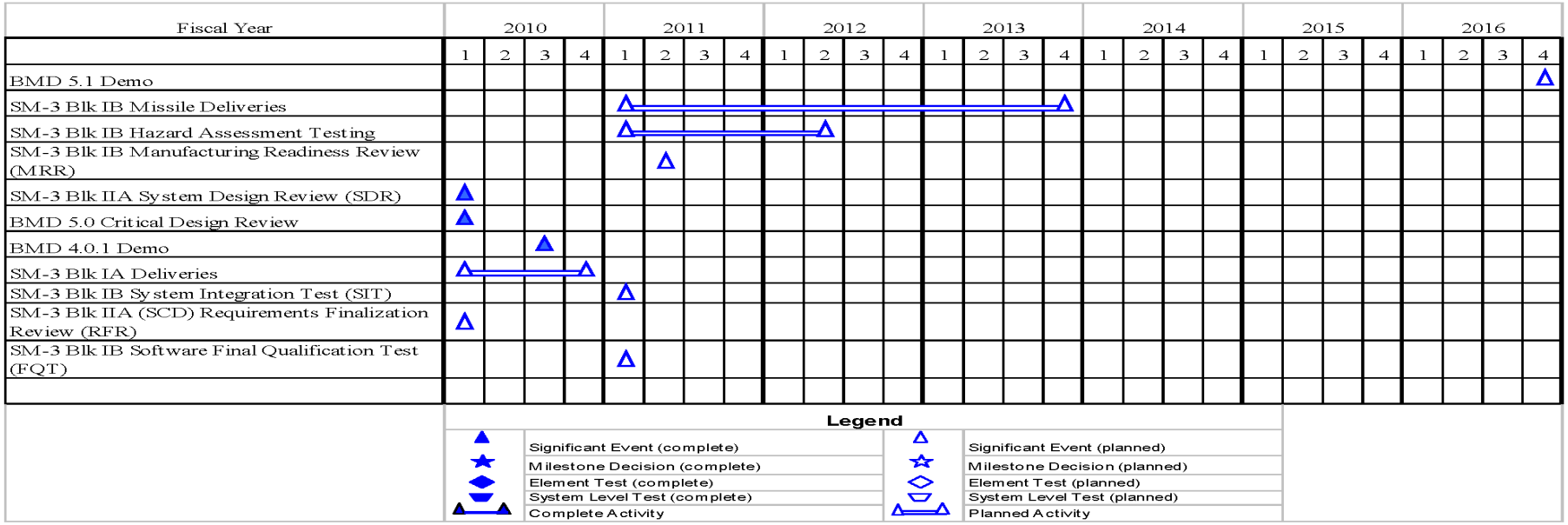

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603892C: *BMD AEGIS*	**PROJECT** MD09: *Aegis BMD*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
BMD 3.6.1 Ship Installations	1	2010	2	2013
BMD 4.0.1 Ship Installations	4	2010	4	2016
BMD 5.0 Ship Installations	3	2012	4	2016
BMD 4.0.1 Development	1	2010	4	2011
BMD 4.0.1 Certification	4	2011	4	2011
BMD 5.0 Development	1	2010	1	2014
BMD 5.0 Demo	1	2013	1	2013
BMD 5.0 Certification	1	2014	1	2014
BMD 5.1 System Readiness Review (SRR)	3	2011	3	2011
BMD 5.1 Development	1	2010	4	2016
BMD 5.1 System Design Review (SDR)	4	2012	4	2012
BMD 5.1 Preliminary Design Review (PDR)	4	2013	4	2013
BMD 5.1 Critical Design Review (CDR)	4	2014	4	2014
BMD 5.1 Demo	4	2016	4	2016
SM-3 Blk IB Missile Deliveries	1	2011	4	2013
SM-3 Blk IB Hazard Assessment Testing	1	2011	2	2012
SM-3 Blk IB Manufacturing Readiness Review (MRR)	2	2011	2	2011
SM-3 Blk IIA System Design Review (SDR)	1	2010	1	2010
BMD 5.0 Critical Design Review	1	2010	1	2010
BMD 4.0.1 Demo	3	2010	3	2010
SM-3 Blk IA Deliveries	1	2010	4	2010
SM-3 Blk IB System Integration Test (SIT)	1	2011	1	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603892C: *BMD AEGIS*	**PROJECT** MD09: *Aegis BMD*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
SM-3 Blk IIA (SCD) Requirements Finalization Review (RFR)	1	2010	1	2010
SM-3 Blk IB Software Final Qualification Test (FQT)	1	2011	1	2011

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603892C: *BMD AEGIS*	PROJECT MX09: *Aegis BMD Development Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MX09: *Aegis BMD Development Support*	-	-	12.600	-	12.600	51.400	46.300	43.500	37.900	0.000	191.700
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Aegis BMD has negotiated agreements with the U.S. Navy for the operations and maintenance of BMD systems on-board U.S. Navy ships. Support efforts are leveraged off of already-existing contracts and infrastructure and processes, maintained and funded by the Navy.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Aegis BMD Operations and Support	-	-	12.600
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: N/A			
FY 2011 Plans: Funds for FY 2011 Accomplishments were reported in prior year budget project MD09.			
FY 2012 Plans: -Continue systems engineering and analysis to refine Aegis BMD 5.1 A-Spec. -Continue analysis and design of AWS/VLS/Missile interfaces and specifications. -Continue analysis and systems engineering for development of Aegis BMD 5.1 EoR and Early Intercept capabilities, and BMDS integration. -Continue preparation for BMD 5.1 SDR.			
Accomplishments/Planned Programs Subtotals	-	-	12.600

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The Aegis BMD element acquisition approach supports evolutionary development, continuously building upon demonstrated capabilities to advance overall BMDS capability. After considering all the technical and management aspects of the program and to meet the requirements presented by an evolving ballistic missile threat,

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603892C: *BMD AEGIS*	PROJECT MX09: *Aegis BMD Development Support*

the Aegis BMD program awarded sole source contracts to Raytheon and Lockheed Martin to continue development of the SM-3 missile and the Aegis BMD Weapon System, respectively.

Competition will be maximized for procurement of any products or services in FY 2012, as appropriate.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603892C: *BMD AEGIS*	PROJECT MX09: *Aegis BMD Development Support*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Aegis BMD Operations and Support ABMD O&S 4.0.1 MX09	MIPR	VARIOUS/:NJ, VA, CA	-	-		12.600	Oct 2011	-		12.600	Continuing	Continuing	Continuing
		Subtotal	-	-		12.600		-		12.600			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
		Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Project Cost Totals	-	-		12.600		-		12.600			

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603892C: *BMD AEGIS*	PROJECT ZX40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
ZX40: *Program-Wide Support*	40.610	-	-	-	-	-	-	-	-	0.000	40.610
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11

A. Mission Description and Budget Item Justification

Project ZX40 has been transferred project MD40.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	40.610	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	40.610	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603892C: *BMD AEGIS*	PROJECT MD40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	54.718	41.299	-	41.299	40.125	44.933	41.507	44.062	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). Includes Government Civilians, Advisory and Assistance Services, and Federally Funded Research and Development Contracts (FFRDC) providing integrity and oversight of the BMDS as well as supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2 after FY 2011), such as physical and technical security, legal services, travel and agency training, office and equipment leases, rents and utilities, data and unified communications support, supplies and maintenance, and similar operating expenses. Also includes legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.
In keeping with congressional intent, PWS is allocated among the PEs on a pro-rata basis and therefore fluctuates by year based on the total MDA budget and the individual PE`s budget amount.

Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($51,626).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	-	54.718	41.299
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($51,626).			
FY 2011 Plans: See paragraph A, Mission Description and Budget Item Justification			
FY 2012 Plans: See paragraph A, Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	54.718	41.299

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603892C: *BMD AEGIS*	**PROJECT** MD40: *Program-Wide Support*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	148.506	112.678	96.353	-	96.353	53.577	47.592	32.289	34.308	Continuing	Continuing
WX12: *Space Tracking and Surveillance System (STSS) Capability Development*	148.506	-	-	-	-	-	-	-	-	0.000	148.506
MD12: *Space Tracking and Surveillance System (STSS)*	-	108.842	92.078	-	92.078	51.049	45.167	30.630	32.551	Continuing	Continuing
MD40: *Program-Wide Support*	-	3.836	4.275	-	4.275	2.528	2.425	1.659	1.757	Continuing	Continuing

Note

In accordance with the Missile Defense Agency revised budget structure, funding for Program Element 0603893C, Project WX12 moves to Project MD12 in FY 2011.

The Near Field Infrared Experiment (NFIRE) program funding is captured in this Program Element, Project WX12 for FY 2010. As indicated in the President`s Budget FY 2011 submission of this Program Element`s Budget Exhibit`s FY 2010 Plans in Project WX12, MDA assessed the health and utility of the NFIRE satellite for potential, future utilization and deemed the health/utility sufficient to warrant continued funding of the activity. The funding for NFIRE beginning FY 2011 will be captured under this Program Element in Project MD12. MDA will continue to assess the health/utility of the NFIRE satellite on an annual basis for a determination to continue NFIRE operations and testing.

A. Mission Description and Budget Item Justification

The Space Tracking and Surveillance System (STSS) launched two demonstration satellites on 25 September 2009 and has begun integration with BMDS testing through participation in tests as a mandatory asset on an as capable basis even as system functionality testing has been progressing. Upon completion of the system functionality tests, the satellites will dedicate efforts to performance testing. Funds are provided for STSS on-orbit operations which includes contractor operation of the STSS Demonstration Satellites and software upgrades; Government costs; BMDS Level Testing and Element Integration and Testing; Data Collection and Analysis activities; and Near Field Infrared Experiment (NFIRE) tests and experiments.

Space Tracking and Surveillance System (STSS)

The STSS program will emphasize continued research and development to address the more sophisticated threats we expect to encounter in the far term. The greatest hedge against missile defense threats of all ranges remains a highly available early missile tracking capability from space. Space sensors provide the most cost effective and operationally suitable means of providing global persistent surveillance and engagement, directly addressing the number one missile defense priority need for Combatant Commanders. The Space Tracking and Surveillance System (STSS) is a capability development activity for the demonstration of technologies to support

development and future capability delivery of the BMDS space layer. The STSS Demonstration Satellites will demonstrate the ability of a space sensor to provide high precision, real time tracking of missiles and midcourse objects, thus enabling simultaneous regional, theater, and strategic missile defense. Data from on-going STSS testing will validate the ability to track cold, midcourse objects from space and close the fire control loop with BMDS interceptors. Additionally, STSS provides a new infrared sensor phenomenology for the BMDS, when combined with radars, provides robustness against current and advanced countermeasures.

MDA has developed and is testing the STSS Demonstration Satellites to demonstrate key functions of space sensors. Lessons learned from the Demonstration Satellites efforts will provide key data as MDA pursues longer term space sensor needs.

- Space sensors extend BMDS sensor coverage to a global level. STSS will demonstrate the capability of satellites to track ballistic missiles and the ability to provide accurate tracking information to the BMDS battle manager to close the fire control loop with BMDS interceptors, thus extending the effective range of BMDS interceptors and other sensors.
- Space-based sensors are not limited by basing rights issues or deployment decisions, and will allow cost effective coverage of countries and large areas not accessible from ground based sensors. Approximately fifty Army Navy/Transportable Radar Surveillance - Model 2 (TPY-2) radars or approximately twenty sea-based X-Band radars are required to provide the equivalent mid-latitude coverage of a spaced-based constellation.
- Space based visible and Infrared (IR) sensors will complement radars and contribute to a sensor architecture more robust to countermeasures
- Space-based sensors will enable near continuous threat observation and tracking from launch to intercept, covering threats by augmenting the coverage of the BMDS radars, and providing state vectors to Command and Control, Battle Management and Communications (C2BMC) to enable interceptor fire control via multiple BMDS assets (Aegis, Ground-based Midcourse Defense (GMD), Terminal High Altitude Area Defense (THAAD))

MDA Element testing is based on an integrated, comprehensive, and phased test program. Element systems, subsystems, and components are tested early in development and are necessary prior to conducting BMD-System level testing. Space Tracking and Surveillance System (STSS) Element Level testing is funded as part of a capabilities development program and reflected in this Program Element (PE) submission.

Near Field Infrared Experiment (NFIRE)

The Near Field Infrared Experiment (NFIRE) technology project was designed to collect near field phenomenology data for use in plume to hard body handover algorithms for boost phase interceptor programs. MDA is using this data to validate the models and simulations that are fundamental to developing the guidance and endgame homing algorithms for boost phase interceptors. A secondary objective of the experiment has been to collect hyper-temporal short wave infrared and visible data for assessing early launch detection and tracking capability. The experiment includes three plume signature mission types: targets of opportunity, dedicated fly-bys, and ground observations. The dedicated fly-by experiments have been accomplished. The Near Field Infrared Experiment (NFIRE) satellite also carries a Laser Communication Terminal, which has been and continues to be used to conduct communication experiments with the German Terra SAR-X satellite. These experiments

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*

test low earth orbit satellite-to-ground and satellite-to-satellite capabilities of the terminal for potential incorporation into the Ballistic Missile Defense System. The NFIRE satellite is operated from the Missile Defense Space Experimentation Center (MDSEC) by the Ballistic Missile Defense Space System. Data products are utilized by multiple programs to improve missile engagement performance.

Goals for Near Field Infrared Experiment:

- Conduct multiple data collection missions from the MDSEC against ground, air, space and ballistic missile targets of opportunity
- Conduct low earth orbit satellite-to-satellite and satellite-to-ground laser communication experiments
- Provide data to validate models and simulations that are fundamental to developing the navigation, guidance and control, and endgame homing algorithms, as well as laser communication proof of concept

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	161.609	112.678	98.500	-	98.500
Current President's Budget	148.506	112.678	96.353	-	96.353
Total Adjustments	-13.103	-	-2.147	-	-2.147
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-4.000	-			
• SBIR/STTR Transfer	-3.346	-			
• Other Adjustment Detail	-5.757	-	-2.147	-	-2.147

Change Summary Explanation

This program has realized $4.414 million in efficiency savings.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	PROJECT WX12: *Space Tracking and Surveillance System (STSS) Capability Development*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
WX12: *Space Tracking and Surveillance System (STSS) Capability Development*	148.506	-	-	-	-	-	-	-	-	0.000	148.506
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project WX12 has been transferred to Project MD12.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD12 for FY 2010 Accomplishments	148.506	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: See Project MD12 for FY 2010 Accomplishments.			
Accomplishments/Planned Programs Subtotals	148.506	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	PROJECT MD12: *Space Tracking and Surveillance System (STSS)*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD12: *Space Tracking and Surveillance System (STSS)*	-	108.842	92.078	-	92.078	51.049	45.167	30.630	32.551	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, funding for Program Element 0603893C, Project MD12 was moved from Project WX12 in FY 2011.

A. Mission Description and Budget Item Justification

The Space Tracking and Surveillance System (STSS) Demonstration Satellites will demonstrate key functions of missile tracking with space sensors. STSS will enable early capability assessment of the Warfighters` need for a highly available early missile tracking capability from space providing an operationally suitable means of global persistent surveillance and engagement. Capabilities that will be assessed by STSS include detecting and acquiring ballistic missiles; tracking ballistic missiles and their deployed objects; performing autonomous acquisition-to-track handover within a satellite; performing tracking handover to a satellite from a ground cue; performing uplink and downlink of mission, health, and status data both directly and via crosslink between two satellites; reporting ballistic missile and intercept event to close the fire-control loop; filtering reports to Command and Control, Battle Management and Communications (C2BM) to include only those that involve sub-orbital objects or orbital objects on an approved inclusion list; providing near real-time object data to external users; and providing a System Performance Evaluation Tool model. As such, the demonstration of these activities will support future capability development and will enable meeting a Warfighter`s need from the Prioritized Capability List to include track missile threats and contacts of interest; provide post-launch sensor cueing; integrate, fuse and correlate sensor data; engage/re-engage ballistic missile threats; and provide system modeling tools.

The Space Tracking and Surveillance System (STSS) Demonstration Satellites provide two on-orbit satellite assets with visible and infrared sensors in low earth orbit for testing with other BMDS elements. These two satellites provide valuable risk reduction for acquisition, tracking, and discrimination functionality to include stereo data fusion, cueing radars over the horizon and over-the-horizon fire control. The program is demonstrating the functions and interfaces required for space data delivery to the BMDS, validating the data quality necessary for interceptors to launch and/or engage on STSS sensor data. The two Demonstration satellites are operated 24 hours a day, 7 days a week, 365 days a year from the ground station processing center at the Missile Defense Space Experimentation Center (MDSEC) with a government and contractor team. On-orbit, STSS Demonstration Satellites will continue to collect data within the satellites` field of view. Data collection and analyses continues in FY 2011 and FY 2012 with the Space Tracking and Surveillance System (STSS) to view all available Targets of Opportunity (TOOs) to include participation with other BMDS target and flight tests that provide demonstration of the MDA Space Layer capabilities and allow collection of future system risk reduction information.

MDA Element testing is based on an integrated, comprehensive, and phased test program. Element systems, subsystems, and components are tested early in development and are necessary prior to conducting BMD-System level testing. The Space Tracking and Surveillance System (STSS) Element Level testing is funded as part of a capabilities development program and reflected in this Program Element (PE) submission. The Space Tracking and Surveillance System (STSS) Demonstration Satellites demonstrate key functions of space sensors. MDA will continue planning for and conduct integrated BMDS intercept tests based on track

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	**PROJECT** MD12: *Space Tracking and Surveillance System (STSS)*

data passed from the STSS Demonstration Satellites through Command and Control, Battle Management and Communications (C2BMC) to Aegis, GMD, or other interceptors.

The Space Tracking and Surveillance System (STSS) Demo Analysis Center (SDAC) enables independent government analysis of STSS Demonstration Satellites data. The Center infrastructure includes network communications, encryption/decryption devices, and software tools for mission planning and simulation, and data management tools. This infrastructure enables test engineering and analysis support for Space Tracking and Surveillance System (STSS) Demonstration Satellites data validation and verification, BMDS testing, and collection of scientific data for refinement of BMDS-relevant models.

The Near Field Infrared Experiment (NFIRE) satellite is operated from the Missile Defense Space Experimentation Center (MDSEC) and will continue collection of hyper-temporal short wave infrared and visible data from Targets of Opportunity (TOOs) for assessing early launch detection and tracking capability. The Near Field Infrared Experiment (NFIRE) satellite also carries a Laser Communication Terminal to conduct communication experiments with the German Terra SAR-X satellite. These communications experiments test low earth orbit satellite-to-ground and satellite-to-satellite laser communications capabilities for potential incorporation into the Ballistic Missile Defense System. The laser communication experiments will be conducted on a non-interference basis with other MDA missions.

Lessons learned and data gathered from the Space Tracking and Surveillance System (STSS) Demonstration program and the Near Field Infrared Experiment (NFIRE) program will provide valuable information for modeling and simulation activities in assessing the capability of a low earth orbit constellation to complement sensor coverage and missile detection and tracking capabilities provided by Advanced Overhead Persistent Infrared (OPIR) sensors.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Demonstration Satellites	-	84.637	69.613
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for FY 2010 accomplishments is reported in prior year budget project WX12 ($111.878 million): -Following launch of the two Space Tracking and Surveillance System (STSS) Demonstration Satellites in September 2009, the program has conducted a year long on-orbit checkout, calibration, and functional testing of the satellites and missile tracking payloads. This included tracking of multiple ballistic missiles, satellites, and ground targets. Details of this testing are provided in the test specific sections, BMDS Level Testing and Element Integration and Testing, that follow. -Conducted obsolescence review of Ground Station hardware/software to determine refresh requirements -Began execution of the STSS six Critical Engagement Conditions (CECs) and three Empirical Measurement Events (EMEs)** -Collection of test data from CECs/EMEs used in updating and verification, validation, and accreditation of modeling and simulation representations for assessing system performance			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
** Critical Engagement Conditions (CECs)/Empirical Measurement Events (EMEs) are the conditions where data is obtained from flight and ground tests in order to anchor models and simulations ***FY 2011 Plans:*** -Completed on-orbit calibration and system performance testing. -Conduct missile tracking experiments as identified in the test specific sections, BMDS Level Testing and Element Integration and Testing, that follow. -FY 2011 testing of the Space Tracking and Surveillance System (STSS) Demonstration Satellites continues the execution of the STSS-related Critical Engagement Conditions (CECs)/Empirical Measurement Events (EMEs) with sufficient data collected to complete four of the six CECs and one of the three EMEs -Collection of test data from Critical Engagement Conditions (CECs)/Empirical Measurement Events (EMEs) used in updating and verification, validation, and accreditation of modeling and simulation representations for assessing system performance -During FY 2011, MDA plans to focus the Space Tracking and Surveillance System (STSS) program on operations, sustainment, and testing. The majority of the functions performed by the program management office at the Space and Missiles System Center (SMC) will be transitioned to the Missile Defense Space Experimentation Center (MDSEC) in Colorado Springs, CO -Conduct independent government validation of STSS Demonstration Satellites data in the STSS Demo Analysis Center ***FY 2012 Plans:*** -Conduct missile tracking experiments as identified in the test specific sections, BMDS Level Testing and Element Integration and Testing, that follow -FY 2012 testing of the Space Tracking and Surveillance System (STSS) Demonstration Satellites continues the execution of the STSS-related Critical Engagement Conditions (CECs)/Empirical Measurement Events (EMEs) with sufficient data collected to complete five of the six CECs and one of the three EMEs -Collection of test data from Critical Engagement Conditions (CECs)/Empirical Measurement Events (EMEs) used in updating and verification, validation, and accreditation of modeling and simulation representations for assessing system performance -Conduct independent government validation of Space Tracking and Surveillance System (STSS) Demonstration Satellites data in the STSS Demo Analysis Center			
Title: BMDS Level Testing ***Articles:*** ***Description:*** See Description Below	- 0	13.219 0	15.316 0

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: Funding for FY 2010 accomplishments is reported in prior year budget project WX12 ($8.751 million): -Performed planning and execution of Space Tracking and Surveillance System (STSS) participation in BMDS flight tests which demonstrated completion of initial calibration of the satellite bus and acquisition payload and collected data for sufficiency analysis of two Critical Engagement Conditions -- Booster Acquisition and Plumes -Tracked five BMDS targets -Ground-based Midcourse Defense 2-stage Booster Characterization Flight Test (BVT-01) -Collected data demonstrating mono acquisition sensor tracking -United States Air Force Glory Trip 200 Flight Test (GT-200) -Collected data demonstrating mono acquisition sensor tracking -Terminal High Altitude Area Defense (THAAD) Intercept Flight Test (FTT-14): THAAD low-endo intercept of a unitary Short-Range Ballistic Missile (SRBM) target -Collected data demonstrating stereo acquisition sensor tracking and sufficiency for acquisition-to-track handover -United States Air Force Glory Trip 202 Flight Test (GT-202) -Collected data demonstrating stereo acquisition sensor tracking and mono track sensor tracking -Airborne Laser Test Bed (ALTB) Flight Experiment (FEL-01b): ALTB intercept of a SRBM -Collected data demonstrating successful autonomous acquisition-to-track handover on a ballistic target -Initiated planning for integrated BMDS intercept test based on track data passed from the Space Tracking and Surveillance System (STSS) Demonstration Satellites through Command and Control, Battle Management and Communications (C2BMC) to Aegis or other weapon systems -Planned and participated in available Targets of Opportunity (TOOs) -Planned and coordinated range activities to support the MDA Integrated Master Test Plan (IMTP)			

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	PROJECT MD12: *Space Tracking and Surveillance System (STSS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Completed setup of the Space Tracking and Surveillance System (STSS) Demo Analysis Center for engagement in independent government validation and verification activities of STSS Demonstration Satellites data, participation in BMDS testing, and collection of scientific data for refinement of BMDS-relevant models. ***FY 2011 Plans:*** Plan and execute Space Tracking and Surveillance System (STSS) participation in BMDS flight tests. Collection from a variety of test targets and conditions enable a statistically relevant database to be constructed to support future space system design. -Tracked one BMDS target -Aegis Simulated Intercept Flight Test (JTFM-04 E1): Aegis 4.0.1 simulated intercept of a surrogate separating Medium-Range Ballistic Missile (MRBM) -Collected data demonstrating stereo track sensor tracking -Collected data demonstrating autonomous fully calibrated stereo acquisition sensor Object Sighting Messages -Used data to analyze simulation of Aegis Launch-On STSS track -Fused STSS Object Sighting Message data in the Enterprise Sensors Laboratory and passed data to X-Lab using post-test playback of recorded data -Current STSS participation in the Integrated Master Test Plan (IMTP) is planned to include the following BMDS flight tests with STSS striving to meet reasonable expectations to view these as well as seeking opportunities to participate in other IMTP events: -Arrow Intercept Flight Test (USFT-4): Multi-national BMD test with Arrow intercept of Short-Range Ballistic Missile (SRBM) with European Command participation -Collect data to analyze Space Tracking and Surveillance System (STSS) cold-body target tracking capability -Aegis Simulated Intercept Flight Test (FTM-16 E1): Aegis 4.0.1 simulated Standard Missile-3 (SM-3) Block IB intercept of a Short-Range Ballistic Missile (SRBM) target with Associated Objects -Collect data to analyze real-time sharing of track messages to the BMDS -Simulate Aegis (Hardware-in-the-Loop) Engage-On Space Tracking and Surveillance System (STSS) track -Conduct post-test assessment to support STSS providing precision cue to the Terminal High Altitude Area Defense in post-test playback of recorded data -United States Air Force Glory Trip 203 Flight Test (GT-203)			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Collect data to analyze STSS cold-body target tracking capability -Fuse STSS Object Sighting Message and other sensors data in the Enterprise Sensors Laboratory and pass to the X-Lab to provide a single system track -Short-Range Air Launched Target Flight Test (FTX-17): Return to flight of the Short-Range Air Launch Target -Collect data and analyze Space Tracking and Surveillance System (STSS) capability in the areas of Booster Acquisition, Plumes, Hard Body Detection, Complex Scenes, Post Boost Detection, and Multiple Objects in a Scene -STSS Object Sighting Messages will be fused in the Enterprise Sensors Laboratory and passed to the X-Lab to produce BMDS system tracks -Aegis Flight Test (FTM-15): Aegis 3.6.1 SM-3 Block IA -Collect data to analyze Space Tracking and Surveillance System (STSS) emerging threat detection and threat capability -Fuse STSS Object Sighting Message and other sensors data in the Enterprise Sensors Laboratory and pass to the X-Lab to provide a precision cue using post-test playback of recorded data as risk reduction for future Launch on Remote -Aegis Intercept Flight Test (FTM-16 E2): Aegis 4.0.1 intercept using a Standard Missile-3 (SM-3) Block 1B interceptor against a Short-Range Ballistic Missile (SRBM) target -Collect data to analyze real-time sharing of track messages to the BMDS -Simulate Aegis (Hardware-in-the-Loop) Engage-On Space Tracking and Surveillance System (STSS) track -Conduct post-test assessment to support STSS providing precision cue to the Terminal High Altitude Area Defense through post-test playback of recorded data -Terminal High Altitude Area Defense (THAAD) intercept Flight Test (FTT-12): THAAD exo-intercept of a complex separating Medium-Range Ballistic Missile (MRBM) target with Associated Objects -Demonstrate STSS precision cue to Terminal High Altitude Area Defense (THAAD) for live intercept -Collect data and analyze STSS capability in the areas of Booster Acquisition, Plumes, Hard Body Detection, Complex Scenes, Post Boost Detection, and Multiple Objects in a Scene -Demonstrate STSS precision cue to other sensors in post-test playback of recorded data -Continue planning for integrated BMDS intercept tests based on track data passed from the Space Tracking and Surveillance System (STSS) Demonstration Satellites through Command and Control, Battle Management and Communications (C2BMC) to Aegis or other weapon systems			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	PROJECT MD12: *Space Tracking and Surveillance System (STSS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Plan and participate in available Targets of Opportunity (TOOs) -Plan and coordinate range activities to support the MDA Integrated Master Test Plan (IMTP) -Continue Space Tracking and Surveillance System (STSS) Demo Analysis Center participation in BMDS testing and collection of scientific data for refinement of BMDS-relevant models ***FY 2012 Plans:*** -Plan and execute Space Tracking and Surveillance System (STSS) participation in BMDS flight tests. Collection from a variety of test targets and conditions enable a statistically relevant database to be constructed to support future space system design. -Current STSS participation in the Integrated Master Test Plan (IMTP) is planned to include the following BMDS flight tests with STSS striving to meet reasonable expectations to view these as well as seeking opportunities to participate in other IMTP events: -Aegis Intercept Flight Test (FTM-19 E2): Aegis 4.0.1 intercept of an Medium-Range Ballistic Missile (MRBM) target with a Standard Missile-3 (SM-3) Block IB missile -Collect data and analyze Space Tracking and Surveillance System (STSS) capability in the areas of Booster Acquisition, Plumes, Hard Body Detection, Complex Scenes, Post Boost Detection, Emerging Threat Detection, Emerging Threat Tracking, and Multiple Objects in a Scene -Fuse STSS Object Sighting Message and other sensors data in the Enterprise Sensors Laboratory and pass to the X-Lab to provide a simulated Aegis Engage-On fused track -Demonstrate STSS precision cue of radar in post-test playback of recorded data -Aegis Intercept Flight Test (FTM-20 E2): Aegis 4.0.1 intercept of a Short-Range Ballistic Missile (SRBM) target with a SM-3 Block IB -Collect data and analyze STSS capability in the areas of Booster Acquisition, Plumes, Hard Body Detection, Complex Scenes, Post Boost Detection, Emerging Threat Detection, Emerging Threat Tracking, and Multiple Objects in a Scene -Demonstrate Aegis Engage-On fused STSS and other sensors system track from the Enterprise Sensors Laboratory and X-Lab -Aegis Intercept Flight Test (FTM-16 E3): Aegis 4.0.1 intercept using a Standard Missile-3 (SM-3) Block IB interceptor against a Short-Range Ballistic Missile (SRBM) target -Collect data to analyze real-time sharing of track messages to the BMDS -Simulate Aegis (Hardware-in-the-Loop) Engage-On Space Tracking and Surveillance System (STSS) track			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	PROJECT MD12: *Space Tracking and Surveillance System (STSS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Conduct post-test assessment to support STSS providing precision cue to the Terminal High Altitude Area Defense through post-test playback of recorded data -Terminal High Altitude Area Defense (THAAD) Intercept Flight Test (FTT-13): THAAD exo-intercept of a complex separating Medium-Range Ballistic Missile (MRBM) target with Associated Objects -Demonstrate STSS precision cue to THAAD for live intercept -Collect data and analyze STSS capability in the areas of Booster Acquisition, Plumes, Hard Body Detection, Complex Scenes, Post Boost Detection, and Multiple Objects in a Scene -Demonstrate STSS precision cue to other sensors in post-test playback of recorded data -Ground-based Midcourse Defense Intercept Flight Test (FTG-06b) : Ground-based Midcourse Defense intercept of Intermediate-Range Ballistic Missile(IRBM) target based on results from FTG-06a (Ground-based Midcourse Defense intercept of IRBM with Associated Objects, Medium Closing Velocity using Exoatmospheric Kill Vehicle (EKV) Capability Enhancement-II) Failure Investigation Team -Collect data to analyze Space Tracking and Surveillance System (STSS) cold-body target tracking capability -STSS Object Sighting Messages will be fused in the Enterprise Sensors Laboratory and passed to the X-Lab to produce BMDS system tracks -Aegis/Terminal High Altitude Area Defense (THAAD)/Patriot Multiple Engagement Flight Test (FTO-1): BMDS Operational Flight Test against Short-Range Ballistic Missile (SRBM) and Medium-Range Ballistic Missile (MRBM) targets -Collect data and analyze Space Tracking and Surveillance System (STSS) capability in the areas of Booster Acquisition, Plumes, Hard Body Detection, Post Boost Detection, Emerging Threat Detection, Emerging Threat Tracking, and Multiple Objects in a Scene. -Fuse STSS Object Sighting Message and other sensors data in the Enterprise Sensors Laboratory and pass data to X-Lab using post-test playback of recorded data -Engineering and analysis efforts are increased to continue and complete analyses of data collected in FY 2011; conduct mission planning, execution, and analysis of multiple FY 2012 events; and provide pre-mission planning for upcoming FY 2013 test events -Conduct planning for integrated BMDS intercept test based on track data passed from the Space Tracking and Surveillance System (STSS) Demonstration Satellites through Command and Control, Battle Management and Communications (C2BMC) to Aegis or other weapon systems -Plan and participate in available Targets of Opportunity (TOOs) -Plan and coordinate range activities to support the MDA Integrated Master Test Plan (IMTP)			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	PROJECT MD12: *Space Tracking and Surveillance System (STSS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continue Space Tracking and Surveillance System (STSS) Demo Analysis Center participation in BMDS testing and collection of scientific data for refinement of BMDS-relevant models			
Title: Near Field Infrared Experiment (NFIRE)	-	5.075	4.073
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for FY 2010 accomplishments is reported in prior year budget project WX12 ($10.608 million): -Continued On-Orbit Operations at the Missile Defense Space Experimentation Center (MDSEC) to support data collection and analysis on targets of opportunity -Conducted cooperative tests with other BMDS elements to include planning, execution and analyses; perform data collection on other targets of opportunity -Performed data collection events to include: 31 Maintenance and Calibrations, 17 Clutter Characterizations for the Precision Tracking Space System (PTSS) design, 12 Intelligence Collections, 8 Ground Static Firings, 11 BMDS Flight Tests in support of MDA and other users, and 6 Resident Space Objects -Continued laser communication experiments to assess viability of the technology -Performed 72 space-to-space links with the German Terra SAR-X satellite. Recorded over 9,000 seconds of bi-directional communication. -Performed 79 satellite-to-ground links; longest duration of bi-directional communication achieved at 177 seconds -Continued to support, as requested by Air Force Space Command (AFSPC) and other agencies, Space Situational Awareness -Assessed satellite health/utility for potential, future utilization -Deemed satellite health/utility sufficient to warrant continued out-year funding			
FY 2011 Plans: -Continue On-Orbit Operations at the Missile Defense Space Experimentation Center (MDSEC) to support data collection and analysis on targets of opportunity -Conduct cooperative tests with other BMDS elements to include planning, execution and analyses; perform data collection on other targets of opportunity -Continue laser communication experiments to assess viability of the technology			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continue to support, as requested by Air Force Space Command (AFSPC) and other agencies, Space Situational Awareness -Assess satellite health/utility for potential, future utilization ***FY 2012 Plans:*** -Continue On-Orbit Operations at the Missile Defense Space Experimentation Center (MDSEC) to support data collection and analysis on targets of opportunity -Conduct cooperative tests with other BMDS elements to include planning, execution and analyses; perform data collection on other targets of opportunity -Continue laser communication experiments to assess viability of the technology -Continue to support, as requested by Air Force Space Command (AFSPC) and other agencies, Space Situational Awareness -Assess satellite health/utility for potential, future utilization			
Title: Element Integration and Testing	-	5.911	3.076
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** Funding for FY 2010 accomplishments is reported in budget project WX12 ($16.155 million): -Completed initial checkout of satellite buses -Completed 104 of 127 functionality tests -Conducted acquisition/calibration of Demonstration Satellites with ground laser source -Completed acquisition sensor characterization on both satellites -Completed Space Vehicle 2`s track sensor line of sight calibration for its infrared bands -Began Space Vehicle 1`s track sensor line of sight calibration -Conducted acquisition to track sensor handover of Demonstration Satellites with ground laser source -Performed planning and execution of Missile Surrogate Testing (Aircraft and Resident Space Objects) -Demonstrated autonomous Resident Space Object tracking through earth limb and below-the-horizon -Demonstrated calibrated acquisition sensor Object Sighting Messages -Conducted participation of High Altitude Observatory (HALO) II to collect truth data that will verify satellites` sensor performance ***FY 2011 Plans:***			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Completed remaining 23 functionality tests -Completed Space Vehicle 1`s track sensor line of sight calibration -Conduct planning and execution of Missile Surrogate Testing (Resident Space Objects) -Conduct periodic acquisition/calibration of Demonstration Satellites with ground laser source ***FY 2012 Plans:*** -Conduct planning and execution of Missile Surrogate Testing (Resident Space Objects) -Conduct periodic acquisition/calibration of Demonstration Satellites with ground laser source			
Title: Common Threat	-	-	-
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** Funding for FY 2010 accomplishments is reported in prior year budget project WX12 ($1.114 million) and ends in FY 2010: -Maintained and updated the agency-wide Ballistic Missile Defense System threat to provide data for future Ballistic Missile Defense System design, verification, and assessment -Updated adversary missile capabilities and characterizations consistent with projected threat environment to support Ballistic Missile Defense System Phased Adaptive Approach -Produced all the threat data required to enable Ballistic Missile Defense System Ground Tests, Ballistic Missile Defense System Performance/Technical Assessment 2009 and 2010, and Fiscal Year 2010 war games and exercises as documented in the Ballistic Missile Defense System Integrated Master Test Plan -Provided trajectory and optical signature data for Space Tracking and Surveillance System (STSS) capability analysis ***FY 2011 Plans:*** N/A ***FY 2012 Plans:*** N/A			
Accomplishments/Planned Programs Subtotals	-	108.842	92.078

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603175C: *Ballistic Missile Defense Technology*	164.670	132.220	75.003		75.003	103.844	111.712	164.378	170.851	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	544.352	454.859	222.374		222.374	357.271	336.514	318.321	348.944	Continuing	Continuing
• 0603888C: *Ballistic Missile Defense Test and Targets*	737.863	1,113.425	1,071.039		1,071.039	898.680	790.906	787.113	878.215	Continuing	Continuing
• 0603892C: *BMD AEGIS*	1,418.992	1,467.278	960.267		960.267	957.992	1,001.510	970.607	1,033.710	Continuing	Continuing
• 0603895C: *BMD SYSTEM SPACE PROGRAM*	11.913	10.942	7.951		7.951	6.781	6.465	6.496	6.915	Continuing	Continuing
• 0603896C: *BMD C2BMC*	327.074	342.625	364.103		364.103	330.337	353.081	338.835	304.217	Continuing	Continuing
• 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	82.926	86.198	69.325		69.325	64.514	55.808	56.769	54.621	Continuing	Continuing
• 0604883C: *PRECISION TRACKING SPACE SYSTEM*	0.000	66.969	160.818		160.818	272.881	302.344	273.623	331.205	Continuing	Continuing

D. Acquisition Strategy

The Space Tracking and Surveillance System (STSS) program follows the Missile Defense Agency`s capability-based acquisition strategy that emphasizes testing, incremental development, and evolutionary acquisition. The STSS Demonstration Satellites effort utilizes a single prime contractor, Northrop Grumman Aerospace Systems (NGAS), formerly known as Northrop Grumman Space Technology (NGST), with the subcontractor Raytheon providing the sensor payload. The contract for the Space Tracking and Surveillance System Demonstration Satellites effort was awarded in third quarter FY 2002. This contract implements MDA`s capability-based acquisition strategy by using existing satellite hardware as a low risk opportunity, building upon the lessons learned from previous development efforts, and establishing a series of planned enhancements to bring added capability to the BMDS.

The acquisition strategy shifts from the launch phase to the operations and support of the Space Tracking and Surveillance System (STSS) Demonstration satellites. Options for Operations and Support are authorized under an Undefinitized Contract Action (UCA) within the original contract scheduled to be definitized by the end of the second quarter of FY 2011.

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	PROJECT MD12: *Space Tracking and Surveillance System (STSS)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Demonstration Satellites Capability Based R&D MD12	SS/CPAF	NGAS:Redondo Beach, CA	390.302	62.625	Oct 2010	50.803	Oct 2011	-		50.803	Continuing	Continuing	Continuing
Demonstration Satellites Systems Engineering MD12	FFRDC	Aerospace:Los Angeles AFB CA, Schriever AFB CO	40.697	3.167	Oct 2010	3.374	Oct 2011	-		3.374	Continuing	Continuing	Continuing
Demonstration Satellites STSS Support to Missile Defense Space Experimentation Center (MDSEC) MD12	MIPR	MDSEC:CO	-	2.835	Dec 2010	3.012	Dec 2011	-		3.012	0.000	5.847	5.847
Near Field Infrared Experiment (NFIRE) Prime Contract MD12	SS/CPAF	Orbital Sciences Corporation:AZ	4.614	3.968	Nov 2010	2.977	Nov 2011	-		2.977	Continuing	Continuing	Continuing
Near Field Infrared Experiment (NFIRE) Mission Planning/Data Reduction MD12	MIPR	MIT/LL:MA	1.996	1.107	Nov 2010	1.096	Nov 2011	-		1.096	0.000	4.199	4.119
		Subtotal	437.609	73.702		61.262		-		61.262			

Remarks

Funding for Capability Based R&D efforts is placed on contract for Northrop Grumman Aerospace Systems (NGAS) to assist in conducting mission planning and operations of the Demonstration Satellites. Target Value of Contract above for this contract reflects continuing pending negotiation of options for operations, testing, and support for the Space Tracking and Surveillance System (STSS) Demonstration Satellites.

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. Compliance of the Space Tracking and Surveillance System (STSS) to BMD System level requirements is monitored in a series of requirements and design reviews both at the system and element levels. Systems Engineering support is provided by Aerospace directly to the Demonstration Satellites effort.

Space Tracking and Surveillance System (STSS) Support to Missile Defense Space Experimentation Center (MDSEC) funds support cost associated with the satellite operations conducted at the MDSEC.

Near Field Infrared Experiment (NFIRE) funding will be forwarded to several contractors and government organization to include, but not limited to Orbital Sciences Corporation (formerly General Dynamics) and the Air Force Research Laboratory. Funding covers support for operations, testing, and analysis activities. The Target Value of Contract above for the NFIRE Prime Contract reflects continuing pending negotiation to extend operations, testing, and support for the NFIRE satellite.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	PROJECT MD12: *Space Tracking and Surveillance System (STSS)*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Demonstration Satellites Program Mission Support MD12	Various	SMC:CA	14.231	8.456	Oct 2010	6.136	Oct 2011	-		6.136	Continuing	Continuing	Continuing
Demonstration Satellites Other Government Agency (OGA) Civilian MD12	RO	SMC:CA	7.817	2.724	Oct 2010	2.784	Oct 2011	-		2.784	Continuing	Continuing	Continuing
Demonstration Satellites MDA Civilian MD12	Allot	MDA:AL	3.322	1.893	Oct 2010	1.606	Oct 2011	-		1.606	Continuing	Continuing	Continuing
Demonstration Satellites Contract Support Services (CSS) MD12	C/BPA	MDA:AL	7.931	2.937	Nov 2010	1.898	Nov 2011	-		1.898	Continuing	Continuing	Continuing
		Subtotal	33.301	16.010		12.424		-		12.424			

Remarks

Demonstration Satellites Support Costs include the following:

-MDA Civilian Salaries to support program office management
-Other Government Agency (OGA) Civilian personnel - Reimbursement of Air Force Personnel costs that directly support the Space Tracking and Surveillance System (STSS) program, for the Demonstration Satellites
-Contract Support Services (CSS) Costs - Provides administrative, engineering, logistics and financial management/cost estimating support services.
-For FY 2011 - Air Force tenant related costs: Base network support and Los Angeles Air Force Base shared costs for: Telephone Operations and maintenance, Multimedia Equipment Maintenance and Art services, local online Unit Manning Document application, base-wide maintenance, Microsoft Enterprise Licensing
-In FY2012, STSS will have completed transition to the Missile Defense Space Experimentation Center (MDSEC) and will fund for IT Network Support, telephone operations and maintenance, hardware and software purchases and maintenance through the Missile Defense Integration and Operations Center (MDIOC) service contracts
-Other program costs - the Program office is responsible for funding personnel travel, training, and supplies

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BMDS Level Testing STSS Demo Analysis Center (SDAC) - Government Verification & Validation (V&V) MD12	MIPR	Various:Various	1.139	1.002	Jan 2011	2.080	Jan 2012	-		2.080	0.000	4.221	4.221

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	PROJECT MD12: *Space Tracking and Surveillance System (STSS)*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BMDS Level Testing BMDS Integration-Test Engineering and Resources MD12	SS/CPAF	NGAS:Redondo Beach, CA	-	3.687	Nov 2010	7.914	Dec 2011	-		7.914	Continuing	Continuing	Continuing
BMDS Level Testing Systems Engineering MD12	FFRDC	Aerospace:Los Angeles AFB CA	7.612	8.530	Oct 2010	5.322	Oct 2011	-		5.322	Continuing	Continuing	Continuing
Element Integration and Testing Ground Support for Acquisition Line-of-Sight Calibration MD12	MIPR	AFRL:Kirtland AFB NM	0.976	0.915	Jan 2011	0.680	Jan 2012	-		0.680	0.000	2.571	2.571
Element Integration and Testing STSS Capability Based R&D-Test Support MD12	SS/CPAF	NGAS:Redondo Beach, CA	13.250	4.996	Oct 2010	2.396	Oct 2011	-		2.396	Continuing	Continuing	Continuing
		Subtotal	22.977	19.130		18.392		-		18.392			

Remarks

Efforts associated with testing are identified here as BMDS Level Testing or Element Integration and Testing. Cost began to be captured in the Test and Evaluation area starting with FY 2010 after the September 2009 launch of the Space Tracking and Surveillance System (STSS) Demonstration Satellites.

BMDS Level Testing: For STSS, FY 2011 represents the first full year of BMDS Level Testing participation and second year of operations. As STSS moves into FY 2012, engineering costs associated with BMDS Level Test increases to complete necessary analyses of data collected in FY 2011; conduct mission planning, test execution, and data analysis of FY 2012 test events; and prepare and conduct pre-mission planning as necessary for upcoming FY 2013 test events.

-Funding for the Space Tracking and Surveillance System (STSS) Demo Analysis Center maximizes return on investment to further the development of the future BMDS space layer. Costs covered include the purchase and maintenance of software tools for mission planning and simulation, data management and Overhead Persistent Infrared (OPIR) data analysis as well as test engineering and analysis support for BMDS testing and collection of scientific data for refinement of BMDS-relevant models.
-BMDS Integration-Test Engineering and Resources funding covers: test engineering to conduct pre-mission planning, execution, and post-mission analyses for testing events associated with Space Tracking and Surveillance System (STSS) participation in BMDS flight tests. Target Value of Contract above for this contract reflects continuing pending negotiation of options for operations, testing, and support for the Space Tracking and Surveillance System (STSS) Demonstration Satellites.
-Funding for Systems Engineering is allocated to Aerospace to provide independent test engineering to: assist in requirements definition, mission planning and tasking capability for BMDS missile flight tests and targets of opportunity; analyze mission results and prepare detailed reports; analyze data for use in anchoring and validating the modeling and simulation tool System Performance Evaluation Tool (SPET) and other MDA models; aid in issue resolution; support interface with design engineers to understand and develop operating and test procedures; and support interface with other government agencies.

Element Integration and Testing:

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
-Funding for Ground Support for Acquisition Line-of-Sight (LOS) Calibration goes to the Air Force Research Laboratory (AFRL) to provide laser ground source to perform line-of-sight calibration of acquisition sensors on board the two Space Tracking and Surveillance System (STSS) Demonstration Satellites. -The Space Tracking and Surveillance System (STSS) Capability Based R&D-Test Support funding covers costs associated with the STSS Prime Contractor providing satellite functionality testing and calibration support. Target Value of Contract above for this contract reflects continuing pending negotiation of options for operations, testing, and support for the Space Tracking and Surveillance System (STSS) Demonstration Satellites.												

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	493.887	108.842		92.078		-		92.078			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	**PROJECT** MD12: *Space Tracking and Surveillance System (STSS)*

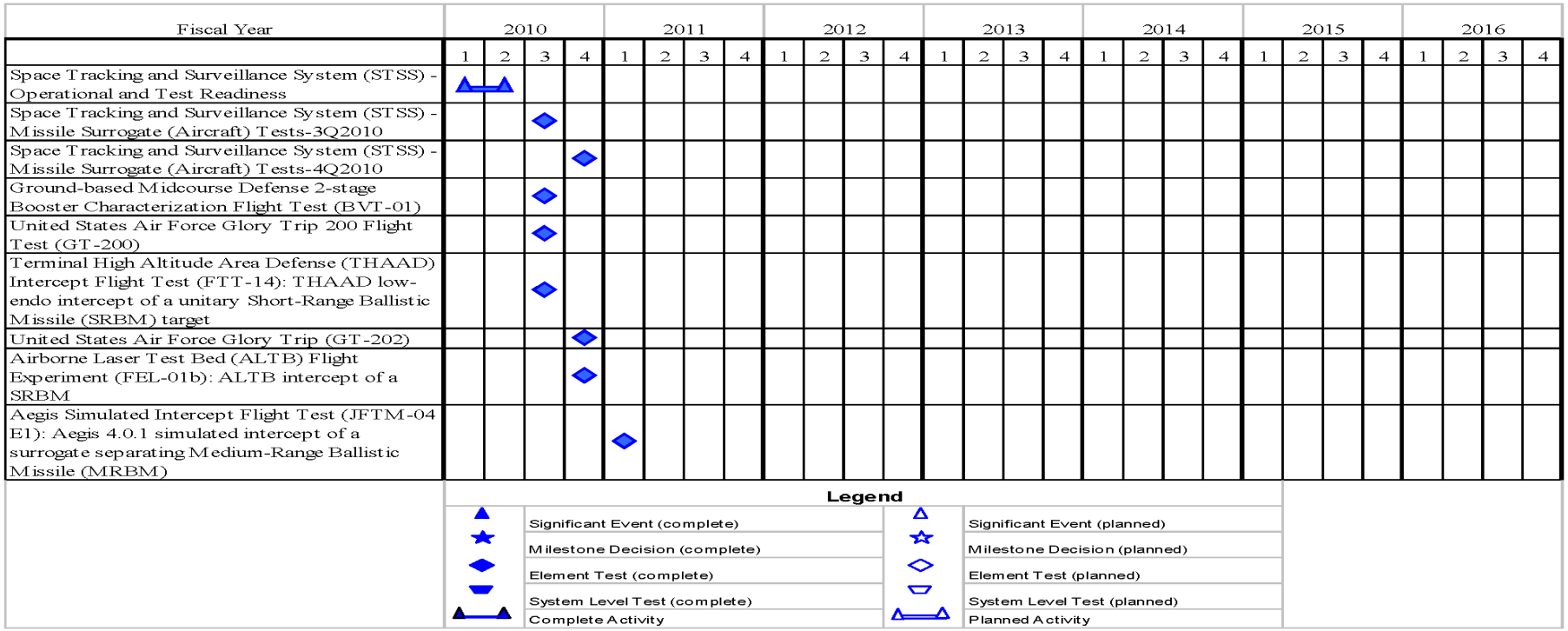

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	**PROJECT** MD12: *Space Tracking and Surveillance System (STSS)*

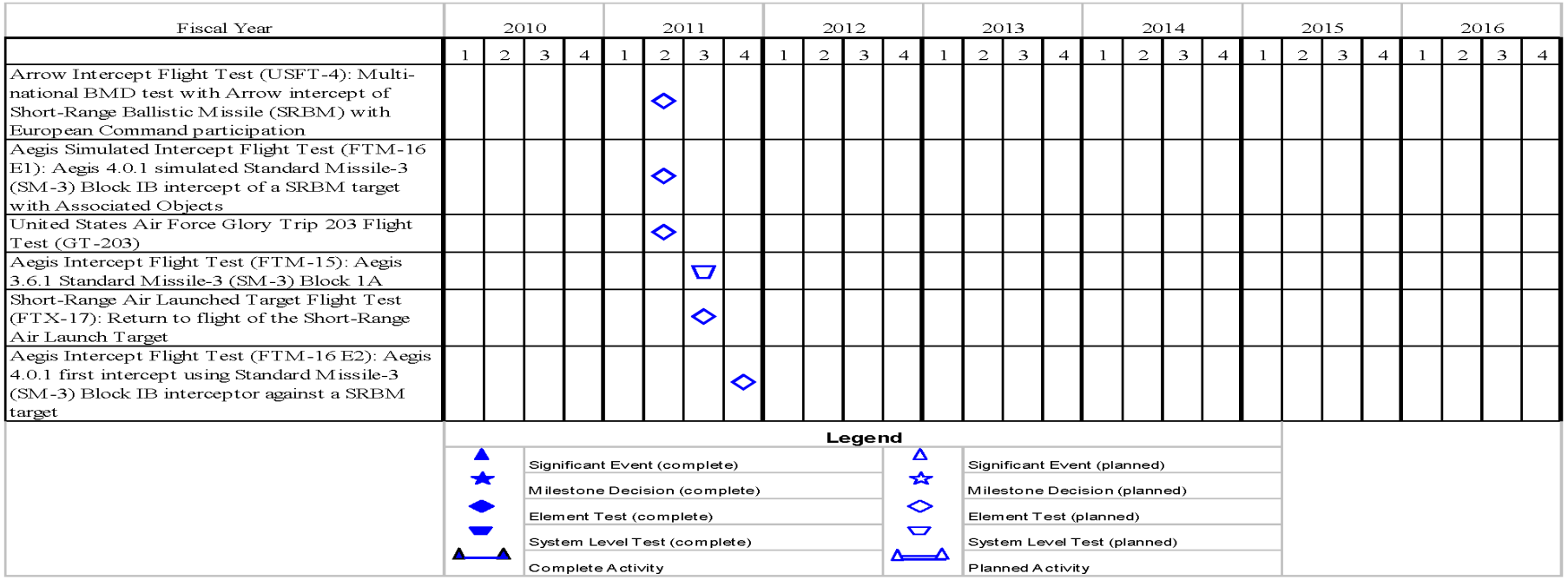

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
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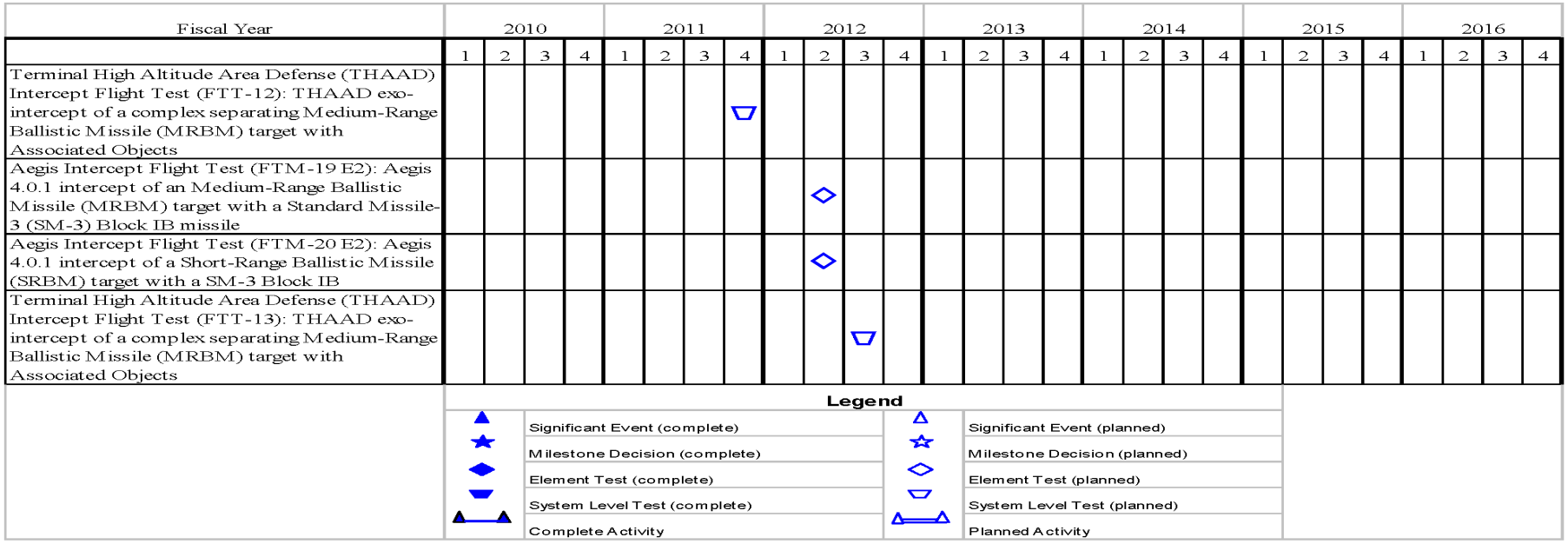

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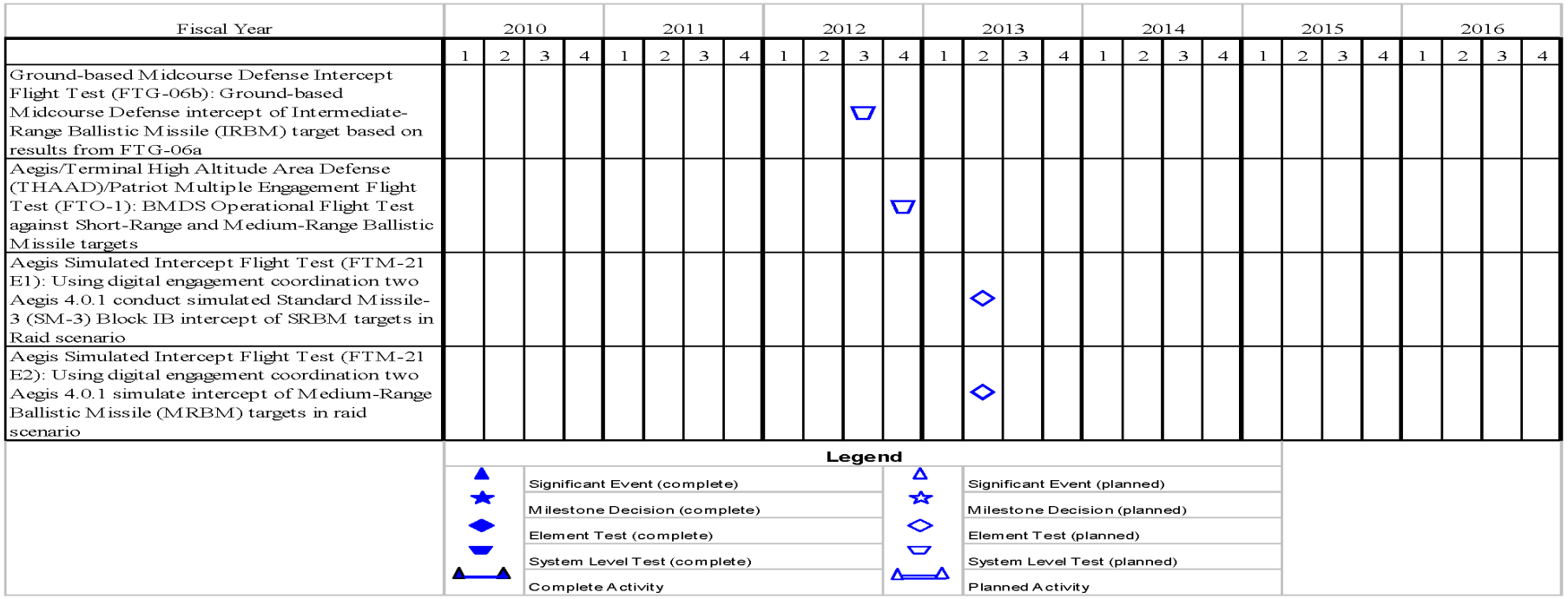

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Fiscal Year	2010				2011				2012				2013				2014				2015				2016			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Aegis Intercept Flight Test (FTM-22 E2): Aegis 4.0.1 Standard Missile-3 (SM-3) Block IB intercept of a Short-Range Ballistic Missile (SRBM) target														◇														
Aegis Intercept Flight Test (FTM-21 E3): Aegis 4.0.1 intercept of Short-Range Ballistic Missile (SRBM) target using Standard Missile-3 (SM-3) Block IB salvo															◇													
Aegis Intercept Flight Test (FTM-23): Aegis 4.0.1 SM-3 Block IB with integrated fire control intercept an Intermediate-Range Ballistic Missile (IRBM) target															▽													
Aegis Intercept Flight Test (FTM-19 E1): Aegis 4.0.1 intercept of MRBM target with Standard Missile-3 (SM-3) Block IB missile															▽													
Terminal High Altitude Area Defense (THAAD) Intercept Flight Test (FTT-11a): THAAD exo-intercept of a complex separating Medium-Range Ballistic Missile (MRBM) target with Associated Objects															▽													

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

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		**DATE:** February 2011
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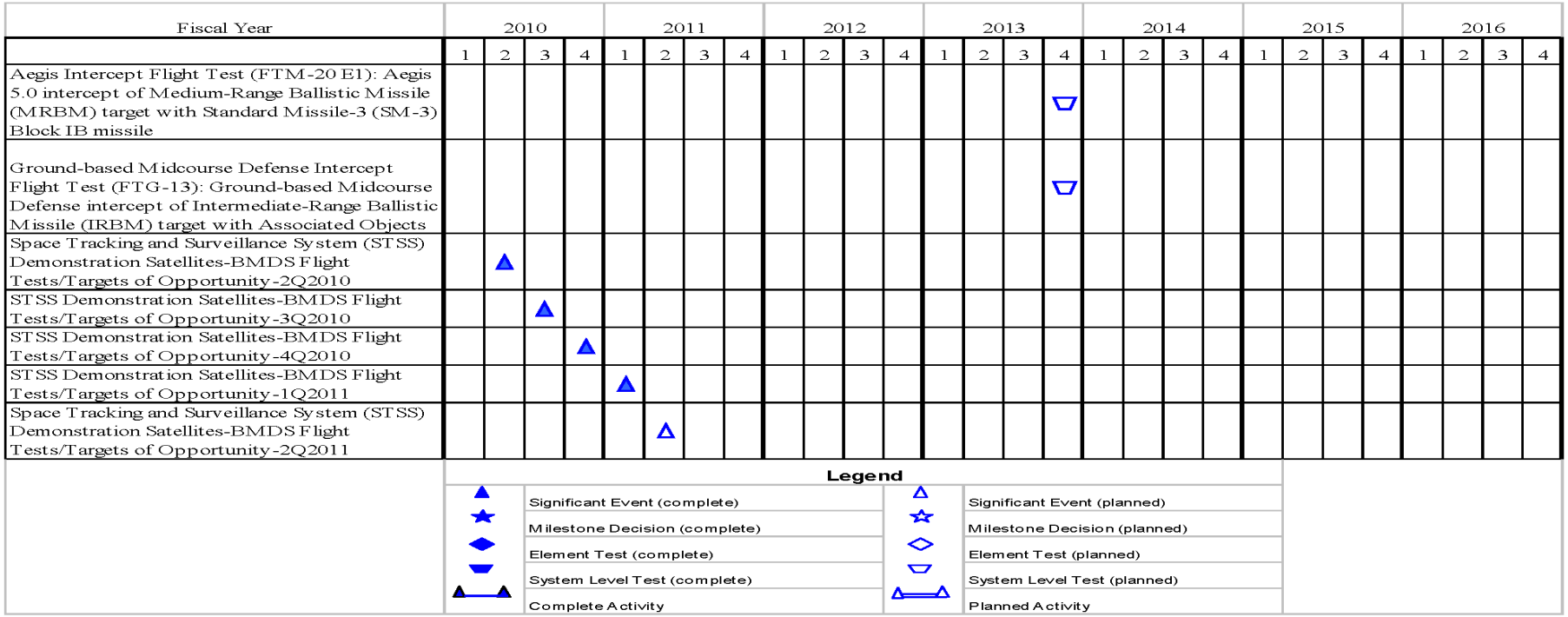

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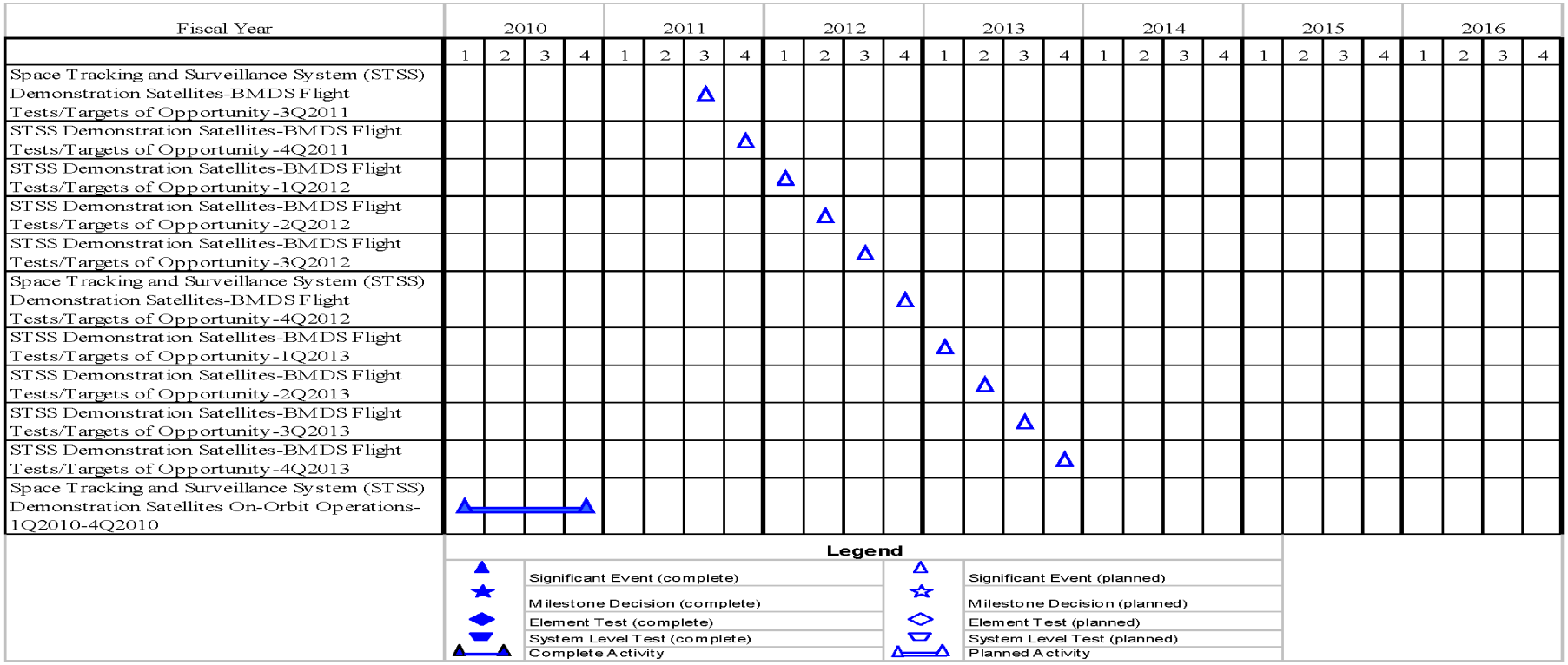

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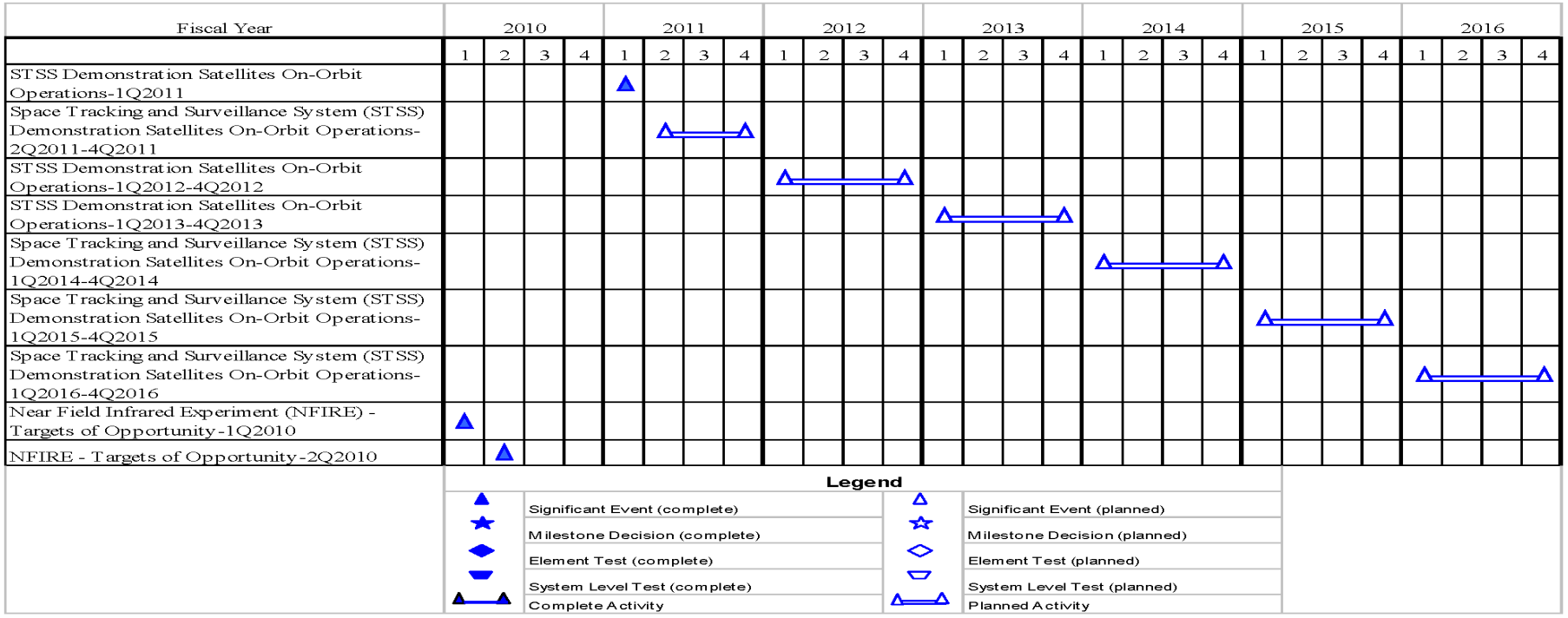

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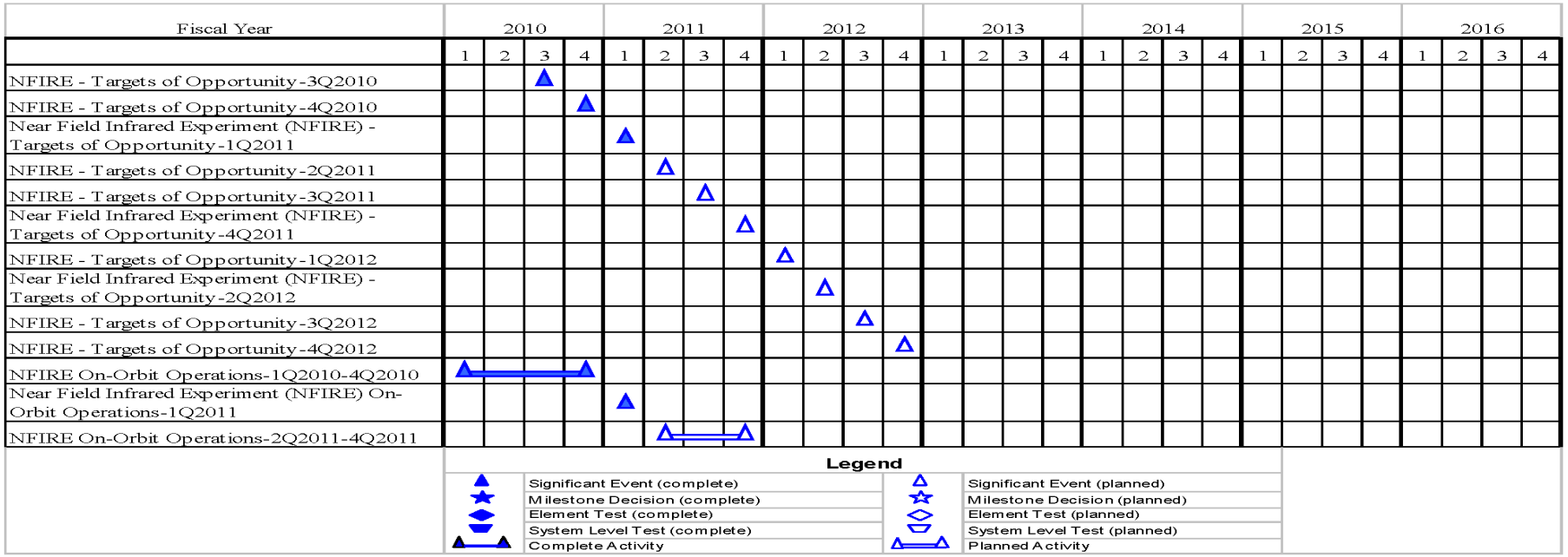

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
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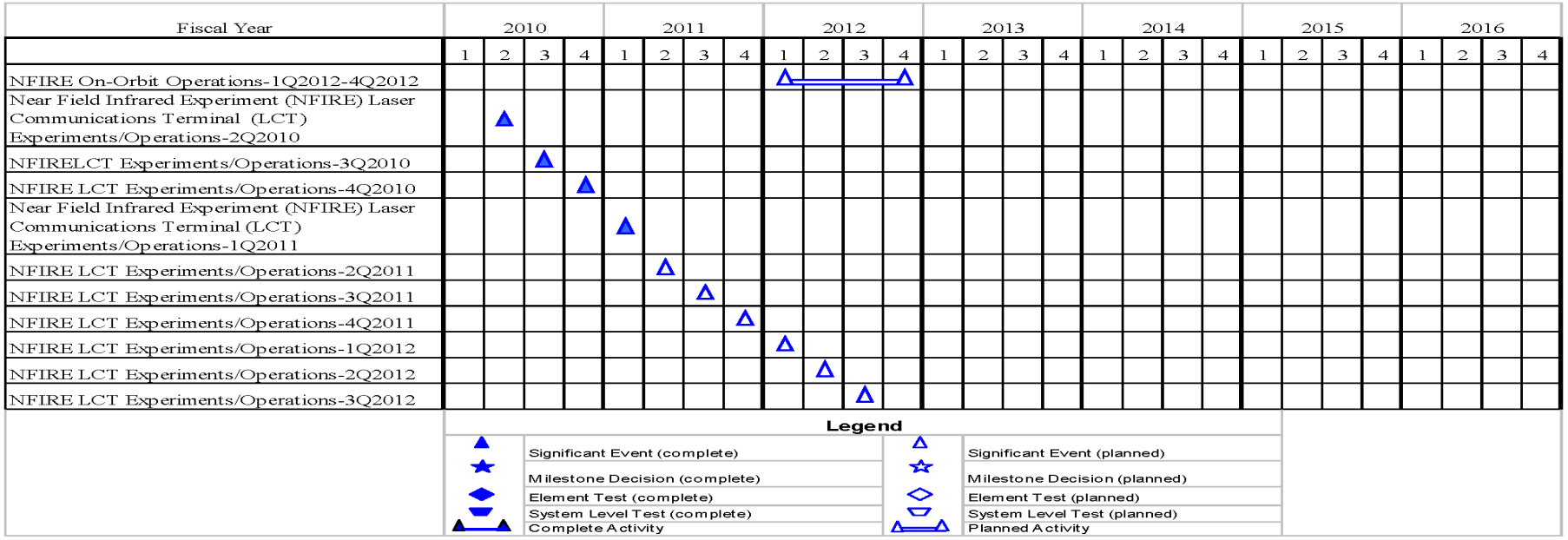

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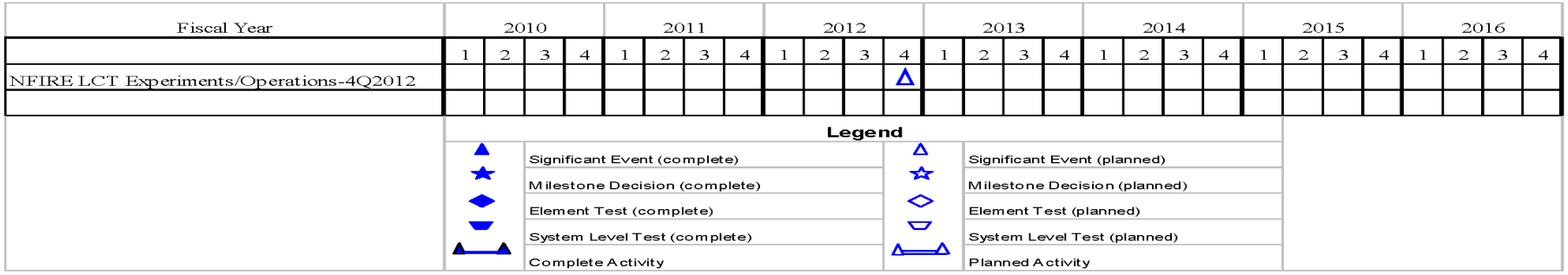

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
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Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Space Tracking and Surveillance System (STSS) - Operational and Test Readiness	1	2010	2	2010
Space Tracking and Surveillance System (STSS) - Missile Surrogate (Aircraft) Tests-3Q2010	3	2010	3	2010
Space Tracking and Surveillance System (STSS) - Missile Surrogate (Aircraft) Tests-4Q2010	4	2010	4	2010
Ground-based Midcourse Defense 2-stage Booster Characterization Flight Test (BVT-01)	3	2010	3	2010
United States Air Force Glory Trip 200 Flight Test (GT-200)	3	2010	3	2010
Terminal High Altitude Area Defense (THAAD) Intercept Flight Test (FTT-14): THAAD low-endo intercept of a unitary Short-Range Ballistic Missile (SRBM) target	3	2010	3	2010
United States Air Force Glory Trip (GT-202)	4	2010	4	2010
Airborne Laser Test Bed (ALTB) Flight Experiment (FEL-01b): ALTB intercept of a SRBM	4	2010	4	2010
Aegis Simulated Intercept Flight Test (JFTM-04 E1): Aegis 4.0.1 simulated intercept of a surrogate separating Medium-Range Ballistic Missile (MRBM)	1	2011	1	2011
Arrow Intercept Flight Test (USFT-4): Multi-national BMD test with Arrow intercept of Short-Range Ballistic Missile (SRBM) with European Command participation	2	2011	2	2011
Aegis Simulated Intercept Flight Test (FTM-16 E1): Aegis 4.0.1 simulated Standard Missile-3 (SM-3) Block IB intercept of a SRBM target with Associated Objects	2	2011	2	2011
United States Air Force Glory Trip 203 Flight Test (GT-203)	2	2011	2	2011
Aegis Intercept Flight Test (FTM-15): Aegis 3.6.1 Standard Missile-3 (SM-3) Block 1A	3	2011	3	2011
Short-Range Air Launched Target Flight Test (FTX-17): Return to flight of the Short-Range Air Launch Target	3	2011	3	2011
Aegis Intercept Flight Test (FTM-16 E2): Aegis 4.0.1 first intercept using Standard Missile-3 (SM-3) Block IB interceptor against a SRBM target	4	2011	4	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Terminal High Altitude Area Defense (THAAD) Intercept Flight Test (FTT-12): THAAD exo-intercept of a complex separating Medium-Range Ballistic Missile (MRBM) target with Associated Objects	4	2011	4	2011
Aegis Intercept Flight Test (FTM-19 E2): Aegis 4.0.1 intercept of an Medium-Range Ballistic Missile (MRBM) target with a Standard Missile-3 (SM-3) Block IB missile	2	2012	2	2012
Aegis Intercept Flight Test (FTM-20 E2): Aegis 4.0.1 intercept of a Short-Range Ballistic Missile (SRBM) target with a SM-3 Block IB	2	2012	2	2012
Aegis Intercept Flight Test (FTM-16 E3): Aegis 4.0.1 intercept using Standard Missile-3 (SM-3) Block 1B interceptor against a SRBM target	3	2012	3	2012
Terminal High Altitude Area Defense (THAAD) Intercept Flight Test (FTT-13): THAAD exo-intercept of a complex separating Medium-Range Ballistic Missile (MRBM) target with Associated Objects	3	2012	3	2012
Ground-based Midcourse Defense Intercept Flight Test (FTG-06b): Ground-based Midcourse Defense intercept of Intermediate-Range Ballistic Missile (IRBM) target based on results from FTG-06a	3	2012	3	2012
Aegis/Terminal High Altitude Area Defense (THAAD)/Patriot Multiple Engagement Flight Test (FTO-1): BMDS Operational Flight Test against Short-Range and Medium-Range Ballistic Missile targets	4	2012	4	2012
Aegis Simulated Intercept Flight Test (FTM-21 E1): Using digital engagement coordination two Aegis 4.0.1 conduct simulated Standard Missile-3 (SM-3) Block IB intercept of SRBM targets in Raid scenario	2	2013	2	2013
Aegis Simulated Intercept Flight Test (FTM-21 E2): Using digital engagement coordination two Aegis 4.0.1 simulate intercept of Medium-Range Ballistic Missile (MRBM) targets in raid scenario	2	2013	2	2013
Aegis Intercept Flight Test (FTM-22 E2): Aegis 4.0.1 Standard Missile-3 (SM-3) Block IB intercept of a Short-Range Ballistic Missile (SRBM) target	2	2013	2	2013
Aegis Intercept Flight Test (FTM-21 E3): Aegis 4.0.1 intercept of Short-Range Ballistic Missile (SRBM) target using Standard Missile-3 (SM-3) Block IB salvo	3	2013	3	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
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	Start		End	
Events	Quarter	Year	Quarter	Year
Aegis Intercept Flight Test (FTM-23): Aegis 4.0.1 SM-3 Block IB with integrated fire control intercept an Intermediate-Range Ballistic Missile (IRBM) target	3	2013	3	2013
Aegis Intercept Flight Test (FTM-19 E1): Aegis 4.0.1 intercept of MRBM target with Standard Missile-3 (SM-3) Block IB missile	3	2013	3	2013
Terminal High Altitude Area Defense (THAAD) Intercept Flight Test (FTT-11a): THAAD exo-intercept of a complex separating Medium-Range Ballistic Missile (MRBM) target with Associated Objects	3	2013	3	2013
Aegis Intercept Flight Test (FTM-20 E1): Aegis 5.0 intercept of Medium-Range Ballistic Missile (MRBM) target with Standard Missile-3 (SM-3) Block IB missile	4	2013	4	2013
Ground-based Midcourse Defense Intercept Flight Test (FTG-13): Ground-based Midcourse Defense intercept of Intermediate-Range Ballistic Missile (IRBM) target with Associated Objects	4	2013	4	2013
Terminal High Altitude Area Defense (THAAD) Intercept Flight Test (FTT-15): THAAD endo-intercept of a complex separating Medium-Range Ballistic (MRBM) target with Associated Objects	3	2014	3	2014
Ground-based Midcourse Defense Intercept Flight Test (FTG-08): Intercept of Intermediate-Range Ballistic Missile target with Associated Objects using 2-stage booster with first generation avionics	4	2014	4	2014
Space Tracking and Surveillance System (STSS) Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-2Q2010	2	2010	2	2010
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-3Q2010	3	2010	3	2010
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-4Q2010	4	2010	4	2010
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-1Q2011	1	2011	1	2011
Space Tracking and Surveillance System (STSS) Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-2Q2011	2	2011	2	2011
Space Tracking and Surveillance System (STSS) Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-3Q2011	3	2011	3	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	PROJECT MD12: *Space Tracking and Surveillance System (STSS)*

	Start		End	
Events	Quarter	Year	Quarter	Year
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-4Q2011	4	2011	4	2011
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-1Q2012	1	2012	1	2012
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-2Q2012	2	2012	2	2012
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-3Q2012	3	2012	3	2012
Space Tracking and Surveillance System (STSS) Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-4Q2012	4	2012	4	2012
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-1Q2013	1	2013	1	2013
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-2Q2013	2	2013	2	2013
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-3Q2013	3	2013	3	2013
STSS Demonstration Satellites-BMDS Flight Tests/Targets of Opportunity-4Q2013	4	2013	4	2013
Space Tracking and Surveillance System (STSS) Demonstration Satellites On-Orbit Operations-1Q2010-4Q2010	1	2010	4	2010
STSS Demonstration Satellites On-Orbit Operations-1Q2011	1	2011	1	2011
Space Tracking and Surveillance System (STSS) Demonstration Satellites On-Orbit Operations-2Q2011-4Q2011	2	2011	4	2011
STSS Demonstration Satellites On-Orbit Operations-1Q2012-4Q2012	1	2012	4	2012
STSS Demonstration Satellites On-Orbit Operations-1Q2013-4Q2013	1	2013	4	2013
Space Tracking and Surveillance System (STSS) Demonstration Satellites On-Orbit Operations-1Q2014-4Q2014	1	2014	4	2014
Space Tracking and Surveillance System (STSS) Demonstration Satellites On-Orbit Operations-1Q2015-4Q2015	1	2015	4	2015
Space Tracking and Surveillance System (STSS) Demonstration Satellites On-Orbit Operations-1Q2016-4Q2016	1	2016	4	2016
Near Field Infrared Experiment (NFIRE) - Targets of Opportunity-1Q2010	1	2010	1	2010
NFIRE - Targets of Opportunity-2Q2010	2	2010	2	2010
NFIRE - Targets of Opportunity-3Q2010	3	2010	3	2010

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	PROJECT MD12: *Space Tracking and Surveillance System (STSS)*

	Start		End	
Events	Quarter	Year	Quarter	Year
NFIRE - Targets of Opportunity-4Q2010	4	2010	4	2010
Near Field Infrared Experiment (NFIRE) - Targets of Opportunity-1Q2011	1	2011	1	2011
NFIRE - Targets of Opportunity-2Q2011	2	2011	2	2011
NFIRE - Targets of Opportunity-3Q2011	3	2011	3	2011
Near Field Infrared Experiment (NFIRE) - Targets of Opportunity-4Q2011	4	2011	4	2011
NFIRE - Targets of Opportunity-1Q2012	1	2012	1	2012
Near Field Infrared Experiment (NFIRE) - Targets of Opportunity-2Q2012	2	2012	2	2012
NFIRE - Targets of Opportunity-3Q2012	3	2012	3	2012
NFIRE - Targets of Opportunity-4Q2012	4	2012	4	2012
NFIRE On-Orbit Operations-1Q2010-4Q2010	1	2010	4	2010
Near Field Infrared Experiment (NFIRE) On-Orbit Operations-1Q2011	1	2011	1	2011
NFIRE On-Orbit Operations-2Q2011-4Q2011	2	2011	4	2011
NFIRE On-Orbit Operations-1Q2012-4Q2012	1	2012	4	2012
Near Field Infrared Experiment (NFIRE) Laser Communications Terminal (LCT) Experiments/Operations-2Q2010	2	2010	2	2010
NFIRELCT Experiments/Operations-3Q2010	3	2010	3	2010
NFIRE LCT Experiments/Operations-4Q2010	4	2010	4	2010
Near Field Infrared Experiment (NFIRE) Laser Communications Terminal (LCT) Experiments/Operations-1Q2011	1	2011	1	2011
NFIRE LCT Experiments/Operations-2Q2011	2	2011	2	2011
NFIRE LCT Experiments/Operations-3Q2011	3	2011	3	2011
NFIRE LCT Experiments/Operations-4Q2011	4	2011	4	2011
NFIRE LCT Experiments/Operations-1Q2012	1	2012	1	2012
NFIRE LCT Experiments/Operations-2Q2012	2	2012	2	2012
NFIRE LCT Experiments/Operations-3Q2012	3	2012	3	2012

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	**PROJECT** MD12: *Space Tracking and Surveillance System (STSS)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
NFIRE LCT Experiments/Operations-4Q2012	4	2012	4	2012

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	PROJECT MD40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	3.836	4.275	-	4.275	2.528	2.425	1.659	1.757	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). Includes Government Civilians, Advisory and Assistance Services, and Federally Funded Research and Development Contracts (FFRDC) providing integrity and oversight of the BMDS as well as supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2 after FY 2011), such as physical and technical security, legal services, travel and agency training, office and equipment leases, rents and utilities, data and unified communications support, supplies and maintenance, and similar operating expenses. Also includes legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.
In keeping with congressional intent, PWS is allocated among the PEs on a pro-rata basis and therefore fluctuates by year based on the total MDA budget and the individual PE`s budget amount.

The budget project did not exist in program wide support in FY2010

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	-	3.836	4.275
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: The budget project did not exist in Program Wide Support in FY2010			
FY 2011 Plans: See paragraph A, Mission Description and Budget Item Justification			
FY 2012 Plans: See paragraph A, Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	3.836	4.275

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	**PROJECT** MD40: *Program-Wide Support*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	11.913	10.942	7.951	-	7.951	6.781	6.465	6.496	6.915	Continuing	Continuing
WX33: *MD Space Exp Center (MDSEC)*	9.640	-	-	-	-	-	-	-	-	0.000	9.640
MD33: *MD Space Exp Center (MDSEC)*	-	10.535	7.951	-	7.951	6.781	6.465	6.496	6.915	Continuing	Continuing
ZX40: *Program-Wide Support*	2.273	-	-	-	-	-	-	-	-	0.000	2.273
MD40: *Program-Wide Support*	-	0.407	-	-	-	-	-	-	-	0.000	0.407

Note

In accordance with the Missile Defense Agency revised budget structure, funding for the Missile Defense Space Experimentation Center (MDSEC) in FY 2010 remains in Program Element (PE) 0603895C in Project WX33. Beginning FY 2011, funding for MDSEC is captured in Project MD33 in PE 0603895C.

A. Mission Description and Budget Item Justification

The Missile Defense Space Experimentation Center (MDSEC) provides MDA elements with a node for BMDS space sensor layer operations and integration to support the ballistic missile defense mission. The infrastructure provided supports the operation and control of MDA satellites such as the Space Tracking and Surveillance System (STSS) and the Near Field Infrared Experiment (NFIRE). MDSEC annual operating expenses provide security, configuration management, engineering, test, experiment, data, and logistics support for MDA users within the Missile Defense Space Experimentation Center (MDSEC). The MDA user community includes STSS; NFIRE; BMDS Overhead Persistent Infrared (OPIR) Architecture (BOA); Command and Control, Battle Management and Communications (C2BMC); Enhanced C2BMC (EC2BMC); MDA C2BMC X-Lab; MDA Enterprise Sensors Laboratory (ESL); and the Precision Tracking Space System (PTSS).

The MDSEC continues to develop and refine on-orbit operations for the Space Tracking and Surveillance System (STSS) Demonstration Satellites and the Near Field Infrared Experiment (NFIRE). In addition to the satellite operations, the MDSEC hosts a collaborative experimentation environment via the MDSEC Interchange System (MIS) and the MDSEC Test Integration Lab (TIL) for BMDS elements that rely on, experiment with, integrate with, or seek to improve the BMDS capability by utilizing space-based, systems-derived data. The MIS provides a common, secure data architecture for MDA, DoD and National Security Space sensor data and a satellite sensor tasking request tool interface with MDA users. The TIL provides a common location for MDA user collaboration with access to space sensor layer data via the MIS during tests and experiments. The MDSEC supports efforts to 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. The Missile Defense Space Experimentation Center (MDSEC) Sensor Registration Health & Status Monitoring (SRHSM) Experiment addresses efforts such as Sensor Registration (reporting of sensor errors/biases) and Correlation (ensuring the information from multiple sensors seeing a threat relates to the same object). Other Missile Defense Space Experimentation Center (MDSEC) experiments explore areas from, 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), to Communications (providing the worldwide connection of sensors and shooters to command authorities). These MDSEC experiments 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 ballistic threats.

Modeling and Simulation (M&S) activities at the MDSEC support all phases of STSS maturation, including: development and necessary revision of Mission Planning and Analysis Tools, Data Collection Events, System Functional and Performance Tests, flight test missions, ground tests, wargames, exercises, and performance assessments (PAs).

Goals for the Missile Defense Space Experimentation Center (MDSEC):

- Develop and refine ground operational concepts for MDA space systems, sensors, data, services, and networks
- Conduct satellite operations for MDA space sensor satellites (Space Tracking and Surveillance System (STSS), Near Field Infrared Experiment (NFIRE))
- Develop and install the Missile Defense Space Experimentation Center (MDSEC) Interchange System (MIS) to provide robust access to MDA space data and MDA user net-centric sensor tasking request interface
- Develop a security environment to support data integration, test, demonstrations, and experiments across multiple security levels
- Provide a Test Integration Lab (TIL) to support testing, demonstrations, experiments, integration and algorithm development
- Demonstrate connectivity and integration of space sensor layer data for the BMDS community and external users
- Conduct experiments to test algorithm validity for Missile Defense Space Systems
- Provide infrastructure to demonstrate integration of missile defense space capabilities with other defense and national security systems

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	12.492	10.942	11.182	-	11.182
Current President's Budget	11.913	10.942	7.951	-	7.951
Total Adjustments	-0.579	-	-3.231	-	-3.231
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-0.348	-			
• SBIR/STTR Transfer	-0.212	-			
• Other Adjustment Detail	-0.019	-	-3.231	-	-3.231

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603895C: *BMD SYSTEM SPACE PROGRAM*

Change Summary Explanation

FY12 decrease of $3.231 million is the result of internal program adjustments and $1.5M to operational efficiencies that will consolidate the workload of satellite operators and mission planners/trainers.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	PROJECT WX33: *MD Space Exp Center (MDSEC)*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
WX33: *MD Space Exp Center (MDSEC)*	9.640	-	-	-	-	-	-	-	-	0.000	9.640
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project WX33 has been transferred to Project MD33.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Missile Defense Space Experimentation Center (MDSEC)	9.640	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: See Project MD33 for FY 2010 Accomplishments.			
Accomplishments/Planned Programs Subtotals	9.640	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	PROJECT MD33: *MD Space Exp Center (MDSEC)*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD33: *MD Space Exp Center (MDSEC)*	-	10.535	7.951	-	7.951	6.781	6.465	6.496	6.915	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, funding for Program Element 0603895C, Project MD33 was moved from Project WX33 in FY 2011.

A. Mission Description and Budget Item Justification

The Missile Defense Space Experimentation Center (MDSEC) allows MDA elements to conduct satellite on-orbit operations and to conduct flight test, demonstrations, experiments, data integration, algorithm development and test, and concept exploration. The annual operating expenses for the MDSEC provide overhead functions to include security, configuration management, engineering, test, demonstration, experiment, data analysis and integration, and logistics support for satellite operations and MDA users to include Space Tracking and Surveillance System (STSS); Near Field Infrared Experiment (NFIRE); BMDS Overhead Persistent Infrared (OPIR) Architecture (BOA); Command and Control, Battle Management and Communications (C2BMC); Enhanced C2BMC (EC2BMC); MDA C2BMC X-Lab; MDA Enterprise Sensors Laboratory (ESL); and the Precision Tracking Space System (PTSS). The MDSEC Space Layer activities include integration and experimentation across a broad range of BMDS activities to include target signatures, sensor registration, health and status, sensor performance, sensor and weapons netting (with C2BMC and C2BMC X-Lab), modeling and simulation, OPIR Data Fusion and advanced features, discrimination, typing, clutter mitigation, and target kill and impact point assessments.

The MDSEC provides infrastructure to support satellite operations for the Space Tracking and Surveillance System (STSS) and the Near Field Infrared Experiment (NFIRE) as the single location for MDA elements to conduct satellite on-orbit operations. The MDSEC also provides a multi-level security environment for sensor data management and integration across space and terrestrial sensor data activities. MDSEC experiments leverage DoD (Defense Support Program, Space Based Infrared System) and National Security Space capabilities. MDSEC activities support analysis, demonstration and integration of space sensor capabilities into developmental and operational MDA elements. MDSEC enables the development of advanced technology and algorithms including fusion of multiple sensor types (radar, overhead persistent infrared, electro-optical and other merging sensor technologies). MDSEC supports mission integration of space-based missile tracking (boost and midcourse phases), sensor and weapons cueing via C2BMC, features and discrimination, kill and impact point assessments into C2BMC, Aegis Launch on STSS, Aegis Engage on Space Tracking and Surveillance System (STSS), Terminal High Altitude Area Defense (THAAD), Ground-based Midcourse Defense (GMD), and other (non-MDA) mission areas to include space situational awareness, technical intelligence, and battle space characterization.

The Missile Defense Space Experimentation Center (MDSEC) facilitates the integration and demonstration of missile defense space capabilities with other defense and national security systems. The MDSEC infrastructure provides MDA users capabilities for supporting flight tests, conducting concept development, demonstrations, experiments, and developing and evaluating algorithms within a multi-security level environment.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	PROJECT MD33: *MD Space Exp Center (MDSEC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Missile Defense Space Experimentation Center (MDSEC)	-	10.535	7.951
Articles:	0	0	0

Description: See Description Below

FY 2010 Accomplishments:
Funding for FY 2010 accomplishments is reported in prior year budget project WX33 ($9.640 million)

-Provided infrastructure support for the Space Tracking and Surveillance System (STSS) and Near Field Infrared Experiment (NFIRE) satellite on-orbit operations
-Continued maturation of STSS and NFIRE satellite on-orbit operations
-Participated in cooperative tests with other BMDS elements to include planning, execution and analyses; performed data collection on other targets of opportunity
-Used test data, modeling and simulation, and integrated BMDS ground tests to demonstrate space-based infrared sensor contributions to BMDS performance
-Provided core infrastructure support and conducted joint experiments with the Enterprise Sensors Laboratory (ESL); Command and Control, Battle Management and Communications (C2BMC) X-Lab; and the BMDS Operational Overhead Persistent Infrared (OPIR) Architecture (BOA)
-Set up and deployed the MDSEC Interchange System (MIS) to provide for the exchange of archived and real-time data and data products from BMDS programs within a net-centric environment
-Provided reports and data to include: Space Tracking and Surveillance System (STSS) Sensor Performance Reports, Clutter Characterization for the Precision Tracking Space System (PTSS), Plume Phenomenology from the Near Field Infrared Experiment (NFIRE) and STSS for MDA users, and Space Situational Awareness with NFIRE for Air Force Space Command

FY 2011 Plans:
-Continue to provide infrastructure support for Space Tracking and Surveillance System (STSS) and Near Field Infrared Experiment (NFIRE) satellite on-orbit operations
-Continue maturation of the STSS and NFIRE satellite on-orbit operations
-Participate in cooperative tests with other BMDS elements to include planning, execution and analyses; perform data collection on other targets of opportunity
-Use test data, modeling and simulation, and integrated BMDS ground tests to demonstrate space-based infrared sensor contributions to BMDS performance
-Provide core infrastructure support and conduct joint experiments with the Enterprise Sensors Laboratory (ESL); Command and Control, Battle Management and Communications (C2BMC) X-Lab; and the BMDS Operational Overhead Persistent Infrared (OPIR) Architecture (BOA)

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	PROJECT MD33: *MD Space Exp Center (MDSEC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continue to support laser communications experiments to assess viability of the technology -Continue to support, as requested by Air Force Space Command and other agencies, Space Situational Awareness, Technical Intelligence, Battlespace Awareness, and Missile Warning ***FY 2012 Plans:*** -Implement measures to consolidate and increase efficiency in Space Tracking and Surveillance System (STSS) and Near Field Infrared Experiment (NFIRE) satellite on-orbit operations -Continue to provide infrastructure support for STSS and NFIRE satellite on-orbit operations -Continue maturation of the STSS and NFIRE satellite on-orbit operations -Participate in cooperative tests with other BMDS elements to include planning, execution and analyses; perform data collection on other targets of opportunity -Use test data, modeling and simulation, and integrated BMDS ground tests to demonstrate space-based infrared sensor contributions to BMDS performance -An example of this is the Space Tracking and Surveillance System (STSS) Object Sighting Messages fused in the Enterprise Sensors Laboratory to produce system tracks. System tracks are used to provide precision cues to BMDS radars and enables interceptor quality fire control. -Provide core infrastructure support and conduct joint experiments with the Enterprise Sensors Laboratory (ESL); Command and Control, Battle Management and Communications (C2BMC) X-Lab; and the BMDS Operational Overhead Persistent Infrared (OPIR) Architecture (BOA) -Continue to support laser communications experiments to assess viability of the technology -Continue to support, as requested by Air Force Space Command, Space Situational Awareness, Technical Intelligence, Battlespace Awareness, and Missile Warning			
Accomplishments/Planned Programs Subtotals	-	10.535	7.951

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603175C: *Ballistic Missile Defense Technology*	164.670	132.220	75.003		75.003	103.844	111.712	164.378	170.851	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	544.352	454.859	222.374		222.374	357.271	336.514	318.321	348.944	Continuing	Continuing
	737.863	1,113.425	1,071.039		1,071.039	898.680	790.906	787.113	878.215	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	PROJECT MD33: *MD Space Exp Center (MDSEC)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603888C: *Ballistic Missile Defense Test and Targets*											
• 0603892C: *BMD AEGIS*	1,418.992	1,467.278	960.267		960.267	957.992	1,001.510	970.607	1,033.710	Continuing	Continuing
• 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	148.506	112.678	96.353		96.353	53.577	47.592	32.289	34.308	Continuing	Continuing
• 0603896C: *BMD C2BMC*	327.074	342.625	364.103		364.103	330.337	353.081	338.835	304.217	Continuing	Continuing
• 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	82.926	86.198	69.325		69.325	64.514	55.808	56.769	54.621	Continuing	Continuing
• 0604883C: *PRECISION TRACKING SPACE SYSTEM*	0.000	66.969	160.818		160.818	272.881	302.344	273.623	331.205	Continuing	Continuing

D. Acquisition Strategy

Functions and operations of the Missile Defense Space Experimentation Center (MDSEC) are currently financed through a 10-year MDSEC Joint National Integration Center (JNIC) Research and Development Contract (JRDC) Services Contract. Beginning FY 2005, the annual operating expenses have been consolidated into one centralized delivery order on the contract which includes core capabilities (labor and hardware) that are being performed in the Missile Defense Space Experimentation Center (MDSEC) and supporting MDSEC participants.

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	PROJECT MD33: *MD Space Exp Center (MDSEC)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Missile Defense Space Experimentation Center (MDSEC) MDSEC Support (JRDC Services Contract) MD33	MIPR	MDIOC:CO	13.951	7.133	Dec 2010	4.344	Dec 2011	-		4.344	Continuing	Continuing	Continuing
Missile Defense Space Experimentation Center (MDSEC) MDSEC/Enterprise Sensors Laboratory (ESL) Experiments MD33	MIPR	Various:Various	4.187	1.000	Dec 2010	1.032	Dec 2011	-		1.032	Continuing	Continuing	Continuing
		Subtotal	18.138	8.133		5.376		-		5.376			

Remarks

As on-orbit satellite operations for the Space Tracking and Surveillance System (STSS) and the Near Field Infrared Experiment (NFIRE) mature, the Missile Defense Space Experimentation Center (MDSEC) will consolidate to achieve operational efficiencies.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Missile Defense Space Experimentation Center (MDSEC) Contract Support Services (CSS) MD33	C/BPA	MDIOC, MDA:CO/AL	1.276	0.646	Dec 2010	0.762	Dec 2011	-		0.762	Continuing	Continuing	Continuing
Missile Defense Space Experimentation Center (MDSEC) MDA Civilian MD33	Allot	MDA:AL	-	0.732	Oct 2010	0.714	Oct 2011	-		0.714	Continuing	Continuing	Continuing
		Subtotal	1.276	1.378		1.476		-		1.476			

Remarks

Missile Defense Space Experimentation Center (MDSEC) Support Costs include the following

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	PROJECT MD33: *MD Space Exp Center (MDSEC)*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
-Contract Support Services (CSS) Costs - funds Joint National Integration Center (JNIC) Technical Advisory and Assistance Services (JTAAS) and systems engineering support. BMD Systems Engineering provides System Description Documents and System Specifications 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. -MDA Civilian Salaries - funding in prior years for MDA civilian salaries was captured under Program Element 0603893C Space Surveillance System (STSS), Project WX12 ($0.865 million).												

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Missile Defense Space Experimentation Center (MDSEC) Space Dynamics Laboratory (SDL) MD33	FFRDC	SDL:UT	1.244	1.024	Nov 2010	1.099	Nov 2011	-		1.099	Continuing	Continuing	Continuing
		Subtotal	1.244	1.024		1.099		-		1.099			

Remarks

Space Dynamics Laboratory (SDL) is funded via University Affiliated Research Center (UARC) contract. SDL provides operations and engineering support for mission planning, tasking, and data collection activities at the Missile Defense Space Experimentation Center.

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	20.658	10.535		7.951		-		7.951			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	**PROJECT** MD33: *MD Space Exp Center (MDSEC)*

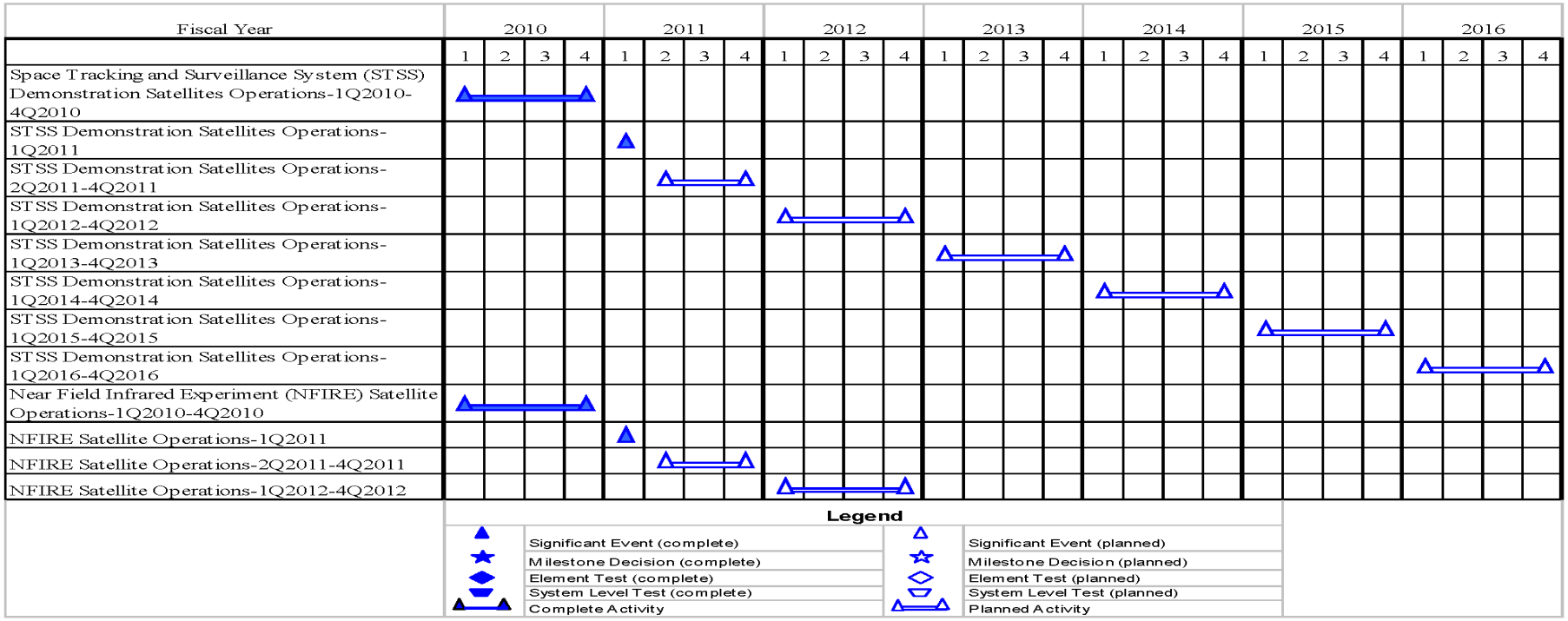

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	**PROJECT** MD33: *MD Space Exp Center (MDSEC)*

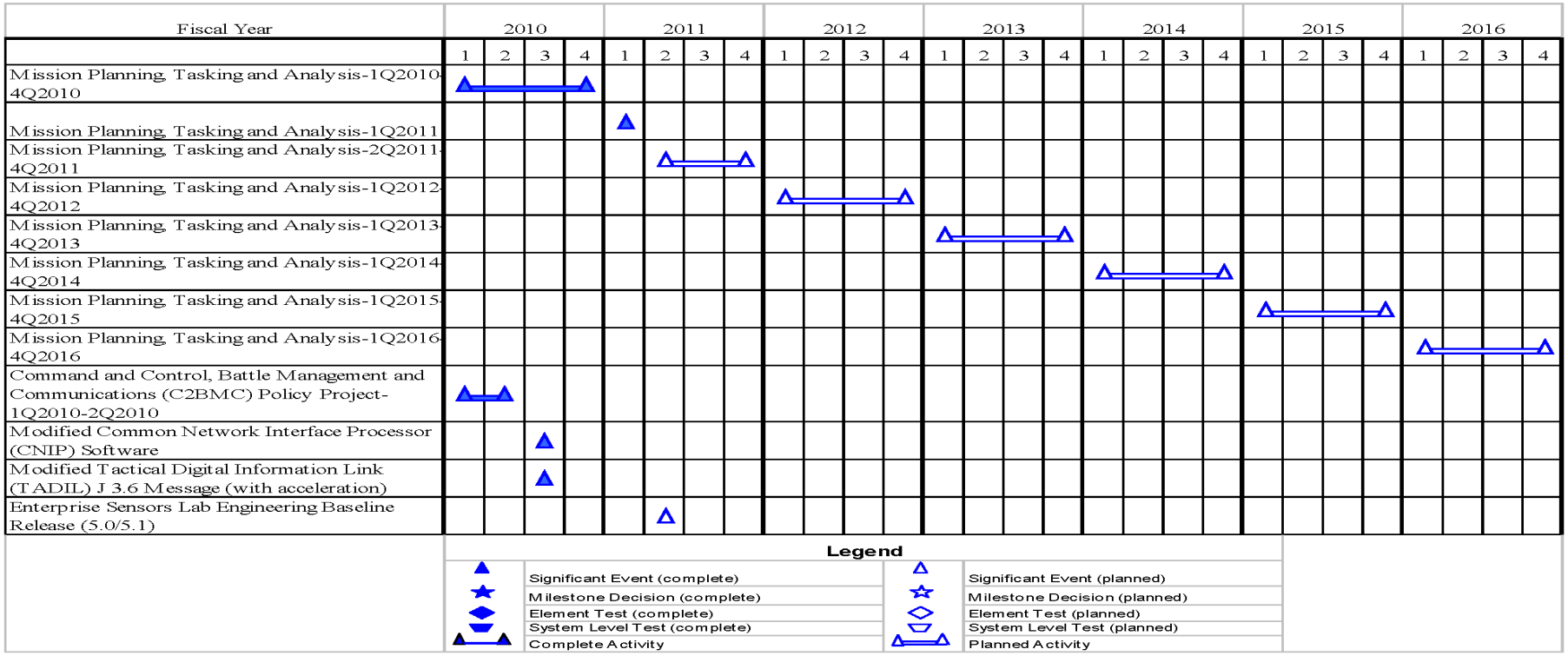

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	**PROJECT** MD33: *MD Space Exp Center (MDSEC)*

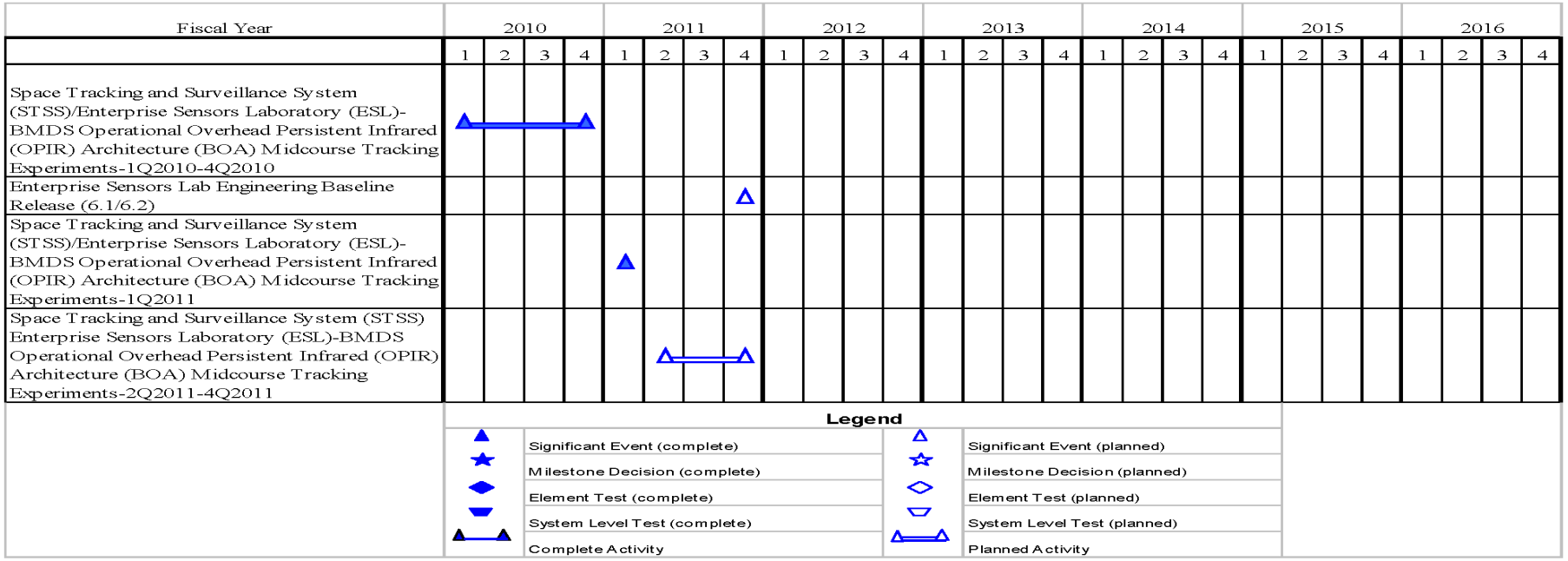

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	**PROJECT** MD33: *MD Space Exp Center (MDSEC)*

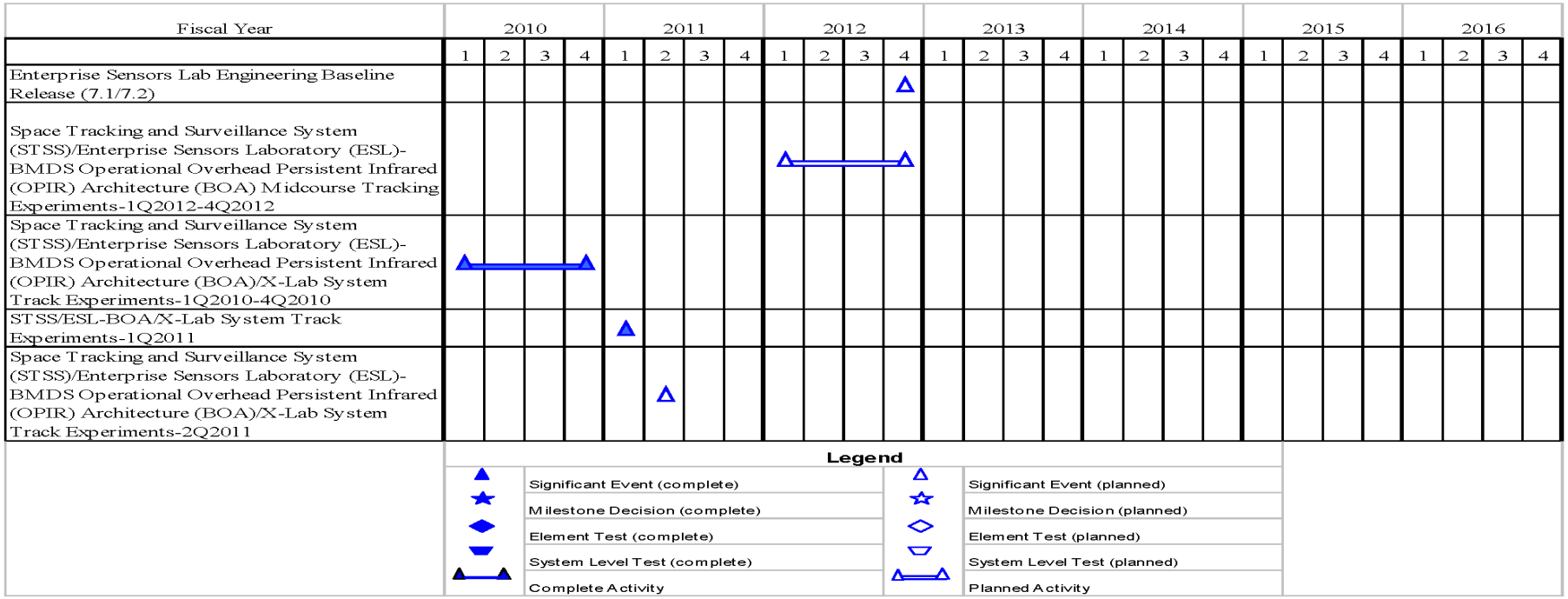

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	**PROJECT** MD33: *MD Space Exp Center (MDSEC)*

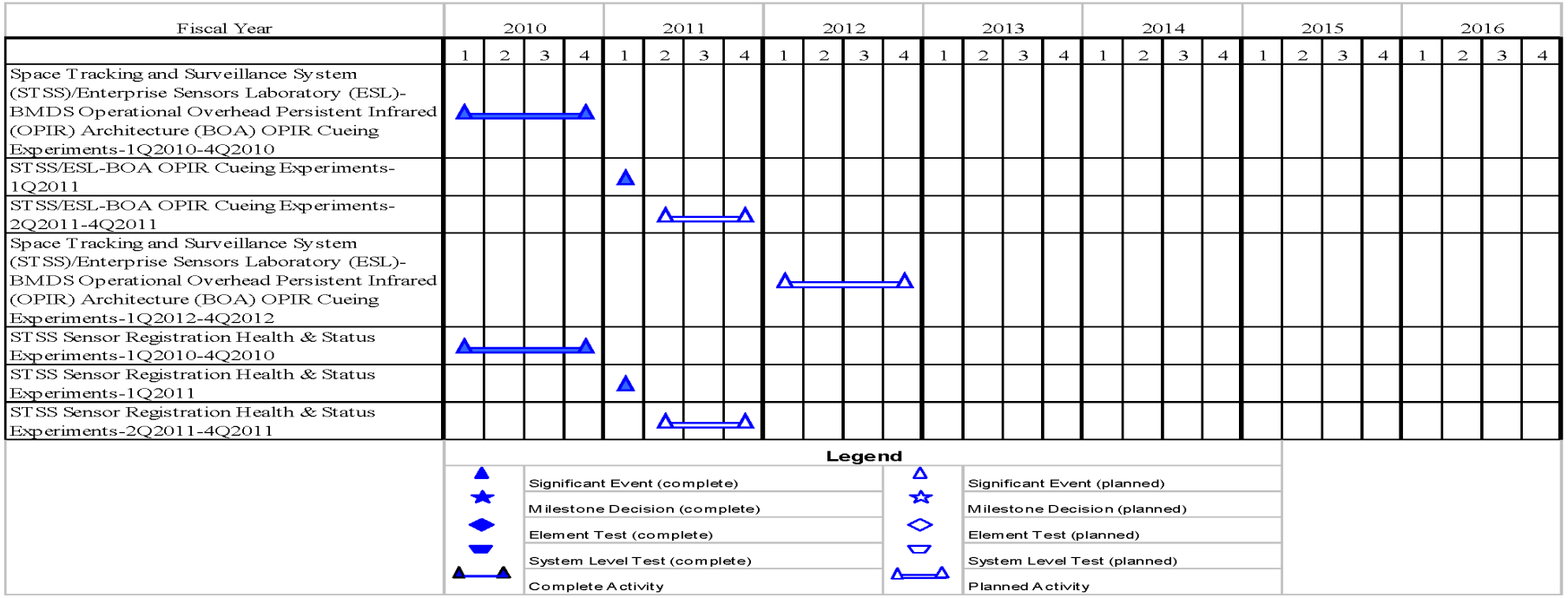

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	**PROJECT** MD33: *MD Space Exp Center (MDSEC)*

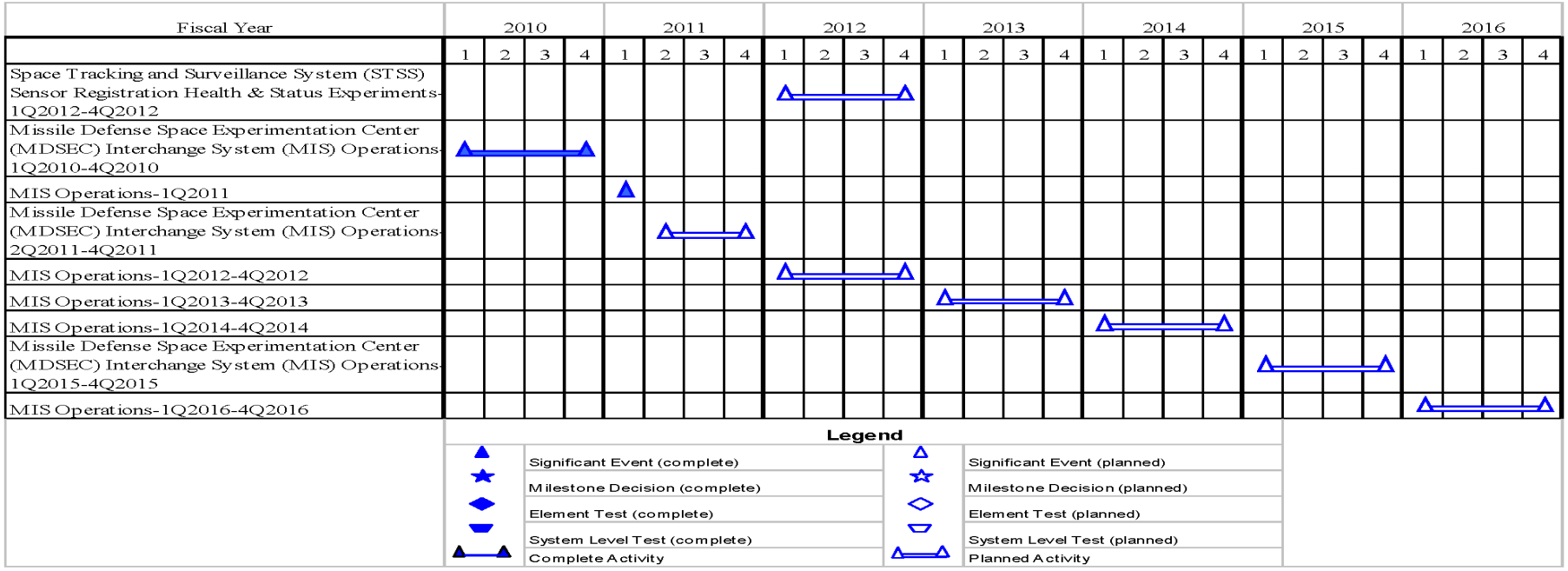

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	**PROJECT** MD33: *MD Space Exp Center (MDSEC)*

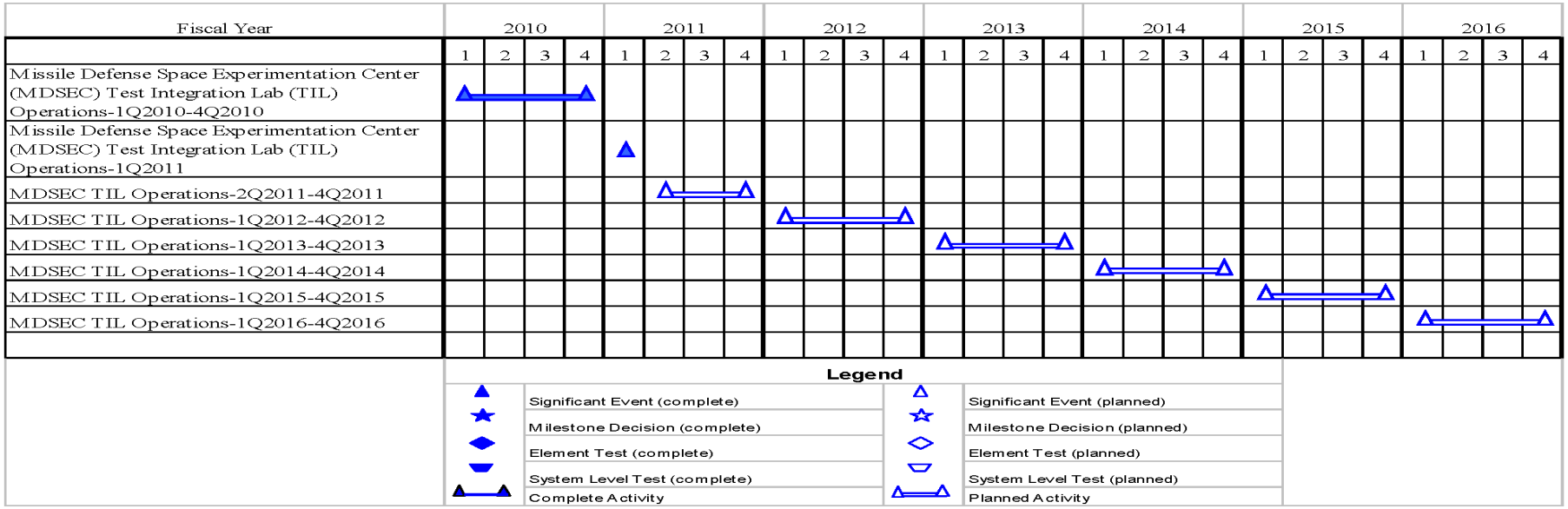

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	**PROJECT** MD33: *MD Space Exp Center (MDSEC)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Space Tracking and Surveillance System (STSS) Demonstration Satellites Operations-1Q2010-4Q2010	1	2010	4	2010
STSS Demonstration Satellites Operations-1Q2011	1	2011	1	2011
STSS Demonstration Satellites Operations-2Q2011-4Q2011	2	2011	4	2011
STSS Demonstration Satellites Operations-1Q2012-4Q2012	1	2012	4	2012
STSS Demonstration Satellites Operations-1Q2013-4Q2013	1	2013	4	2013
STSS Demonstration Satellites Operations-1Q2014-4Q2014	1	2014	4	2014
STSS Demonstration Satellites Operations-1Q2015-4Q2015	1	2015	4	2015
STSS Demonstration Satellites Operations-1Q2016-4Q2016	1	2016	4	2016
Near Field Infrared Experiment (NFIRE) Satellite Operations-1Q2010-4Q2010	1	2010	4	2010
NFIRE Satellite Operations-1Q2011	1	2011	1	2011
NFIRE Satellite Operations-2Q2011-4Q2011	2	2011	4	2011
NFIRE Satellite Operations-1Q2012-4Q2012	1	2012	4	2012
Mission Planning, Tasking and Analysis-1Q2010-4Q2010	1	2010	4	2010
Mission Planning, Tasking and Analysis-1Q2011	1	2011	1	2011
Mission Planning, Tasking and Analysis-2Q2011-4Q2011	2	2011	4	2011
Mission Planning, Tasking and Analysis-1Q2012-4Q2012	1	2012	4	2012
Mission Planning, Tasking and Analysis-1Q2013-4Q2013	1	2013	4	2013
Mission Planning, Tasking and Analysis-1Q2014-4Q2014	1	2014	4	2014
Mission Planning, Tasking and Analysis-1Q2015-4Q2015	1	2015	4	2015
Mission Planning, Tasking and Analysis-1Q2016-4Q2016	1	2016	4	2016
Command and Control, Battle Management and Communications (C2BMC) Policy Project-1Q2010-2Q2010	1	2010	2	2010

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	**PROJECT** MD33: *MD Space Exp Center (MDSEC)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Modified Common Network Interface Processor (CNIP) Software	3	2010	3	2010
Modified Tactical Digital Information Link (TADIL) J 3.6 Message (with acceleration)	3	2010	3	2010
Sensor Netting Experiments (MDSEC)-3QFY2010	3	2010	3	2010
Sensor Netting Experiments (MDSEC)-4QFY2010	4	2010	4	2010
Sensor Tracking Experiments (MDSEC)	4	2010	4	2010
Target Signature Experiments-1QFY2010-3QFY2010	1	2010	3	2010
Target Signature Experiments-4QFY2010	4	2010	4	2010
Enterprise Sensors Lab Engineering Baseline Release (5.0/5.1)	2	2011	2	2011
Space Tracking and Surveillance System (STSS)/Enterprise Sensors Laboratory (ESL)-BMDS Operational Overhead Persistent Infrared (OPIR) Architecture (BOA) Midcourse Tracking Experiments-1Q2010-4Q2010	1	2010	4	2010
Enterprise Sensors Lab Engineering Baseline Release (6.1/6.2)	4	2011	4	2011
Space Tracking and Surveillance System (STSS)/Enterprise Sensors Laboratory (ESL)-BMDS Operational Overhead Persistent Infrared (OPIR) Architecture (BOA) Midcourse Tracking Experiments-1Q2011	1	2011	1	2011
Space Tracking and Surveillance System (STSS) Enterprise Sensors Laboratory (ESL)-BMDS Operational Overhead Persistent Infrared (OPIR) Architecture (BOA) Midcourse Tracking Experiments-2Q2011-4Q2011	2	2011	4	2011
Enterprise Sensors Lab Engineering Baseline Release (7.1/7.2)	4	2012	4	2012
Space Tracking and Surveillance System (STSS)/Enterprise Sensors Laboratory (ESL)-BMDS Operational Overhead Persistent Infrared (OPIR) Architecture (BOA) Midcourse Tracking Experiments-1Q2012-4Q2012	1	2012	4	2012
Space Tracking and Surveillance System (STSS)/Enterprise Sensors Laboratory (ESL)-BMDS Operational Overhead Persistent Infrared (OPIR) Architecture (BOA)/X-Lab System Track Experiments-1Q2010-4Q2010	1	2010	4	2010
STSS/ESL-BOA/X-Lab System Track Experiments-1Q2011	1	2011	1	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	**PROJECT** MD33: *MD Space Exp Center (MDSEC)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Space Tracking and Surveillance System (STSS)/Enterprise Sensors Laboratory (ESL)-BMDS Operational Overhead Persistent Infrared (OPIR) Architecture (BOA)/X-Lab System Track Experiments-2Q2011	2	2011	2	2011
Space Tracking and Surveillance System (STSS)/Enterprise Sensors Laboratory (ESL)-BMDS Operational Overhead Persistent Infrared (OPIR) Architecture (BOA) OPIR Cueing Experiments-1Q2010-4Q2010	1	2010	4	2010
STSS/ESL-BOA OPIR Cueing Experiments-1Q2011	1	2011	1	2011
STSS/ESL-BOA OPIR Cueing Experiments-2Q2011-4Q2011	2	2011	4	2011
Space Tracking and Surveillance System (STSS)/Enterprise Sensors Laboratory (ESL)-BMDS Operational Overhead Persistent Infrared (OPIR) Architecture (BOA) OPIR Cueing Experiments-1Q2012-4Q2012	1	2012	4	2012
STSS Sensor Registration Health & Status Experiments-1Q2010-4Q2010	1	2010	4	2010
STSS Sensor Registration Health & Status Experiments-1Q2011	1	2011	1	2011
STSS Sensor Registration Health & Status Experiments-2Q2011-4Q2011	2	2011	4	2011
Space Tracking and Surveillance System (STSS) Sensor Registration Health & Status Experiments-1Q2012-4Q2012	1	2012	4	2012
Missile Defense Space Experimentation Center (MDSEC) Interchange System (MIS) Operations-1Q2010-4Q2010	1	2010	4	2010
MIS Operations-1Q2011	1	2011	1	2011
Missile Defense Space Experimentation Center (MDSEC) Interchange System (MIS) Operations-2Q2011-4Q2011	2	2011	4	2011
MIS Operations-1Q2012-4Q2012	1	2012	4	2012
MIS Operations-1Q2013-4Q2013	1	2013	4	2013
MIS Operations-1Q2014-4Q2014	1	2014	4	2014
Missile Defense Space Experimentation Center (MDSEC) Interchange System (MIS) Operations-1Q2015-4Q2015	1	2015	4	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	**PROJECT** MD33: *MD Space Exp Center (MDSEC)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MIS Operations-1Q2016-4Q2016	1	2016	4	2016
Missile Defense Space Experimentation Center (MDSEC) Test Integration Lab (TIL) Operations-1Q2010-4Q2010	1	2010	4	2010
Missile Defense Space Experimentation Center (MDSEC) Test Integration Lab (TIL) Operations-1Q2011	1	2011	1	2011
MDSEC TIL Operations-2Q2011-4Q2011	2	2011	4	2011
MDSEC TIL Operations-1Q2012-4Q2012	1	2012	4	2012
MDSEC TIL Operations-1Q2013-4Q2013	1	2013	4	2013
MDSEC TIL Operations-1Q2014-4Q2014	1	2014	4	2014
MDSEC TIL Operations-1Q2015-4Q2015	1	2015	4	2015
MDSEC TIL Operations-1Q2016-4Q2016	1	2016	4	2016

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	PROJECT ZX40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
ZX40: *Program-Wide Support*	2.273	-	-	-	-	-	-	-	-	0.000	2.273
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project ZX40 has been transferred project MD40.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	2.273	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	2.273	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	PROJECT MD40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	0.407	-	-	-	-	-	-	-	0.000	0.407
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). Includes Government Civilians, Advisory and Assistance Services, and Federally Funded Research and Development Contracts (FFRDC) providing integrity and oversight of the BMDS as well as supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2 after FY 2011), such as physical and technical security, legal services, travel and agency training, office and equipment leases, rents and utilities, data and unified communications support, supplies and maintenance, and similar operating expenses. Also includes legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.
In keeping with congressional intent, PWS is allocated among the PEs on a pro-rata basis and therefore fluctuates by year based on the total MDA budget and the individual PE`s budget amount.

Funding for the FY2010 accomplishments is reported in prior year budget project ZX40 ($11,988).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	-	0.407	-
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for the FY 2010 accomplishments is reported in prior year budge project ZX40 ($11,988).			
FY 2011 Plans: See paragraph A, Mission Description and Budget Item Justification			
FY 2012 Plans: See paragraph A, Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	0.407	-

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603895C: *BMD SYSTEM SPACE PROGRAM*	**PROJECT** MD40: *Program-Wide Support*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0603896C: *BMD C2BMC*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	327.074	342.625	364.103	-	364.103	330.337	353.081	338.835	304.217	Continuing	Continuing
BX01: *Ballistic Missile Defense C2BMC Block 2.0*	25.738	-	-	-	-	-	-	-	-	0.000	25.738
CX01: *Ballistic Missile Defense C2BMC Block 3.0*	247.801	-	-	-	-	-	-	-	-	0.000	247.801
WX01: *BC Capability Development*	0.729	-	-	-	-	-	-	-	-	0.000	0.729
XX01: *Command & Control, Battle Management, Communications (C2BMC) Sustainment*	42.561	-	-	-	-	-	-	-	-	0.000	42.561
MD01: *Command & Control, Battle Management, Communications (C2BMC)*	-	331.155	286.456	-	286.456	250.406	269.854	241.408	219.247	Continuing	Continuing
MX01: *Command & Control, Battle Management, Communications (C2BMC) Development Support*	-	-	62.725	-	62.725	66.095	67.386	82.937	72.003	0.000	351.146
ZX40: *Program-Wide Support*	10.245	-	-	-	-	-	-	-	-	0.000	10.245
MD40: *Program-Wide Support*	-	11.470	14.922	-	14.922	13.836	15.841	14.490	12.967	Continuing	Continuing

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Budget Project CX01 is captured in Budget Project MD01 beginning in FY 2011. The content previously planned in Budget Project XX01 is captured in Budget Project MD01 in FY 2011 and MX01 beginning in FY 2012.

A. Mission Description and Budget Item Justification

The Ballistic Missile Defense Command and Control, Battle Management, and Communications (C2BMC) Program establishes the System by linking together the external sensors and weapons of independent Elements into a layered missile defense system such that the whole is more capable and robust than the sum of its parts -- thus increasing the footprint of the BMDS with greater performance and defensive coverage. The C2BMC enables the BMDS to manage complex threats -- near simultaneous enemy missile shots aimed at theater, regional, or homeland assets. The systems linked through C2BMC include Phased Array Tracking Radar Intercept on Target (PATRIOT), Terminal High Altitude Area Defense (THAAD), Aegis Ballistic Missile Defense (BMD), Ground Based Midcourse Defense (GMD); and sensors such as the Army/Navy/Transportable Radar Surveillance model 2 (AN/TPY-2) radar, Sea-Based X-Band Radar (SBX), Space-Based Infrared System (SBIRS), and BMDS Overhead Persistent Infra-Red (OPIR) Architecture (BOA). In FY 2011, deploy to Central Command (CENTCOM) a complete C2BMC capability

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
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including equipment, communications, and training. The C2BMC Program will ship a C2BMC Deployable Interface Node (CDIN), deploy and set up the CDIN, install a Spiral 6.2 suite, support hardware-in-the-loop (HWIL) integration testing, provide operations and sustainment, and add a training suite in CENTCOM.

One of the best ways 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. 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 the best sensor information about the enemy missiles location and track and a more diverse and effective set of weapon options to be used by the Combatant Commander to defeat the attack; with all connected by a unifying C2BMC system. As a result, an effort funded in a Program Element may be critical to the success of efforts in other Program Elements. These connections are referred to as interdependencies.

C2BMC Program provides:

- Communications links and connectivity between BMDS Elements
- Battle management function that allows a shoot/look/shoot approach maximizing BMDS effectiveness while minimizing the number of weapons expended. It is important to note that C2BMC provides a battle management function; it does not have a fire control system
- Control of the BMDS radars, taking data from multiple sensors tracking the same threat, and correlating it into one optimal track for BMDS Element`s fire control
- Real-time awareness of the battle as it unfolds to include interoperability with North Atlantic Treaty Organization (NATO) in support of the Phased Adaptive Approach.
- Advanced battle planning capability which enables warfighters to place BMDS assets in ideal locations in anticipation of an upcoming battle.

The C2BMC Program has integrated six BMDS Elements (GMD, Aegis BMD, THAAD, SBIRS, Sensors, and Patriot) and Coalition Partners; is in 33 locations with 12 customers in 17 time zones; has deployed over 800 pieces of equipment and Satellite Communications (SATCOM) using three frequency bands; has stood up over 70 crew positions; trains over 700 operators, maintenance personnel, and testers per year; and is supported by over 48,000 miles of Defense Information Systems Agency (DISA) communication lines.

The C2BMC Program provides quality, safety, and mission assurance operations to ensure compliance with Agency requirements for design, test, manufacturing, quality, safety, and reliability.

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C2BMC provides the capabilities for leaders at multiple levels of command to see, assess, and react to ballistic missile threats. C2BMC capabilities, consistent with the Strategic Command (STRATCOM) FY 2010 Prioritized Capabilities List (PCL), are provided through four capability areas: BMD Planner, Situational Awareness, Global Engagement Manager (GEM), and BMD Communications Network.

- BMD Planner: The Planner provides warfighters the capability to explore the effectiveness of various defensive designs in order to plan the most effective defense by optimizing the location and mix/pairing of sensors and interceptors. The Planner is flexible enough to allow the warfighter to function in the three modes of activity: Deliberate Planning (24-36 months before a battle), Crisis Action Planning (hours or days before an attack based on updated information), and Dynamic Planning (near real-time agility for changing situations). System models used in the Planner today include the GMD system used to defend the U.S.; and the AN/TPY-2 radar, Aegis BMD, PATRIOT, and THAAD systems used to defend against theater missile attacks.

- Situational Awareness: This capability is used to turn detailed data into usable information that commanders can act on in the event of a missile defense threat. Situational Awareness information is provided by the Combatant Commands Command and Control (COCOM C2) screens (displays and decision aids). Situational Awareness display emphasizes a common ballistic missile picture and summary screens used at the Presidential level down to the operational level of command. The systems available today include an interface with the Ground Based Midcourse Defense (GMD) fire control, THAAD, Aegis BMD and PATRIOT via Link 16; sensor management control of the AN/TPY-2 radar, and a direct data connection to SBIRS information.

- Global Engagement Manager (GEM): The GEM provides the first true BMDS battle management capability through C2BMC. GEM provides the foundation for various BMD Elements and external sensors and interceptors to work synergistically for optimal performance. The GEM will provide enhanced sensor management control of world-wide X-band radars allowing for the control of multiple AN/TPY-2 radars within a given region beginning in 2011. Currently sensor management control is limited to a single TPY-2 radar. GEM will utilize OPIR data for boost phase cueing on AN/TPY-2. Prototype control concepts to task advanced Airborne Infrared (ABIR) sensors for early intercept cueing using GEM will be matured in the 2011-2012 timeframe. In addition to automated sensor tasking, advanced battle management algorithms will be developed that assign a specific sensor to a specific track, calculate the most likely track of an incoming missile, and display automated battle management decision aides (ABMAs) to the warfighter to assist in determining the highest priority threats in a raid environment. The warfighter operator will have the ability to direct missile engagements with BMD elements on a command by exception basis using these new GEM situational awareness displays, thus maximizing the probability of hit to kill. GEM will utilize existing interfaces and functionality of BMDS weapons and sensors to provide these battle management capabilities.

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- BMD Communications Network: The BMD Communications Network ties together sensors (both BMDS radars and space sensors) and weapons systems via the Combatant Commands Command and Control screens and GEM, thereby enabling the National Command Authority and the commanders at the strategic, theater and tactical levels to optimally engage ballistic missile threats at any range, in any phase of flight, at any time including near simultaneous theater, regional and homeland attacks. The BMD Communications Network builds on existing and new global grid data and communications networks to provide a robust, end-to-end, high availability, operational communications network (COMNET) infrastructure that quickly and unambiguously shares information across the global BMDS. This sharing of information is performed securely with special emphasis on preventing cyber attack via a BMDS Network Operations and Security Center (BNOSC). Effective networking management and operations relies on the ability to manage, coordinate, and integrate a wide variety of equipment platforms, interfaces with other DoD communications systems, existing/evolving information standards and capabilities, and adherence to DoD Information Assurance Certification and Accreditation Process (DIACAP). Defense Information Systems Agency (DISA) services are also highly leveraged in providing world-wide communications.

The C2BMC Program employs a robust incremental development program to deliver enhanced and new capabilities to the warfighter. Each incremental delivery (identified using the generic nomenclature of Spiral x.# (e.g., Spiral 6.4) includes the software, hardware, and network connectivity needed to operate the BMDS.

The C2BMC Program includes support for and analysis of BMDS-level wargames and tests with fielded capabilities. The delivery of a new capability has been replanned to coincide with the new Phased Adaptive Approach (PAA) system architecture. PAA-1 is implemented by Spiral 6.4C and PAA-2 is implemented through future Spirals. Therefore multiple capability increments are in staggered stages of development at any time. Typically one spiral will be in operations with the second spiral in the testing stage and the third spiral in engineering design and development. The key test event for development is start of Cycle 2, Simulation-Based Verification, when software completes internal C2BMC development and begins testing with other BMDS Elements. Completion of Cycle 5, Site Activation Testing, coupled with successful participation in BMDS ground test campaigns, signals delivery of fully functioning operational software. This provides the warfighter with a continuous stream of improvements to meet the evolving threat.

The C2BMC Program provides the program office personnel to manage the BMDS Concurrent Test Training and Operations (CTTO) activities. CTTO is responsible for providing warfighters the means to train using high-fidelity simulations of realistic scenarios while using operational (deployed) equipment and networks. The key is to safely separate training events from real-world operations (i.e., allowing the warfighter to train on the same equipment they will use in a real battle).

The C2BMC Program provides the program office personnel to manage the development and implementation of Distributed Multi-Echelon Training System (DMETS), a capability which enables warfighters to train where they fight by generating realistic, interactive, threat scenarios that address all phases of the kill chain and varied sensor/shooter combinations. The system allows for scalable training of the BMDS using a parallel architecture either physically or logically separated from the operational one.

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To provide capabilities to defend the territory of the United States against ballistic missile threats from rogue nations and accidental or unauthorized launches, and to enhance missile defense to defend our deployed forces, allies, and friends against regional threats including defeating large raid sizes and intercepting early in flight the C2BMC program will:

- Add 2 EUCOM ground nodes and satellite terminals to support BMD Communications Network for Phased Adaptive Approach (PAA)
- Enhance contingency/crisis action planning for Defended Area, Operating Area, and Scenario analysis, incorporate the effects of earth rotation, update/distribute BMD Element and threat system reference data, import intelligence data from the Modernized Integrated Database (MIDB), trailor radar search sectors, and integrate 3D mapping, display, and analysis tools into a single user interface
- Provide situational awareness to support command and control at Combatant Commands (COCOMs) and the National Military Command Center (NMCC) via a common set of display components with views tailored based on user needs
- Field initial Global Engagement Manager (GEM) capability at the Kenney Air Operations Center (Hickam Air Force Base, Hawaii)
- Improve system reliability and availability to support test and operations by implementing a continuity of operations GEM at the MDIOC
- Provide BMD Planner and Situational Awareness capability that fully incorporates intelligence information
- Provide initial interfaces between weapons and sensors compatible with DoD network-centric service-oriented architecture
- Provide updated C2BMC model (BCM) (key component of the BMD Distributed Simulation Architecture) for system-level performance assessments. Validate BCM represents operational C2BMC performance by utilizing the GT-04 campaign of test events to collect Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs) verification data

Sustainment

- Sustain worldwide C2BMC operational capability 24 hours a day, 7 days a week, 365 days a year-- on site personnel supporting 33 locations, across 17 time zones, and over 800 pieces of equipment. Additional Navy Maritime Operating Center installations are planned in FY 2011. EUCOM is planned to be added in FY 2012, in accordance with National Command Authority, Combatant Command requirements, and DoD execution orders.
- The 33 locations supported are:

- U.S. Forces Korea (USFK); U.S. Forces Japan (USFJ); Shariki, Japan; Pacific Command (PACOM) at Camp Smith, HI; Air Operations Center (AOC) at Hickam Air Force Base (AFB), HI; Defense Information Systems Agency Defense Enterprising Computing Center (DISA DECC) Pacific; U.S. Pacific Fleet (PACFLT), HI; Pacific Missile Range Facility (PMRF), HI; Fort Greely, Alaska (FGA); Alaska Command (ALCOM); Vandenberg AFB, CA; 32nd Army Air and Missile Defense Command (AAMDC), TX; Cheyenne Mountain Air Force Station (CMAFS), CO; Peterson AFB, CO; Missile Defense Integration and Operations Center (MDIOC) at Shriever AFB, CO; Huntsville, AL (Von Braun II); Central Command (CENTCOM), Tampa, FL; South Carolina National Guard (SCNG); Pentagon; White House; MDA; Missile Defense National Team (MDNT); Navy Europe (NAVEUR); Israel; Stuttgart, DE; Ramstein Air Base (AB), DE; Patch and Rhine Ord Barracks, DE; and the United Kingdom (4 sites), Navy Maritime Operating Centers
- Provide 24 hours a day, 7 days a week, 365 days a year help desk (Control Center at the MDIOC) for real-time issue resolution

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
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- Develop curriculum and provide C2BMC operator, maintenance personnel, and tester training on C2BMC equipment and capabilities (approximately 700 people per year)
- Lease communication lines via Defense Information Systems Agency (DISA) for global BMD Network Communications

FY12 budget request recognizes that historical execution rates will result in FY11 funds available to support in FY12. The accomplishments reflect the use of the FY11 funding in addition to the FY12 request.

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	334.734	342.625	364.085	-	364.085
Current President's Budget	327.074	342.625	364.103	-	364.103
Total Adjustments	-7.660	-	0.018	-	0.018
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-2.215	-			
• SBIR/STTR Transfer	-4.940	-			
• Other Adjustment Detail	-0.505	-	0.018	-	0.018

Change Summary Explanation

The FY 2012 $0.018 million increase is the result of $17.429 million in efficiency savings and MDA programmatic changes.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
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COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
BX01: *Ballistic Missile Defense C2BMC Block 2.0*	25.738	-	-	-	-	-	-	-	-	0.000	25.738
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

Project BX01 has been transferred to project MD01

A. Mission Description and Budget Item Justification

Project BX01 has been transferred to project MD01

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD01 for FY 2010 Accomplishments	25.738	-	-
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: See Project MD01 for FY 2010 Accomplishments			
FY 2011 Plans: N/A			
FY 2012 Plans: N/A			
Accomplishments/Planned Programs Subtotals	25.738	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
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COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
CX01: *Ballistic Missile Defense C2BMC Block 3.0*	247.801	-	-	-	-	-	-	-	-	0.000	247.801
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project CX01 has been transferred to project MD01

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD01 for FY 2010 Accomplishments	247.801	-	-
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: See Project MD01 for FY 2010 Accomplishments			
FY 2011 Plans: FY 2011 Plans are in budget project MD01			
FY 2012 Plans: FY 2012 Plans are in budget project MD01			
Accomplishments/Planned Programs Subtotals	247.801	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
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COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
WX01: *BC Capability Development*	0.729	-	-	-	-	-	-	-	-	0.000	0.729
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project WX01 has been transferred to project MD01 for FY 2010

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD01 for FY 2010 Accomplishments	0.729	-	-
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: See Project MD01 for FY 2010 Accomplishments			
FY 2011 Plans: N/A			
FY 2012 Plans: N/A			
Accomplishments/Planned Programs Subtotals	0.729	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
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COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
XX01: *Command & Control, Battle Management, Communications (C2BMC) Sustainment*	42.561	-	-	-	-	-	-	-	-	0.000	42.561
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

Project XX01 has been transferred to project MD01 in FY 2011 and project MX01 in FY 2012 - FY 2016

A. Mission Description and Budget Item Justification

Project XX01 has been transferred to project MD01 in FY 2011 and project MX01 in FY 2012 - FY 2016

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD01 for FY 2010 Accomplishments	42.561	-	-
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: See Project MD01 for FY 2010 Accomplishments			
FY 2011 Plans: FY 2011 Plans are in budget project MD01			
FY 2012 Plans: FY 2012 Plans are in budget project MX01			
Accomplishments/Planned Programs Subtotals	42.561	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
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COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD01: *Command & Control, Battle Management, Communications (C2BMC)*	-	331.155	286.456	-	286.456	250.406	269.854	241.408	219.247	Continuing	Continuing
Quantity of RDT&E Articles	0	1	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Budget Projects CX01 and XX01 is captured in Budget Project MD01 beginning in FY 2011 (FY 2010 - $316,829).

RDT&E Articles are defined as major C2BMC capability increments (identified as a specific Spiral) which are fielded at multiple locations including Combatant Commands and other operational sites. Budget Project MD01 includes one RDT&E article, Spiral 6.4C, which is planned for operational fielding in FY 2011.

The key test event for development is start of Cycle 2, Simulation-Based Verification, when software completes internal C2MBC development and begins testing with other BMDS Elements. Completion of Cycle 5, Site Activation Testing, coupled with successful participation in BMDS ground test campaigns, signals delivery of fully functioning operational software.

A. Mission Description and Budget Item Justification

Based on the Missile Defense Agency`s defined architectures and system specifications, the Command and Control, Battle Management and Communications (C2BMC) Program will provide the warfighter the capability to plan the Ballistic Missile Defense (BMD) fight while concurrently tracking all potential ballistic missile threats, and pairing any sensor with any shooter to defeat ballistic missile threats at any range, in any phase, in all theaters. The C2BMC Program will also work to increase coalition partners` capabilities.

The C2BMC Program will expand defense of the United States, allies, and deployed forces by continuing the work initiated in Budget Project BX01 which has focused on limited Iranian long-range threats by enabling a coordinated defense against short-to intermediate- range threats in two regions/theaters.

Specific goals are to deliver the following, which include BMDS planning, situational awareness, sensor management, and engagement coordination functions incorporated in BMDS Integrated Build C and D approved content:

-Fully integrated BMD Planner and situational awareness displays with integrated intelligence information and defended asset priority schemes
-Continuity of Operations GEM at NORTHCOM (MDIOC) and initial Global Engagement Manager (GEM) at Ramstein AB
-Incorporate CENTCOM into the C2BMC operational architecture
-Incorporate BMDS Overhead Persistent Infra-Red (OPIR) Architecture (BOA) sensor data for X-Band radar cueing

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-Update C2BMC model (BCM), for system-level performance assessments that have been validated against operational C2BMC performance by utilizing the GT-04 campaign of test events to collect Critical Engagement Condition (CEC) and Empirical Measurement Event (EME) verification data
-Installed more effective network monitoring and computer network defense software and hardware at the BMDS Network Operations and Security Center (BNOSC)
-Continued BMDS global expansion with C2BMC deployment to CENTCOM
-Information Assurance (IA) monitoring and modifications of global network devices at all C2BMC locations

C2BMC ELEMENT

The Ballistic Missile Defense (BMD) Planner, Situational Awareness, Global Engagement Manager (GEM), and Ballistic Missile Defense (BMD) Network will all be expanded to include additional BMDS sensors and weapons. The BMD Planner and Situational Awareness will continue to be upgraded for ease of use and understanding based upon warfighter feedback and lessons learned from wargames and exercises. C2BMC will move to a blade-based computing architecture to support reliability, maintainability, and modularity. C2BMC will provide a regional situational awareness and engagement management capability at PACOM, NORTHCOM, EUCOM and CENTCOM.

In the near term capability increments the BMD Planner will evolve to a net enabled capability. The system will be designed to interface with the service components and their evolving systems and enable cross planning between the Combatant Commanders. Future BMD Planner improvements include support for rapid re-planning/ plan load on the fly, mapping products and services, and updating the Air and Missile defense Workstation (AMDWS) interface to exchange planning information with THAAD, and initial non-real time planning interface with North Atlantic Treaty Organization (NATO) interface improvements.

Situational Awareness improvements include the addition of network centric data exposure over the Secret Internet Protocol Router Network (SIPRNET) which ties in with evolving Department of Defense command and control architectures. This capability includes display of individual weapon system engagement and information coordination, along with updates of command authority decision information will result in an integrated common operating picture across the Combatant Commands.

C2BMC battle management, via the Global Engagement Manager (GEM), will deliver Full X-Band radar sensor control and capabilities for the following, which are included in BMDS Integrated Build D approved content:

-Initial engineering for improved threat/object correlation, by accounting for sensor bias and threat features to calculate a common threat track from multiple sensors, incorporation of BMDS Overhead Persistent Infra-Red (OPIR) Architecture (BOA) and Space Based Infra-Red System (SBIRS) sensor data for improved radar cueing, and improved engageable system threat tracks, and sufficient data accuracy and low enough latency- for BMDS Element`s fire control to enable successful ballistic missile engagements, for regional elements via Link-16 and EHF (e.g., THAAD and Aegis BMD and Ground Based Midcourse Defense Fire Control (GFC)) this will be incorporated into Spiral 8.2
-BMDS system discrimination logic to assign object type based on evaluation of multiple sensor discrimination results
-Sensor registration to assess the quality of radar data received in the BMDS
-Multi-sensor system track generation and publishing to BMDS Elements using multiple, filterable sensors to ensure common situational awareness and allow cueing of weapon systems

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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-Sensor management and weapons engagement coordination aids to direct the BMDS fight and make use of efficient use of limited inventory
-Engagement coordination and engagement direction with sensor-weapon system target pairing

Additionally, GEM will add engagement coordination to include intelligence projections and BMDS battle management will operate in two regions as well as across regions while providing global situational awareness.

The BMD Communications Network portion of C2BMC includes upgrades to the Parallel Staging Network, a dedicated SIPRNET point-of-presence for greater network service and security, computer network defense, and continued improvement in network monitoring for information assurance via the BMDS Network Operation and Security Center (BNOSC). The BMD Communications Network will feature a more redundant, high availability network with diverse paths and increased communications support to the BMDS elements to include added sensors and weapons to the overall BMDS. Other improvements such as dynamic real-time network management and monitoring will enable the warfighter to monitor the connection to BMDS weapons and anticipate and remedy any issues as they occur, vice having to wait for a human-in-the-loop to report a problem and provide a correction. Additionally, an expanded network centric capability (worldwide connectivity of separately developed sensors and weapon systems) supporting Internet Protocol Version 6 will extend BMDS mission success by providing information management to the individual user.

The BMD Communications Network ties together sensors (both BMDS radars and space sensors) and weapons systems via the Combatant Commands Command and Control screens and GEM, thereby enabling the National Command Authority and the commanders at the strategic, theater and tactical levels to optimally engage ballistic missile threats at any range, in any phase of flight, at any time including near simultaneous theater, regional and homeland attacks. The BMD Communications Network builds on existing and new global grid data and communications networks to provide a robust, end-to-end, high availability, operational communications network (COMNET) infrastructure that quickly and unambiguously shares information across the global BMDS. This sharing of information is performed securely with special emphasis on preventing cyber attack via a BMDS Network Operations and Security Center (BNOSC). Effective networking management and operations relies on the ability to manage, coordinate, and integrate a wide variety of equipment platforms, interfaces with other DoD communications systems, existing/evolving information standards and capabilities, adherence to DoD Information Assurance Certification and Accreditation Process (DIACAP). Defense Information Systems Agency (DISA) services are also highly leveraged in providing world-wide communications.

SITE ACTIVATION

C2BMC capabilities (hardware and software) will be deployed to NORTHCOM, STRATCOM, PACOM, and EUCOM with existing sites receiving Spiral software and hardware upgrades as needed. Current capabilities will be expanded with numerous BMD Planner, web browser, and Enterprise Workstation installations per warfighter requirements. Planning for future BMDS operations and site installations include Global Engagement Manager (GEM) at European Command (EUCOM), GEM on the Parallel Support Network (PSN) at Northern Command (NORTHCOM), and network enabled capability at various locations. Deployment to these Combatant Commands continues to expand BMDS on a global scale, providing increased protection to the U.S., and its friends and Allies. Deployment to stand up Central Command (CENTCOM) for operations is in process to incorporate CENTCOM into the C2BMC architecture. Site Activation also includes participation in planning for future BMDS operations and site installations.

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APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603896C: *BMD C2BMC*	**PROJECT** MD01: *Command & Control, Battle Management, Communications (C2BMC)*

OPERATIONS AND SUSTAINMENT

C2BMC Program Operations and Sustainment (O&S) consists of 1) sustaining C2BMC operational capability worldwide; 2) on-site sub-systems maintenance for all C2BMC including COCOM suites, GEM Suites planners, remote Enterprise Work Stations (EWS), and GEM Work Stations (GWS), web browsers, and communication site(s) associated with the AN/TPY-2 radar(s); 3) the C2BMC Control Center that provides real-time resolution of operational issues; 4) vendor support which includes coordination and resolution of problems that occur with Commercial-off-the-Shelf (COTS) equipment; 5) training of operator, maintenance personnel, and testers (approximately 700 per year); 6) hardware and software maintenance and upgrade installation to ensure continuity of C2BMC operations.

On-site support provides:

-Assistance to the System Administrator of each Combatant Command
-Prime contractor support to operational users
-On-site maintenance of hardware and software on a 8 hours a day 5 days a week basis
-Security support for the C2BMC equipment, hardware and software and auxiliary communication capabilities
-24 hours a day, 7 days a week, 365 days a year network and equipment operations monitoring
-Support to operators and testers during test, exercises, and wargames

Off-site support provides:

-C2BMC Control Center (help desk) in Colorado Springs, CO provides

-Real-time resolution of operational issues
-The schedule for maintenance, systems upgrades, tests, exercises, and wargames, coordinated across all users
-Collection of data regarding system/sub-system failures and prioritization of corrective actions
-Review of hardware/software problems and coordination of Commercial-Off-the-Shelf (COTS) developer/vendor service calls
-Integrated logistics support planning and management
-Hardware and software maintenance and logistics functions that are beyond the capability of on-site support personnel
-Inventory and spares management
-Sustaining engineering support from the prime contractor and government activities
-Maintenance of software licenses and vendor support agreements
-Hardware and software maintenance agreements
-Vendor depot support services

Training support includes:

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-Developing and maintaining operator, maintenance personnel, and testers training material for C2BMC components/capabilities
-Training tailored to each deployment and/or test
-Training curriculum/courses provided for BMD Planner, Situational Awareness, GEM, and the C2BMC Executive Course
-Warfighter sustainment training and skill proficiency
-Assistance to warfighter in development and execution of the Radar Management Course
-New equipment training to end-users and training organizations

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Spiral Development	-	216.973	222.644
Articles:	0	1	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY 2010 accomplishments are reported in prior year budget projects BX01 ($25,738) and CX01 ($224,061) -Participated in BMDS distributed ground (GTX) and flight tests to verify Spiral 6.4C operational performance. Tests included GTX-04a, GTI-04b, FTT-14, and FTG-06A -Performed software deficiency analyses and developed solutions that were incorporated in three engineering software releases leading to the Spiral 6.4C baseline -Performed monthly information assurance scans and corrected deficiencies -Continued development and acquisition of C2BMC Deployable Interface Nodes (CDIN) (C2BMC Element funded software capability and project management; Sensors Element funded hardware, installation, and checkout) -Conducted engineering to support demonstration of incorporating Airborne Infra-Red (ABIR) and its integrated ground processor data into the C2BMC command and control and battle management architecture -Upgraded development labs with hardware and software -Performed lab to lab testing between C2BMC, AN/TPY-2 and GMD to reduce risk in development of system track/correlation/ discrimination development -Developed Global Engagement Manager (GEM) hardware/software for deployment to European Command (EUCOM) -Initiated engineering for C2BMC Concurrent Test, Training, and Operations (CTTO) modifications of C2BMC Network Interface Processors (CNIP) for activity identifiers and element registration -Participated in and analyzed results of ground and flight tests, wargames, and exercises in accordance with the BMDS Integrated Master Test Plan (IMTP)			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Delivered Spiral 6.4C C2BMC Model (BCM) to be utilized in upcoming system-level performance assessment. Collected initial Critical Engagement Condition (CEC) and Empirical Measurement Event (EME) data from GTX-04z and GTI-04b to support model accreditation in FY 2011 -By the close of FY 2010, with the completion of BMD System tests, the C2BMC Program collected the planned CECs data collection points to verify models and simulations -Supported initial U.S. BMDS interface testing with NATO Active Layered Theater Ballistic Missile Defense (ALTBMD) to demonstrate interoperability -Continued incorporating Command and Control Integrated Air and Missile Defense XML Schema (CIXS) into C2BMC architecture for Services and NATO situational awareness interoperability -Continued the upgrade of DOD teleports in PACOM and EUCOM to include new satellite communication super high frequency (SATCOM SHF) (X/Ka Band) capability. Provided BMDS extra high frequency (EHF) SATCOM connectivity to CENTCOM teleport. (C2BMC Element funds software capability and project management; Sensors Element funds hardware, installation, and checkout) -Continued design and development of Protected Antijam/Antiscintillation Net-Centric System (PAAWNS) to increase bandwidth by a factor of ten (C2BMC Element funds software capability and project management; Sensors Element funds hardware, installation, and checkout) -Maintained and updated the agency-wide Ballistic Missile Defense System (BMDS) threat to provide data for future BMDS design, verification, and assessment -Updated adversary missile capabilities and characterizations consistent with projected threat environment for BMDS Phased Adaptive Approach -Produced all the threat data required to support the BMDS Ground Tests, BMDS Performance/Technical Assessment FY 2009 and FY 2010, and FY 2010 wargames and exercises as documented in the BMDS IMTP ***FY 2011 Plans:*** -Systems engineering will provide the System Description Document and the Integrated Build C and Build D specifications for the Elements to design, build, integrate and test BMDS components. The BMDS Integrated Build C specification directs limited peer-to-peer engagement coordination, sensor, resource management, initial multi-radar capability, warfighter planning, warfighter enhancements and improved situational awareness -BMDS Integrated Build D specification will continue the communications enhancements adding improved correlation, initial BMDS system track and expanded BMDS C2BMC interfaces with Friends and Allies -Initiate Spiral 8.2 engineering and design and BMD Planner, Situational Awareness, Global Engagement Manager (GEM), and BMD Communications Network software development, coding, and integration			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continue engineering to demonstrate the incorporation of ABIR and its integrated ground processor data into the C2BMC architecture -Participate in and analyze results of ground and flight tests, wargames, and exercises in accordance with the BMDS Integrated Master Test Plan (IMTP). Tests include GTD-04b, FTG-06a, FTM-15, GTI-04d, GTD-04d, and GTX-04e -Update C2BMC model, validated by Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs), for system-level performance assessments. CEC/EMEs are the conditions and events where data is obtained from flight and ground tests in order to anchor system models and simulations -By the close of FY 2011, with the completion of BMD System tests, the C2BMC Program will collect the CEC data collection points to verify models and simulations -Upgrade the BMD Communications Network capability (development, integration and test) -Upgrade of DoD teleports to enhance satellite communications (SATCOM) connectivity -Incorporate Enhanced C2BMC advanced technologies and prototypes into the C2BMC architecture			
FY 2012 Plans: -Continue systems engineering to provide the System Description Document and the Integrated Build C and Build D specifications for the Elements to design, build, integrate and test BMDS components. The BMDS Integrated Build C specification directs limited peer-to-peer engagement coordination, sensor, resource management, initial multi-radar capability, warfighter planning, warfighter enhancements and improved situational awareness -Continue BMDS Integrated Build D specification to continue the communications enhancements adding improved correlation, initial BMDS system track and expanded BMDS C2BMC interfaces with Friends and Allies -Award follow on contract to continue development by Dec 2011 -Continue Spiral 8.2 engineering and design and BMD Planner, Situational Awareness, Global Engagement Manager (GEM), and BMD Communications Network software development, coding, and integration -Continue engineering to incorporate Enhanced C2BMC capability into the C2BMC Command and Control (C2) and battle management architecture -Update C2BMC model, validated by Critical Engagement Conditions (CECs) and Empirical Measurement Events (EMEs), for system-level performance assessments. CEC/EMEs are the conditions and events where data is obtained from flight and ground tests in order to anchor system models and simulations -By the close of FY 2012, with the completion of BMD System tests, the C2BMC Program will collect the CEC data collection points to verify models and simulations for Spiral 6.4C operations and Spiral 8.2 development. -Continue to upgrade the BMD Communications Network capability (development, integration and test) to support PAA			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Upgrade of DoD teleports to enhance satellite communications (SATCOM) connectivity and add additional Combat Commands to operations -Incorporate Enhanced C2BMC advanced technologies and prototypes into the C2BMC architecture -Update production drawings and installation procedures -Acquire and install Enterprise Work Stations (EWS), web browsers, and BMD Planners -Operate Spiral 6.2 and initiate upgrade to Spiral 6.4C at Central Command (CENTCOM) -Operate the new Spiral 6.4C Global Engagement Manager (GEM) hardware at European Command (EUCOM), Northern Command (NORTHCOM), Strategic Command (STRATCOM), Pacific Command (PACOM) -Continue to incorporate C2BMC Advanced Technologies and prototypes into the enhanced C2BMC architecture -Identify and acquire the long-haul terrestrial communications circuits to support the Phased Adaptive Approach (PAA) Phase 1 AN/TPY-2 site in EUCOM -Upgrade the BCN communications systems at the Pacific Missile Range Facility to support the testing of the PAA Phase 2 concept -Initiate Cyber Net Defense (CND) requirements for PAA Phases 1 and 2			
Title: Operations and Support ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** Funding for these FY 2010 accomplishments are reported in prior year budget project XX01 ($42,561) -Sustained C2BMC 24 hours a day, 7 days a week, 365 days worldwide -Provided hardware and software maintenance for the C2BMC training suite in European Command (EUCOM) -Sustained Global Engagement Manager (GEM) trainer at PACOM and at EUCOM -Developed curriculum for and trained over 400 operators, maintenance personnel, and testers on Spiral 6.2 -Developed curriculum for and trained over 60 operators, maintenance personnel, and testers on Spiral 6.4 -Resolved real-time operational issues through the C2BMC Control Center and BMDS Network Operation and Security Center (BNOSC) -Provided global BMDS communications via leased Defense Information Systems Agency (DISA) circuit lines -Provided and supported communications circuits for fielded C2BMC locations -Provided integrated logistics support planning and management and sustaining engineering support for fielded hardware and software	- 0	47.507 0	- 0

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provided support of AN/TPY-2 radar communications nodes -Provided operations and sustainment personnel to support test and special operations for AN/TPY-2 at 3 deployed operational test sites in support of major MDA test events -Supported Host Nation operations, demonstrations, and tests -Supported warfighter during wargames and other events -Provided sustainment training/skills proficiency to C2BMC operations -Stood up 24 hours a day, 7 days a week, 365 days a year enterprise-level operations in the C2BMC Control Center (CUBE) -Operated BNOSC 24 hours a day, 7 days a week, 365 days a year -Continued operation and support of communications capabilities to Israel for the Contingency Architecture Activation Team (CAAT) -Provided training and operations and support for emergent CENTCOM Suite -Installed and provided operations and support for C2BMC equipment in Navy Mission Operations Centers			
FY 2011 Plans: Additional O&S funding is reported in Program Element 0603884C, Budget Project MD11 ($13,782) -Maintain C2BMC training suites -Sustain Global Engagement Manager (GEM) trainers -Develop curriculum for and train operators, maintenance personnel, and testers -Resolve real-time operational issues through the C2BMC Control Center and BMDS Network Operation and Security Center (BNOSC) -Provide global BMDS communications via leased Defense Information Systems Agency (DISA) circuit lines -Provide and support communications circuits for fielded C2BMC locations -Provide integrated logistics support planning and management and sustaining engineering support for fielded hardware and software, including support to Navy Maritime Operations Centers where C2BMC equipment resides -Provide support of AN/TPY-2 radar communications nodes -Provide operations and sustainment personnel to support test and special operations for AN/TPY-2 at 4 deployed operational test sites -Support Host Nation operations, demonstrations, and tests -Provide sustainment training/skills proficiency to C2BMC operations -Upgrade and maintain computer network defense and network monitoring in the BNOSC -Operate the BNOSC 24 hours a day, 7 days a week, 365 days a year			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provide support/sustainment for C2BMC installations ***FY 2012 Plans:*** FY 2012 Plans are reported in budget project MX01			
Title: Site Activation and Fielding ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** Funding for these FY 2010 accomplishments are reported in prior year budget project CX01 ($23,740) -Acquired and installed Spiral 6.4C Combatant Command (COCOM) hardware on Parallel Staging Networks (PSNs) at Northern Command (NORTHCOM), Strategic Command (STRATCOM), and Pacific Command (PACOM) -Updated production drawings and installation procedures for Spiral 6.4C -Acquired and installed Enterprise Work Stations, Web Browsers, and Planners -Installed initial net-centric operational pilot capability at NORTHCOM -Deployed 3 CDINs to support testing and operations for AN/TPY-2 and THAAD (C2BMC Element funds software capability and project management; Sensors Element funds hardware, installation, and checkout) (CDIN #1 - PMRF, CDIN #2 - Vandenberg AFB, CDIN #4 - Wake Island; CDIN #3 will deploy to EUCOM to support GTD-04 and PAA Phase 1 in FY2011) -Fielded NORTHCOM GEM which is the back-up for the GEM at PACOM ***FY 2011 Plans:*** -Update production drawings and installation procedures -Acquire and install Enterprise Work Stations (EWS), web browsers, and BMD Planners -Install Spiral 6.4C Global Engagement Manager (GEM) hardware at European Command (EUCOM) ***FY 2012 Plans:*** FY 2012 Plans are captured in Spiral Development Plans ($18,222)	- 0	31.825 0	- 0
Title: Integrated Master Test Plan ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:***	- 0	- 0	29.111 0

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments are in Budget Project CX01 and in Program Element 0603904C, Budget Project CX22 ($21,942) ***FY 2011 Plans:*** FY 2011 Plans are in the Spiral Development Plans ($13,748) and in Program Element 0603904C, Budget Project MD22 ($23,803) ***FY 2012 Plans:*** -Participate in and analyze results of ground and flight tests, wargames, and exercises in accordance with the BMDS Integrated Master Test Plan (IMTP) -Plan, collect data, assess, examine, and report on C2BMC spiral integration testing -Support interoperability and integration of the BMDS program elements -Support the field testing of the European Deployment -Sustain the C2BMC Components of the Distributed Multi-Echelon Distributed Training system (DMETS) in the conduct of BMDS-level wargames, exercises, and training -Provide infrastructure, network, and troubleshooting support to: -C2BMC Control Center (CCC) -System Test and Operations Center (STOC) -BMDS Communications Network (BCN) -Parallel Staging Network (PSN) -BMDS Network Operations and Security Center (BNOSC) -Continue BMD OPIR Architecture (BOA) performance assessments, integration, and testing -Conduct concept development for virtualized C2BMC services, service oriented architectures, ABIR integration -CTTO Network Architectures -Conduct initial prototypes and associated operations with CTTO interfaces and architectures			
Title: X-Lab	-	-	7.311
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** FY 2010 Accomplishments are in Program Element 0603175C, Budget Project WX25 ($11,479) ***FY 2011 Plans:***			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
FY 2011 Plans are in Program Element 0603175C, Budget Project MD25 ($12,846) ***FY 2012 Plans:*** The Advanced Communications effort focuses on developing the next generation command and control and battle management concepts and the enabling technologies required to implement them among the BMDS. These activities will develop, integrate, and demonstrate advanced Command and Control, Battle Management and Communications (C2BMC) concepts and enabling technologies for improving BMDS performance across all mission areas and layers of defense including Early Intercept (EI) to include defense of friends and allies. Advanced BMDS integration concepts and techniques are demonstrated and evaluated in system-wide flight tests to facilitate the transition to the operational C2BMC. -Continue activities to enable the integration of advanced C2BMC capabilities into BMDS subsystems -Demonstrate and evaluate advanced C2BMC capabilities in live-flight test events using the C2BMC X-Lab -Continue to evolve war fighter concept of operations (CONOPS) to insert new subsystems and capabilities into the BMDS in the areas of boost phase tracking and classification, sensor resource management, weapons resource management, post-intercept debris information flow, and communication with allies and friendly nations. Note: This is a Phased Adaptive Approach Phase 2 capability -Continue to develop and demonstrate next generation sensor netting and sensor resource management techniques -Conduct sensor netting experiments associated with tracking, integrated discrimination, sensor resource tasking, and Communications/bandwidth constraints -Continue to support the efforts of the Enhanced C2BMC program to develop the Infra-Red Sensor Manager and to prototype the interface between C2BMC and the Infra-Red Sensor Manager. Capability improvements will be demonstrated through a series of integrated experiments (simulation events, hardware-in-the-loop tests, and system-wide flight tests) -Continue to develop and demonstrate advanced battle management (BM) and integrated fire control capabilities -Conduct architecture assessments of BM functions federated within C2BMC and various allied/coalition partners and friendly nations -Integrate the CONOPS information and BMS integration priorities for advanced and emerging BMDS capabilities (such as Early Intercept and Space Tracking and Surveillance System (STSS)) into battle management constructs -Conduct C2BMC X-Lab events and experimentation			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Refine C2BMC interfaces to BMDS Elements and Sensors			
Title: C2BMC Communications	-	-	27.390
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** FY 2010 Accomplishments are in Program Element 0603884C, Budget Project EX11 ($32,626) ***FY 2011 Plans:*** FY 2011 Plans are in Program Element 0603884C, Budget Project MD11 ($12,980) ***FY 2012 Plans:*** -Transport and install the second Modernization of Enterprise Terminal (MET) in EUCOM -Perform First Article Testing (FAT) of the Protected Antijam/Antiscintillation Net-Centric System (PAAWNS) -Support exercises and tests of the AN/TPY-2 radar system with BMDS Communications Networks (BCN) support systems (HBCN and CDIN) -Continue BMDS communications systems integration and certifications			
Title: Comms for Phased Adaptive Approach	-	34.850	-
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** N/A (PAA initiated in FY 2011 PB) ***FY 2011 Plans:*** -Develop, test, and field all communications node equipment and long-haul communications necessary to operate the global BMDS. Based on existing tested designs, develop a mix of communications capabilities to support remote radars and/or THAAD -Upgrade DoD teleports to enhance Satellite Communication (SATCOM) connectivity (C2BMC Element funds software capability and project management; Sensors Element funds hardware, installation, and checkout) -Define, develop and start acquisition of C2BMC Deployable Interface Nodes (CDINs) (C2BMC Element funded software capability and project management; Sensors Element funded hardware, installation, and checkout)			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Establish a Host Nation Situation Awareness (HN SA) liaison presence with the Host Nations government and particularly within their defense structure ***FY 2012 Plans:*** FY 2012 plans are captured in Spiral Development Plans ($5,208).			
Title: Common Threat ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** Funding for FY 2010 accomplishments is reported in prior year budget project WX01 ($729) and ends in FY 2010: -BMDS Launch-On Network and Engage-On Network Architecture Definition for Early Intercept -BMDS Network Based Fire Control Performance Assessment -Network Failure Mode Analysis -Build battle manager interfaces for Unmanned Aerial Vehicle (UAV), space-based sensors, and fire control	- 0	-	-
Accomplishments/Planned Programs Subtotals	-	331.155	286.456

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603175C: *Ballistic Missile Defense Technology*	164.670	132.220	75.003		75.003	103.844	111.712	164.378	170.851	Continuing	Continuing
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	690.054	436.482	290.452		290.452	318.745	309.894	340.969	320.638	Continuing	Continuing
• 0603882C: *Ballistic Missile Defense Mid-Course Segment*	1,022.019	1,346.181	1,161.001		1,161.001	1,040.949	925.943	856.839	875.969	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	544.352	454.859	222.374		222.374	357.271	336.514	318.321	348.944	Continuing	Continuing
• 0603888C: *Ballistic Missile Defense Test and Targets*	737.863	1,113.425	1,071.039		1,071.039	898.680	790.906	787.113	878.215	Continuing	Continuing
	355.870	402.769	373.563		373.563	331.203	314.193	336.749	346.560	Continuing	Continuing

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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603890C: *Ballistic Missile Defense Enabling Programs*											
• 0603892C: *BMD AEGIS*	1,418.992	1,467.278	960.267		960.267	957.992	1,001.510	970.607	1,033.710	Continuing	Continuing
• 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	148.506	112.678	96.353		96.353	53.577	47.592	32.289	34.308	Continuing	Continuing
• 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	82.926	86.198	69.325		69.325	64.514	55.808	56.769	54.621	Continuing	Continuing
• 0603907C: *SEA BASED X-BAND RADAR (SBX)*	157.739	153.056	177.058		177.058	172.622	162.628	185.934	173.587	Continuing	Continuing
• 0603911C: *BMD EUROPEAN CAPABILITY*	47.342	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	47.342
• 0603913C: *ISRAELI COOPERATIVE*	195.652	121.735	106.100		106.100	99.873	95.819	96.840	103.977	Continuing	Continuing
• 0604884C: *AIRBORNE INFRARED (ABIR)*	0.000	111.671	46.877		46.877	49.948	49.173	33.035	34.249	Continuing	Continuing

D. Acquisition Strategy

The Command and Control, Battle Management, and Communications (C2BMC) acquisition strategy is consistent with the Missile Defense Agency`s capability-based acquisition strategy that emphasizes testing, incremental development, evolutionary acquisition, and knowledge-based funding. Lockheed Martin Mission Systems is the C2BMC prime contractor via an Other Transaction Agreement contract vehicle, which ends 1Q FY 2012. Major team members to Lockheed are Northrop-Grumman, Boeing, Raytheon, and General Dynamics. They are charged with the development, testing, fielding, training, and operations and sustainment support of the C2BMC system. They perform development and testing of C2BMC products in Arlington, VA; Huntsville, AL; and Colorado Springs, CO; and provide worldwide on-site operations and maintenance support. Additionally, the Defense Information Systems Agency (DISA) supports C2BMC worldwide long-haul communications. C2BMC Program Office government, Federally Funded Research and Development Center/University Affiliated Research Center (FFRDC/UARC), and Contract Support Services (CSS) personnel are also fully integrated as part of the Prime contractor`s team to function in an Integrated Product Team environment. Competition will be conducted for CSS follow-on effort.

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603896C: *BMD C2BMC*	PROJECT MD01: *Command & Control, Battle Management, Communications (C2BMC)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Spiral Development C2BMC Hardware(HW)/Software(SW) Development, Integration & Test (I&T) MD01	SS/CPAF	Lockheed Martin Team:Colorado Springs, CO	190.692	46.718	Oct 2010	14.177	Oct 2011	-		14.177	0.000	251.587	251.587
Spiral Development C2BMC HW/SW Development, I&T MD01	SS/CPAF	Lockheed Martin Team:Huntsville, AL	28.892	7.078	Oct 2010	2.148	Oct 2011	-		2.148	0.000	38.118	38.118
Spiral Development C2BMC Product Engineering & Development MD01	SS/CPAF	Lockheed Martin Team:Arlington, VA	357.344	88.090	Oct 2010	26.636	Oct 2011	-		26.636	0.000	472.070	471.752
Spiral Development C2BMC Integration MD01	Various	Services, DISA, Agencies:-	87.776	23.180	Oct 2010	14.091	Oct 2011	-		14.091	Continuing	Continuing	Continuing
Spiral Development Contract Support Services MD01	SS/FFP	Cobham Analytic Solutions, Paradigm, CACI, CSC:Arlington, VA/Huntsville, VA	93.104	19.392	Oct 2010	20.193	Oct 2011	-		20.193	Continuing	Continuing	Continuing
Spiral Development Federally Funded Research & Development Centers / University Affiliated Research Center MD01	MIPR	MITRE, IDA, ORNL, Aerospace, JHU/APL, GTRI:Arlington, VA/ Huntsville, AL/Colorado Springs, CO	50.542	12.200	Oct 2010	15.745	Oct 2011	-		15.745	Continuing	Continuing	Continuing
Spiral Development MDA Civilian, Travel & PCS MD01	Various	-:Arlington, VA/ Huntsville, AL/Colorado Springs, CO	26.798	6.885	Oct 2010	11.095	Oct 2011	-		11.095	Continuing	Continuing	Continuing
Spiral Development C2BMC Hardware(HW)/Software(SW) Development, Integration & Test (I&T) MD01	SS/IDIQ	Lockheed Martin Team:Arlington, VA	-	-		118.559	Jan 2012	-		118.559	Continuing	Continuing	Continuing
Spiral Development Common Threat Engineering MD01	C/CR	Various:Various	1.684	-		-		-		-	0.000	1.684	1.684
Operations and Support Unit Personnel, Cont System Improvement, Sustaining Support MD01	SS/CPAF	Lockheed Martin Team:Arlington, VA	139.602	31.953	Oct 2010	-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603896C: *BMD C2BMC*	PROJECT MD01: *Command & Control, Battle Management, Communications (C2BMC)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operations and Support Indirect Support MD01	MIPR	DISA DECC:-	14.249	4.816	Oct 2010	-		-		-	Continuing	Continuing	Continuing
Operations and Support Communications Leases MD01	IA	DISA:-	27.118	7.573	Oct 2010	-		-		-	Continuing	Continuing	Continuing
Operations and Support DOTMLPF MD01	IA	SETAC:-	1.500	0.500	Oct 2010	-		-		-	Continuing	Continuing	Continuing
Operations and Support Warfighter Training MD01	SS/CPAF	Lockheed Martin Team:Arlington, VA	-	2.665	Oct 2010	-		-		-	Continuing	Continuing	Continuing
Operations and Support Teleport Sustainment MD01	MIPR	SPAWAR:San Diego, CA	-	-		-		-		-	Continuing	Continuing	Continuing
Operations and Support Unit Personnel, Contr System Improvement, Sustaining Support MD01	SS/IDIQ	Lockheed Martin Team:Arlington, VA	-	-		-		-		-	Continuing	Continuing	Continuing
Site Activation and Fielding Suites and Communications Gateways MD01	SS/CPAF	Lockheed Martin Team:-	78.263	31.825	Oct 2010	-		-		-	Continuing	Continuing	Continuing
X-Lab X-Lab MD01	SS/CPAF	Various / Northrop Grumman Mission Systems:Colorado Springs, CO	11.898	-		7.311	Oct 2011	-		7.311	Continuing	Continuing	Continuing
C2BMC Communications Communication Leases MD01	SS/CR	DISA:Arlington, VA	-	-		6.200	Oct 2011	-		6.200	Continuing	Continuing	Continuing
C2BMC Communications Communication Equipment and Fielding MD01	SS/CR	DISA:Various	34.994	-		7.959	Oct 2011	-		7.959	Continuing	Continuing	Continuing
C2BMC Communications BNOSC MD01	SS/CPAF	Lockheed Martin Team / JRDC:Colorado Springs, CO	-	-		6.761	Oct 2011	-		6.761	Continuing	Continuing	Continuing
C2BMC Communications EUCOM Communications MD01	MIPR	USAFE :Ramstein, DE	-	-		6.470	Oct 2011	-		6.470	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603896C: *BMD C2BMC*	PROJECT MD01: *Command & Control, Battle Management, Communications (C2BMC)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C2BMC Communications EMR, EIS, ECI Communications MD01	MIPR	Various:Various	63.904	-		-		-		-	0.000	63.904	63.904
C2BMC Communications GCN Transition MD01	IA	DISA:Various	18.000	-		-		-		-	Continuing	Continuing	Continuing
Comms for Phased Adaptive Approach Phased Adaptive Approach MD01	SS/CPAF	Lockheed Martin Team:Arlington, VA/ Huntsville, AL/Colorado Springs, CO	-	34.850	Oct 2010	-		-		-	Continuing	Continuing	Continuing
		Subtotal	1,226.360	317.725		257.345		-		257.345			

Remarks

Funding for Operations and Sustainment is captured in Budget Project MX01 starting in FY 2012

In order to more accurately capture the aggregate program of work for C2BMC, starting in FY 2012 the PE is consolidating communications support and equipment funding that traditionally was aligned to other program elements planned activities (i.e., communications in support of AN/TPY-2 fielding). A similar funding consolidation was implemented in FY 2008 as directed by Congress. As a result of the FY 2008 and FY 2012 funding consolidations, several R-3 line items will have a non-standard phasing such that there is prior year funding and FY 2012 funding, however no FY 2011 funding. This is due to the fact that during FY 2009, FY 2010, and FY 2011 communications work supporting other elements was captured in their respective PE lines.

Growth in MDA Civilian is driven by insourcing and the addition of MDA Career Development Program.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603896C: *BMD C2BMC*	PROJECT MD01: *Command & Control, Battle Management, Communications (C2BMC)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Spiral Development BMDS Level Testing MD01	SS/CPAF	Lockheed Martin Team:Arlington, VA/ Huntsville, AL/Colorado Springs, CO	-	13.430		-		-		-	Continuing	Continuing	Continuing
Integrated Master Test Plan BMDS Level Testing MD01	SS/CPAF	Lockheed Martin Team:Arlington, VA/ Huntsville, AL/Colorado Springs, CO	-	-		3.020	Oct 2011	-		3.020	0.000	3.020	3.020
Integrated Master Test Plan BMDS Level Testing (Element/System Test Lab Facilities) MD01	SS/CPAF	JRDC:Colorado Springs, CO	20.226	-		17.027	Oct 2011	-		17.027	Continuing	Continuing	Continuing
Integrated Master Test Plan BMDS Level Testing- MD01	SS/IDIQ	Lockheed Martin Team:Arlington, VA/ Huntsville, AL/Colorado Springs, CO	-	-		9.064	Jan 2012	-		9.064	Continuing	Continuing	Continuing
		Subtotal	20.226	13.430		29.111		-		29.111			

Remarks

In order to more accurately capture the aggregate program of work for C2BMC, starting in FY 2012 the PE is consolidating communications support and equipment funding that traditionally was aligned to other program elements planned activities (i.e., communications in support of AN/TPY-2 fielding). A similar funding consolidation was implemented in FY 2008 as directed by Congress. As a result of the FY 2008 and FY 2012 funding consolidations, several R-3 line items will have a non-standard phasing such that there is prior year funding and FY 2012 funding, however no FY 2011 funding. This is due to the fact that during FY 2009, FY 2010, and FY 2011 communications work supporting other elements was captured in their respective PE lines.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603896C: *BMD C2BMC*	PROJECT MD01: *Command & Control, Battle Management, Communications (C2BMC)*	

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	1,246.586	331.155		286.456		-		286.456			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603896C: *BMD C2BMC*	**PROJECT** MD01: *Command & Control, Battle Management, Communications (C2BMC)*

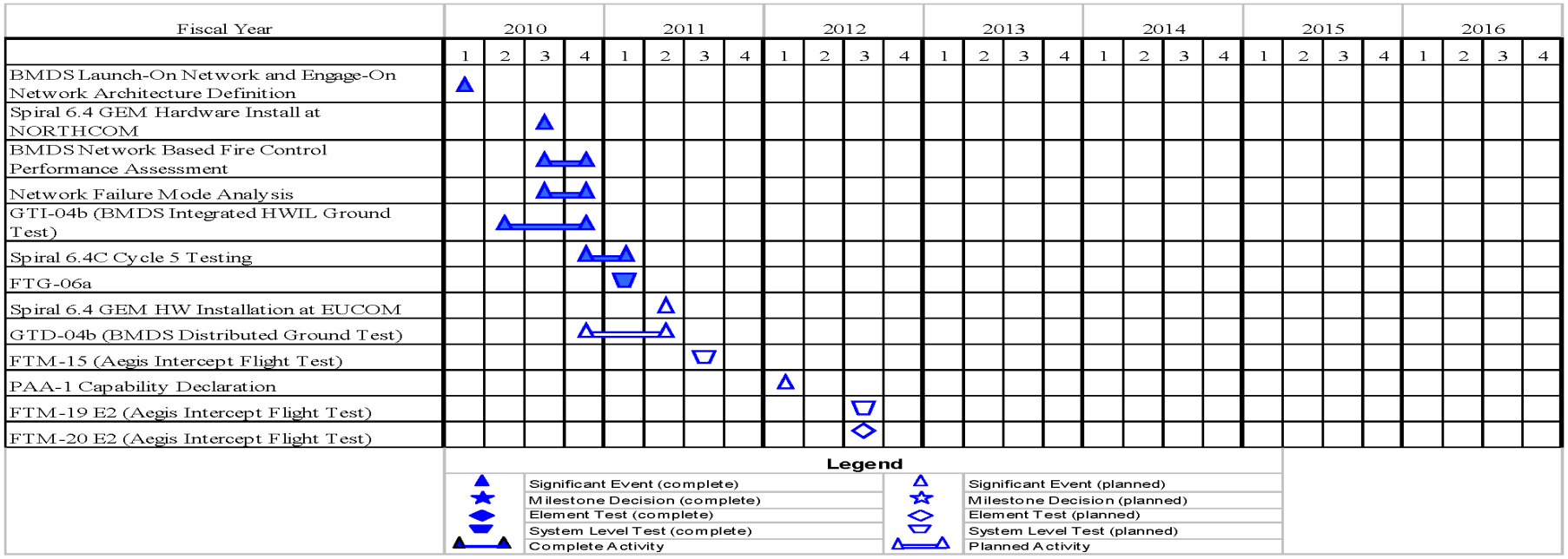

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603896C: *BMD C2BMC*	**PROJECT** MD01: *Command & Control, Battle Management, Communications (C2BMC)*

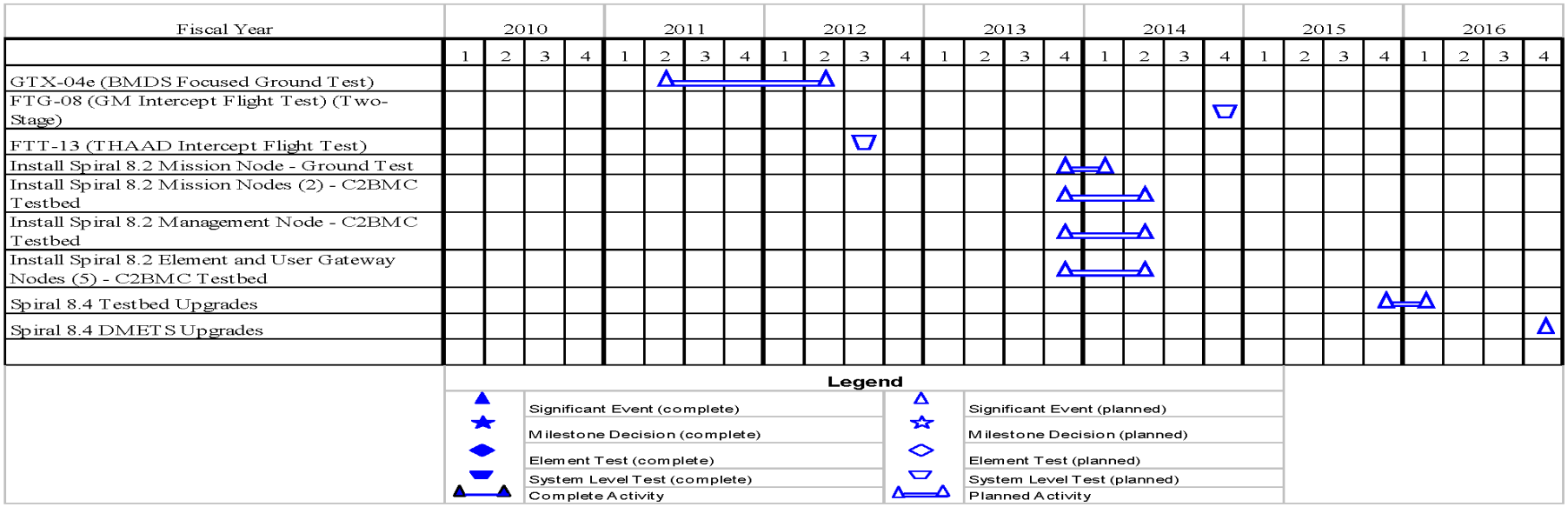

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603896C: *BMD C2BMC*	**PROJECT** MD01: *Command & Control, Battle Management, Communications (C2BMC)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
BMDS Launch-On Network and Engage-On Network Architecture Definition	1	2010	1	2010
Spiral 6.4 GEM Hardware Install at NORTHCOM	3	2010	3	2010
BMDS Network Based Fire Control Performance Assessment	3	2010	4	2010
Network Failure Mode Analysis	3	2010	4	2010
GTI-04b (BMDS Integrated HWIL Ground Test)	2	2010	4	2010
Spiral 6.4C Cycle 5 Testing	4	2010	1	2011
FTG-06a	1	2011	1	2011
Spiral 6.4 GEM HW Installation at EUCOM	2	2011	2	2011
GTD-04b (BMDS Distributed Ground Test)	4	2010	2	2011
FTM-15 (Aegis Intercept Flight Test)	3	2011	3	2011
PAA-1 Capability Declaration	1	2012	1	2012
FTM-19 E2 (Aegis Intercept Flight Test)	3	2012	3	2012
FTM-20 E2 (Aegis Intercept Flight Test)	3	2012	3	2012
GTX-04e (BMDS Focused Ground Test)	2	2011	2	2012
FTG-08 (GM Intercept Flight Test) (Two-Stage)	4	2014	4	2014
FTT-13 (THAAD Intercept Flight Test)	3	2012	3	2012
Install Spiral 8.2 Mission Node - Ground Test	4	2013	1	2014
Install Spiral 8.2 Mission Nodes (2) - C2BMC Testbed	4	2013	2	2014
Install Spiral 8.2 Management Node - C2BMC Testbed	4	2013	2	2014
Install Spiral 8.2 Element and User Gateway Nodes (5) - C2BMC Testbed	4	2013	2	2014
Spiral 8.4 Testbed Upgrades	4	2015	1	2016
Spiral 8.4 DMETS Upgrades	4	2016	4	2016

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603896C: *BMD C2BMC*	PROJECT MX01: *Command & Control, Battle Management, Communications (C2BMC) Development Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MX01: *Command & Control, Battle Management, Communications (C2BMC) Development Support*	-	-	62.725	-	62.725	66.095	67.386	82.937	72.003	0.000	351.146
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

OPERATIONS AND SUSTAINMENT

C2BMC Program Operations and Sustainment (O&S) consists of 1) sustaining C2BMC operational capability worldwide; 2) on-site sub-systems maintenance for all C2BMC including COCOM suites, GEM Suites planners, remote Enterprise Work Stations (EWS), and GEM Work Stations (GWS), web browsers, and communication site(s) associated with the AN/TPY-2 radar(s); 3) the C2BMC Control Center that provides real-time resolution of operational issues; 4) vendor support which includes coordination and resolution of problems that occur with Commercial-off-the-Shelf (COTS) equipment; 5) training of operator, maintenance personnel, and testers (approximately 700 per year); 6) hardware and software maintenance and upgrade installation to ensure continuity of C2BMC operations.

On-site support provides:

-Assistance to the System Administrator of each Combatant Command
-Prime contractor support to operational users
-On-site maintenance of hardware and software on a 8 hours a day 5 days a week basis
-Security support for the C2BMC equipment, hardware and software and auxiliary communication capabilities
24 hours a day, 7 days a week, 365 days a year network and equipment operations monitoring
-Support to operators and testers during test, exercises, and wargames

Off-site support provides:

-C2BMC Control Center (help desk) in Colorado Springs, CO provides
-Real-time resolution of operational issues
-The schedule for maintenance, systems upgrades, tests, exercises, and wargames, coordinated across all users

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603896C: *BMD C2BMC*	**PROJECT** MX01: *Command & Control, Battle Management, Communications (C2BMC) Development Support*

-Collection of data regarding system/sub-system failures and prioritization of corrective actions
-Review of hardware/software problems and coordination of Commercial-Off-the-Shelf (COTS) developer/vendor service calls
-Integrated logistics support planning and management
-Hardware and software maintenance and logistics functions that are beyond the capability of on-site support personnel
-Inventory and spares management
-Sustaining engineering support from the prime contractor and government activities
-Maintenance of software licenses and vendor support agreements
-Hardware and software maintenance agreements
-Vendor depot support services

Training support includes:

-Developing and maintaining operator, maintenance personnel, and testers training material for C2BMC components/capabilities
-Training tailored to each deployment and/or test
-Training curriculum/courses provided for BMD Planner, Situational Awareness, GEM, and the C2BMC Executive Course
-Warfighter sustainment training and skill proficiency
-Assistance to warfighter in development and execution of the Radar Management Course
-New equipment training to end-users and training organizations

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Operations and Support	-	-	62.725
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY 2010 accomplishments are reported in prior year budget project XX01 ($42,561), content previously reported in budget project MD01.			
FY 2011 Plans: FY 2011 plans are reported in budget project MD01			
FY 2012 Plans: -Maintain C2BMC training suites			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Sustain Global Engagement Manager (GEM) trainers -Develop curriculum for and train operators, maintenance personnel, and testers -Resolve real-time operational issues through the C2BMC Control Center and BMDS Network Operation and Security Center (BNOSC) at FY 2010 level -Provide global BMDS communications via leased Defense Information Systems Agency (DISA) circuit lines -Provide and support communications circuits for fielded C2BMC locations -Provide integrated logistics support planning and management and sustaining engineering support for fielded hardware and software, including support to Navy Maritime Operations Centers where C2BMC equipment resides -Provide support of AN/TPY-2 radar communications nodes -Provide operations and sustainment personnel to support test and special operations for AN/TPY-2 at 5 deployed operational test sites -Support Host Nation operations, demonstrations, and tests -Provide sustainment training/skills proficiency to C2BMC operations -Upgrade and maintain computer network defense and network monitoring in the BNOSC -Operate the BNOSC 24 hours a day, 7 days a week, 365 days a year -Provide support/sustainment for C2BMC installations -Provide sustainment of the BCN Teleport Gateway (BTG) at the DoD teleports: Lago Patria, IT; Ramstein, DE; Fort Buckner, JP; Camp Roberts, CA; Wahiawa, HI; Northwest, VA -Support the installation and integration of the second Modernization of Enterprise Terminal (MET) in EUCOM -Continue round-the-clock sustainment for Communications capabilities with AN/TPY-2 (previously in Program Element 0603884C, Project MD11) -Continue on-site C2BMC support of fielded sites for hardware and software (previously in Program Element 0603884C, Project MD11) -Continue C2BMC operator training for fielded capabilities (previously in Program Element 0603884C, Project MD11) -Continue sustaining engineering support and integrated logistics support for fielded hardware and software (previously in Program Element 0603884C, Project MD11)			
Accomplishments/Planned Programs Subtotals	-	-	62.725

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603175C: *Ballistic Missile Defense Technology*	164.670	132.220	75.003		75.003	103.844	111.712	164.378	170.851	Continuing	Continuing
• 0603881C: *Ballistic Missile Defense Terminal Defense Segment*	690.054	436.482	290.452		290.452	318.745	309.894	340.969	320.638	Continuing	Continuing
• 0603882C: *Ballistic Missile Defense Mid-Course Segment*	1,022.019	1,346.181	1,161.001		1,161.001	1,040.949	925.943	856.839	875.969	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	544.352	454.859	222.374		222.374	357.271	336.514	318.321	348.944	Continuing	Continuing
• 0603888C: *Ballistic Missile Defense Test and Targets*	737.863	1,113.425	1,071.039		1,071.039	898.680	790.906	787.113	878.215	Continuing	Continuing
• 0603890C: *Ballistic Missile Defense Enabling Programs*	355.870	402.769	373.563		373.563	331.203	314.193	336.749	346.560	Continuing	Continuing
• 0603892C: *BMD AEGIS*	1,418.992	1,467.278	960.267		960.267	957.992	1,001.510	970.607	1,033.710	Continuing	Continuing
• 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	148.506	112.678	96.353		96.353	53.577	47.592	32.289	34.308	Continuing	Continuing
• 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	82.926	86.198	69.325		69.325	64.514	55.808	56.769	54.621	Continuing	Continuing
• 0603907C: *SEA BASED X-BAND RADAR (SBX)*	157.739	153.056	177.058		177.058	172.622	162.628	185.934	173.587	Continuing	Continuing
• 0603911C: *BMD EUROPEAN CAPABILITY*	47.342	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.000	47.342
• 0603913C: *ISRAELI COOPERATIVE*	195.652	121.735	106.100		106.100	99.873	95.819	96.840	103.977	Continuing	Continuing
• 0604884C: *AIRBORNE INFRARED (ABIR)*	0.000	111.671	46.877		46.877	49.948	49.173	33.035	34.249	Continuing	Continuing

D. Acquisition Strategy

The Command and Control, Battle Management, and Communications (C2BMC) acquisition strategy is consistent with the Missile Defense Agency`s capability-based acquisition strategy that emphasizes testing, incremental development, evolutionary acquisition, and knowledge-based funding. Lockheed Martin Mission Systems

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603896C: *BMD C2BMC*	PROJECT MX01: *Command & Control, Battle Management, Communications (C2BMC) Development Support*

is the C2BMC prime contractor via an Other Transaction Agreement contract vehicle, which ends 1Q FY 2012. Major team members to Lockheed are Northrop-Grumman, Boeing, Raytheon, and General Dynamics. They are charged with the development, testing, fielding, training, and operations and sustainment support of the C2BMC system. They perform development and testing of C2BMC products in Arlington, VA; Huntsville, AL; and Colorado Springs, CO; and provide worldwide on-site operations and maintenance support.

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603896C: *BMD C2BMC*	PROJECT MX01: *Command & Control, Battle Management, Communications (C2BMC) Development Support*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operations and Support Unit Personnel, Cont System Improvement, Sustaining Support MX01	SS/CPAF	Lockheed Martin Team:Arlington, VA	-	-		13.001	Oct 2011	-		13.001	0.000	13.001	13.001
Operations and Support Indirect Support MX01	MIPR	DISA DECC:-	-	-		4.761	Oct 2011	-		4.761	Continuing	Continuing	Continuing
Operations and Support DOTMLPF MX01	IA	SETAC:-	-	-		0.500	Oct 2011	-		0.500	Continuing	Continuing	Continuing
Operations and Support Warfighter Training MX01	IA	Lockheed Martin Team:Arlington, VA	-	-		2.661	Oct 2011	-		2.661	Continuing	Continuing	Continuing
Operations and Support Teleport Sustainment MX01	MIPR	SPAWAR:San Diego, CA	-	-		2.799	Oct 2011	-		2.799	Continuing	Continuing	Continuing
Operations and Support Unit Personnel, Contr System Improvement, Sustaining Support MX01	SS/IDIQ	Lockheed Martin Team:Arlington, VA	-	-		39.003	Jan 2012	-		39.003	Continuing	Continuing	Continuing
		Subtotal	-	-		62.725		-		62.725			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603896C: *BMD C2BMC*	PROJECT MX01: *Command & Control, Battle Management, Communications (C2BMC) Development Support*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		62.725		-		62.725			

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603896C: *BMD C2BMC*	PROJECT ZX40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
ZX40: *Program-Wide Support*	10.245	-	-	-	-	-	-	-	-	0.000	10.245
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project ZX40 has been transferred project MD40.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	10.245	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	10.245	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603896C: *BMD C2BMC*	PROJECT MD40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	11.470	14.922	-	14.922	13.836	15.841	14.490	12.967	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). Includes Government Civilians, Advisory and Assistance Services, and Federally Funded Research and Development Contracts (FFRDC) providing integrity and oversight of the BMDS as well as supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2 after FY 2011), such as physical and technical security, legal services, travel and agency training, office and equipment leases, rents and utilities, data and unified communications support, supplies and maintenance, and similar operating expenses. Also includes legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.
In keeping with congressional intent, PWS is allocated among the PEs on a pro-rata basis and therefore fluctuates by year based on the total MDA budget and the individual PE`s budget amount.

Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($11,988).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	-	11.470	14.922
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($11,988).			
FY 2011 Plans: See paragraph A, Mission Description and Budget Item Justification			
FY 2012 Plans: See paragraph A, Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	11.470	14.922

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603896C: *BMD C2BMC*	**PROJECT** MD40: *Program-Wide Support*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0603897C: *BMD HERCULES*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	45.250	-	-	-	-	-	-	-	-	0.000	45.250
WX02: *Hercules Capability Development*	43.414	-	-	-	-	-	-	-	-	0.000	43.414
ZX40: *Program-Wide Support*	1.836	-	-	-	-	-	-	-	-	0.000	1.836

Note

Software and algorithm work was moved to the BMDS Technology Program Element 0603175C in FY 2011. In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project WX02 for FY 2010 is now captured in Project MD25.

A. Mission Description and Budget Item Justification

The Agency seeks out and invests in next generation technology by executing research with universities, Federally Funded Research and Development Centers, University Affiliated Research Centers, small businesses and industry at all levels to address the threats we expect to face in the future. Project Hercules develops technology to address emerging threats.

Project Hercules contributions to Combatant Commanders` Achievable Capabilities List include:

- Evaluate airborne and space based sensor data for applicability to the future BMDS
- Integrate and fuse sensor data for greater track accuracy
- Classify, identify, characterize, and discriminate items of interest

Three goals for Hercules are:

- Develop, deliver, and support integration of algorithms and software to execute early intercept concepts and demonstrations
- Develop, deliver, and support integration of algorithms and software to improve the performance of radar and electro-optical sensors
- Develop, deliver, and support integration of algorithms and software for advanced battle management and decision making concepts

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603897C: *BMD HERCULES*

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	47.932	-	-	-	-
Current President's Budget	45.250	-	-	-	-
Total Adjustments	-2.682	-	-	-	-
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-1.655	-			
• SBIR/STTR Transfer	-0.955	-			
• Other Adjustment Detail	-0.072	-	-	-	-

Change Summary Explanation

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603897C: *BMD HERCULES*	PROJECT WX02: *Hercules Capability Development*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
WX02: *Hercules Capability Development*	43.414	-	-	-	-	-	-	-	-	0.000	43.414
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project Hercules develops algorithms and software in the context of persistent sensor coverage, pervasive weapons coverage, global battle management, effective targeting, and effectiveness in advance environments and early intercept capability demonstration managed by MDA`s Advanced Technology Directorate. Hercules develops detection, tracking, discrimination, and decision making prototype algorithms to improve the performance of command and control, battle management, communications, sensor, and weapon components.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Hercules Technology Development	30.077	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: Persistent Sensor Coverage -Continued development of discrimination algorithms that exploit unique opportunities in electro-optical and infrared sensors Pervasive Weapons Coverage -Researched approaches at the system level to address advanced evolving threats concerns -Identified algorithmic options for enabling early intercept -Developed sensor surveillance algorithms to support weapons engagement that exploit a wide range of sensor technology areas Global Battle Management -Built battle manager interfaces for unmanned aerial vehicle, space-based sensors and fire control -Developed advanced algorithms that take advantage of tracks from multiple sensors providing geographic and phenomenological diversity to form system level tracks			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603897C: *BMD HERCULES*	PROJECT WX02: *Hercules Capability Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Effective Targeting -Conducted research and develop algorithms that take advantage of features and attributes measured from multiple sensors providing geographic and phenomenological diversity for discrimination -Continued development of lethal region discrimination capabilities Effectiveness in Adverse Environments -Initiated research into approaches at the sensor level to address advanced threats -Conducted early research and developed algorithms to mitigate the effects of countermeasures			
Title: Program Office ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** This includes the management of the technology program. -Funded government personnel salaries for program management, project support, project costs and travel. -Supported activities for technology development.	13.337 0	-	-
Accomplishments/Planned Programs Subtotals	43.414	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

MDA`s fiscal year FY 2010 budget submission reflected an emphasis on early intercept research and development. The acquisition strategy to conduct this technology development effort consists of three pillars. First, leverage the technical expertise of Federally Funded Research and Development Centers and University Applied Research Centers. Second, continue to leverage relevant existing contracts within limits of Competition and Contracting Act (CICA) taking into account contractor past performance, scope, ceiling and period of performance. Third, for new technology initiatives, seek industry solutions via the Advanced Technology Broad Agency Announcement and competitive procurements.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603897C: *BMD HERCULES*	PROJECT WX02: *Hercules Capability Development*

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603897C: *BMD HERCULES*	PROJECT WX02: *Hercules Capability Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hercules Technology Development Algorithm Development WX02	Various	Various:Various	24.962	-		-		-		-	0.000	24.962	25.165
		Subtotal	24.962	-		-		-		-	0.000	24.962	25.165

Remarks

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hercules Technology Development Algorithm WX02	Various	Various:Various	3.810	-		-		-		-	0.000	3.810	3.810
Program Office Algorithm Development WX02	Various	Sparta:Huntsville, AL	14.292	-		-		-		-	0.000	14.292	14.343
		Subtotal	18.102	-		-		-		-	0.000	18.102	18.153

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hercules Technology Development Evaluation and Testing WX02	Various	Various:Various	3.040	-		-		-		-	0.000	3.040	3.040
		Subtotal	3.040	-		-		-		-	0.000	3.040	3.040

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603897C: *BMD HERCULES*	PROJECT WX02: *Hercules Capability Development*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	46.104	-		-		-		-	0.000	46.104	46.358

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603897C: *BMD HERCULES*	PROJECT ZX40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
ZX40: *Program-Wide Support*	1.836	-	-	-	-	-	-	-	-	0.000	1.836
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($1,836).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	1.836	-	-
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($1,836).			
FY 2011 Plans: Program Wide Support does not exist in this PE for FY 2011.			
FY 2012 Plans: Program Wide Support does not exist in this PE for FY 2012.			
Accomplishments/Planned Programs Subtotals	1.836	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0603898C: *BMD JOINT WARFIGHTER SUPPORT*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	58.105	68.726	41.225	-	41.225	58.089	55.961	56.479	60.684	Continuing	Continuing
YX03: *Joint Warfighter*	53.548	-	-	-	-	-	-	-	-	0.000	53.548
XX03: *Joint Warfighter Sustainment*	1.260	-	-	-	-	-	-	-	-	0.000	1.260
MD03: *Joint Warfighter Support*	-	66.414	39.535	-	39.535	55.656	53.450	54.064	58.097	Continuing	Continuing
ZX40: *Program-Wide Support*	3.297	-	-	-	-	-	-	-	-	0.000	3.297
MD40: *Program-Wide Support*	-	2.312	1.690	-	1.690	2.433	2.511	2.415	2.587	Continuing	Continuing

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Projects XX03 and YX03 are now captured in Project MD03 beginning in FY 2011.

A. Mission Description and Budget Item Justification

The Joint Warfighter Support Program enables the Warfighter and the Developer to work together to coordinate:

- System attributes, capability needs, and the identification of gaps and seams in warfighting capability
- Inputs to BMDS development and product improvements (through Modification and Fielding Requests)
- Timely responses to Warfighter Requests for Information and Requests for Analyses to support contingency and routine BMDS operations
- BMDS objectives incorporated into Combatant Commander and Developer-sponsored wargames and exercises
- System-level training/mission rehearsal for fielded capabilities and familiarization on new capabilities
- System level sustainment, operations support and operational readiness of the fielded BMDS

The Joint Warfighter Support Program enables the effective delivery of BMDS capabilities to the Warfighter and ensures Warfighter participation in the identification and development of new capabilities via the Warfighter Involvement Process. The Joint Warfighter Support Program is executed within a single project, Joint Warfighter Support, through the performance of the following major functions/tasks:

- Enable Joint Staff and Service collaboration on BMDS issues by providing strategic level interfaces among MDA, the Military Services, COCOMs, the Joint Staff, and the Office of the Under Secretary of Defense for Policy (OSD (P))
- Focus on cross-Departmental initiative (such as the transition of BMDS Elements to the Services), and cross-Departmental Corporate Boards (such as the Missile Defense Executive Board)

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603898C: *BMD JOINT WARFIGHTER SUPPORT*

- Develop and maintain the BMDS Operational Readiness Reporting System (BORRS) to track and report up to the minute BMDS operational readiness, configuration control and situational awareness information and provide technical assistance that enables senior leader decisions and also provides data for accurate operational availability and reliability cost drivers
- Develop and maintain up to the minute BMDS situational awareness and provide technical assistance that enables senior leader decisions
- Plan and execute real time BMDS Asset Management, Configuration Management, Operational Readiness and Fielding Integration in support of the Warfighter and MDA
- Perform 24 hours a day, 7 days a week, 365 days a year BMDS Operations Support /coordinate BMDS Asset Management, and monitor/ report BMDS status through the MDA Operations Support Center and BMDS Watch Officers
- Develop and maintain system level BMDS Training and Education activities matched to the latest BMDS configurations
- Integrate BMDS-Level training and education Into Joint and Service schools and training environments
- Contribute to Concepts and Plans that examine evolving and predicted BMDS capabilities to ensure the BMDS keeps pace with the evolving technical and strategic environment
- Ensure Warfighter input to the BMDS development effort via the Warfighter Involvement Process in a timely manner
- Update all Exercises and Wargames to reflect current and emerging BMDS capabilities to allow hands on, system exposure and user training and feedback to the Developer
- Conduct annual or semi-annual Exercises and Wargames for current and emerging BMDS capabilities that allow user training and feedback to the developer
- Coordinate BMDS-wide Integrated Operational Support policies and procedures for each new BMDS capability delivery
- Provide direct and timely support to the Geographic Combatant Commanders to ensure Warfighter participation in applicable exercises, wargaming and training activities
- Maintain continuous Joint Staff interface to MDA, monitor Joint Staff initiatives that impact the BMDS, and provide timely and accurate responses to all Joint Staff Requests for Information and Requests for Analyses
- Support Military Services in the efficient and cost-effective transition of BMDS elements by facilitating their involvement in planning and cost estimating in the earliest phases of BMDS elements` development
- Provide MDA planning and Requests for Information and Analysis program in support of COCOM`s and Functional Commands
- Provide MDA planning support to COCOMs during contingency periods through Crisis Planning Teams (CPT)

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603898C: *BMD JOINT WARFIGHTER SUPPORT*

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	61.098	68.726	62.239	-	62.239
Current President's Budget	58.105	68.726	41.225	-	41.225
Total Adjustments	-2.993	-	-21.014	-	-21.014
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-0.765	-			
• SBIR/STTR Transfer	-1.175	-			
• Other Adjustment Detail	-1.053	-	-21.014	-	-21.014

Change Summary Explanation

The FY 2012 $21.014 million dollar decrease in this program element is the result of program adjustments and $1.023 million in efficiency savings.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603898C: *BMD JOINT WARFIGHTER SUPPORT*	PROJECT YX03: *Joint Warfighter*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
YX03: *Joint Warfighter*	53.548	-	-	-	-	-	-	-	-	0.000	53.548
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project YX03 has been transferred to project MD03

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD03 for FY 2010 Accomplishments	53.548	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	53.548	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603898C: *BMD JOINT WARFIGHTER SUPPORT*	PROJECT XX03: *Joint Warfighter Sustainment*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
XX03: *Joint Warfighter Sustainment*	1.260	-	-	-	-	-	-	-	-	0.000	1.260
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project XX03 has been transferred to project MD03

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD03 for FY 2010 Accomplishments	1.260	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	1.260	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603898C: *BMD JOINT WARFIGHTER SUPPORT*	PROJECT MD03: *Joint Warfighter Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD03: *Joint Warfighter Support*	-	66.414	39.535	-	39.535	55.656	53.450	54.064	58.097	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project XX03 and YX03 are now captured in Project MD03 beginning in FY11.

A. Mission Description and Budget Item Justification

The Joint Warfighter Support Program is planned and executed jointly by the Warfighter Strategic Support Directorate and the Warfighter Operational Support Directorate. The Warfighter Strategic Support Directorate executes BMDS Operational Support and BMDS Education and Training and is responsible for interfacing and coordinating with the Functional Combatant Commands, the Joint Staff and Services. The Warfighter Operational Support Directorate executes Wargames and Exercises, BMDS Capability Delivery and is responsible for interfacing with Geographic Combatant Commands.

Joint Warfighter Support is comprised of six primary functions/responsibilities/tasks: 1) Geographic Combatant Commander Support; 2) Joint Staff, Service and Functional Combatant Commander Integration; 3) Operations Support; 4) Exercises and Wargames; 5) BMDS Training and Education; 6) Plans and Capability Delivery.

1) Geographic Combatant Commander Support
The Warfighter Operational Support Directorate is responsible for interfacing with Geographic Combatant Commands for BMDS capabilities delivered and for assessing MDA`s ability to provide current and future capabilities to meet warfighting needs.

2) Joint Staff, Service and Functional Combatant Commander Integration
The Developer-Warfighter Interface is critically important to the effective and efficient fielding of BMDS capabilities worldwide. To this end, the Warfighter Strategic Support Directorate maintains a Joint Staff, Service and Combatant Commander integration responsibility.

3) Operations Support
The Warfighter Strategic Support Directorate performs the critical and unique function of providing around the clock BMDS Operations Support to MDA leadership and Warfighter stakeholders at Combatant Commander staffs, Functional Component Commands and military units. Current operations support includes but is not limited to: maintaining the MDA operations Support Center at the MDIOC at Schriever AFB CO 24 hours a day, 7 days a week, 365 days a year and the MDA Mission

Operations Center at MDA HQ 5 days per week; the planning and execution of scheduled maintenance, upgrades and testing using the Asset Management System; maintaining strict control of BMDS architecture configurations, consistent with the Operations Capacity Baseline and Event Owner needs as properly scheduled; the measurement and accounting of BMDS Operational Availability, Equipment Readiness Rates and Warfighter Availability; reporting Commanders Critical Information Requirements as defined by MDA leadership; maintaining a current and accurate BMDS Handbook; and readiness to support Warfighter Exercises or Real World Contingencies on short notice.

4) Exercises and Wargames
Conducting exercises and wargames enables end-user mission training, qualification, certification and rehearsal of mission operations, strengthens user confidence in the current system and shapes development of the future BMDS. This activity enables the Warfighter to build missile defense plans and Tactics, Techniques and Procedures for the near term BMDS, and then tests execution of those plans via high fidelity simulations. It also incorporates system engineering and interoperability test activities, when possible, to leverage MDA materiel development events by providing real-world training to operators. This activity provides analysis support, as required, for each wargame and exercise to conduct data collection and analysis, and prepares and publishes an event After Action Assessment Report. Finally, exercises and wargames create the conditions for continued, in-depth foreign and/or international participation in BMDS operations and development. Geographic Combatant Commander Support enables key Warfighters to participate in selected MDA activities, wargames and exercises to obtain their input and feedback on the BMDS developmental processes. Every year BMDS overlays are incorporated into Combatant Command Tier 1 Exercises to enable end-user mission rehearsal and sustainment training, qualification and certification of BMDS operations. The yearly, or in some cases every other year, exercises are necessary for both familiarization of the user, but also to ensure capability upgrades accomplished in each BMDS capability upgrade are added to the exercise and training scenarios. By involving participating Combatant Commands in building coherent missile defense plans and Tactics, Techniques and Procedures for the near term BMDS, and then testing cohesive execution of those plans via high fidelity simulations, this effort optimizes BMDS operational effectiveness.

5) BMDS Training and Education
This activity develops and maintains BMDS Training and Education at the system level that is not conducted by the Services. Courses for Joint Warfighters, Department of Defense officials and the Services provide critical knowledge on BMDS capabilities and system operation. A key part of this activity includes developing BMDS educational courses and conducting education and training of select BMDS stakeholders, staffs and organizations on emerging BMDS capabilities development. As new BMDS capabilities are transitioned to the field, upgrades and improvements will be incorporated to maintain the requisite level of training.

6) Plans and Capability Delivery
These functions enable effective operation of emerging and future BMDS material capabilities and technologies. These activities result in Warfighter development of new BMDS employment constructs and Concepts of Operation. They also serve MDA as the vehicle for the Warfighter Involvement Process which seeks user feedback and guidance to shape future capability development of the BMDS and serves as the lead for the conduct of operational readiness assessments and Military Utility Assessments for the BMDS and is the integration point for the Warfighter Requests for Information and Requests for Analyses. These processes also provide Joint

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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Warfighter support to include, for example, Aegis Ashore site surveys and feasibility studies leading to the deployment of C2BMC and TPY-2 to OCONUS sites, and support to GMD firing doctrine analysis for Combatant Commanders.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: BMDS Materiel Readiness	-	0.378	1.088
Articles:	0	0	0

Description: See Description Below

FY 2010 Accomplishments:
Funding for these FY 2010 accomplishments are reported in prior year budget project YX03 ($.361M)

-Further solidified the relationships between the Readiness Directorate (DWL), MDA`s Elements and external readiness stakeholders to continue working readiness issues across the Agency
-Refined the process for implementing the Readiness Surge Team (RST) by assessing how the RST is assembled, executed and reviewed lessons learned
-Assessed compliance and updated the Ballistic Missile Defense System (BMDS) Readiness Directive as necessary
-Assessed compliance and updated the Item Unique Identifier (IUID) Implementation Instructions as necessary
-Discontinued the existing Ballistic Missile Defense System Integrated Logistics Support Working Group (BMDS ILSWG) and established a Quarterly Readiness Integrated Product Team (IPT). The team assembled MDA`s logistics personnel, open to outside Stakeholders (Services/Combatant Commands), identified and resolved readiness issues that impacted the operational capability to the Warfighter
-Established a Quarterly Item Unique Identifier (IUID) Integrated Product Team (IPT) where MDA organizations reported progress, identified and resolved issues, shared lessons learned, and gauged adherence to Acquisition, Technology and Logistics (AT&L) IUID policy
-Continued hosting the Logistics Functional Manager Meetings to provide direction to the Logistics Functional Leads on policy, personnel issues, and capitalized on logistics successes and helped minimize challenges
-Continued to provide one full-time Missile Defense Agency Engineering Support Services (MiDAESS) integrator, subject matter experts and technical evaluation team members for source selection activities
-Participated in program change management activities, baseline working groups and Capability Delivery Readiness Reviews (CDRR)Initiated the teaming support concept that provided a bridge between the Functional Manager and Functional Lead by engaging in element operational readiness activities
-Supported Contingency Analysis and Activation Team (CAAT) activities by providing staff functions associated with a G-4 (Logistics and Transportation) for the contingency activation or emergency use of Missile Defense Agency assets by the

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Warfighter. Provided integration of logistics and transportation support during the Planning, Deployment, Employment and Redeployment phases ***FY 2011 Plans:*** -Perform life cycle Ballistic Missile Defense System (BMDS) readiness policy, planning, analysis and assessment in support of the Materiel (M) function of the Doctrine, Organization, Training, Materiel, Leadership, Personnel and Facilities (DOTMLPF) -Execute Logistics Functional Manager duties, including training, mentoring and leading the logistics workforce -Execute personnel actions on behalf of the Logistics Functional Leads, to include updating the manpower database, recruit new hires, conduct personnel reviews and pay pools -Provide one full time MDA Engineering Support Services (MiDAESS) Integrator -Conduct Quarterly Readiness Integrated Product Team (IPT) meeting -Establish Item Unique Identification (IUID) Policy and establish IUID IPT to monitor compliance -Execute Overarching MOA governing Logistics Personnel -Implement BMDS Readiness Directive and monitor compliance -Refine and implement the Readiness Surge Team Support process -Develop, refine and implement MDA Transportation Cell -Develop, refine and implement MDA Property Management Office -Develop and conduct MDA Logistics Conference ***FY 2012 Plans:*** -Perform life cycle Ballistic Missile Defense System (BMDS) readiness policy, planning, analysis and assessment in support of the Materiel (M) function of the Doctrine, Organization, Training, Materiel, Leadership, Personnel and Facilities (DOTMLPF) -Execute Logistics Functional Manager duties, including training, mentoring and leading the logistics workforce -Execute personnel actions on behalf of the Logistics Functional Leads, to include updating the manpower database, recruit new hires, conduct personnel reviews and pay pools -Provide one full time MDA Engineering Support Services (MiDAESS) Integrator -Conduct Quarterly Readiness Integrated Product Team (IPT) meeting -Continue conduct of Item Unique Identification (IUID) IPT to monitor IUID IPT policy compliance -Execute overarching MOA governing Logistics Personnel -Implement BMDS Readiness Directive and monitor compliance -Refine and implement the Readiness Surge Team Support process -Develop, refine and implement MDA Transportation Cell -Develop, refine and implement MDA Property Management Office			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Develop and conduct MDA Logistics Conference			
Title: Warfighter Operational Support	-	42.253	22.039
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: This plan was captured in budget project YX03 in Exercise and Wargames ($24.908M), Warfighter Interface Management and Combatant Commander (COCOM) Support ($3.978M) and Plans and Capability Delivery ($1.693M). -Global Lightning Exercise Series 1Q FY 2010 -NIMBLE TITAN Wargame Series 2Q FY 2010 -VIGILENT SHIELD Exercise Series 1Q FY 2010 -JUNIPER COBRA -ARDENT SENTRY Exercise Series 3Q FY 2010 -AUSTERE CHALLENGE Exercise Series 3Q FY 2010 -BMDS Joint ILS Mgt Team Conference 3Q FY 2010 -BMDS Logistics Support Contingency Plan Update 3Q FY 2010 -EAGLE RESOLVE Exercise Series 3Q FY 2010 -GLOBAL STORM Exercise Series 3Q FY 2010 -TERMINAL FURY Exercise Series 3Q FY 2010 -GLOBAL THUNDER Exercise Series 4Q FY 2010 -KEEN EDGE Exercise Series 2Q FY 2010 -INTERNAL LOOK Exercise Series 1Q FY 2010 -AIR AND MISSILE DEFENSE EXERCISE 1Q-4Q FY 2010 -ASSURED RESPONSE Exercise Series 4Q FY 2010 -NATIONAL MISSILE DEFENSE CONFERENCE WARGAME 2Q FY 2010 -MULTINATIONAL MISSILE DEFENSE CONFERENCE WARGAME 3Q FY 2010 -Continued to provide support for Component Command participants to attend numerous Missile Defense exercises and wargames. Supported travel requirements of the Directorate for Warfighter Interface Civilian and Military staff, to attend various exercises, wargames, planning conferences and technology conferences. Provided Contractor Technical Services Support to the Directorate for Warfighter Interface -Supported Component Command Tabletop Exercises to facilitate the development of Regional Concepts of Operation			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Assisted Warfighters to update the annual BMDS Prioritized Capabilities List to reflect changes in Component Command priorities for needed BMDS enhancements -Assisted Strategic Command with its annual BMDS Military Utility Assessment -Continued to work with the Program Offices and the Warfighter to establish Concepts of Operation for transitioning BMDS capabilities -Continued Service coordination to resolve transition and transfer issues via decision-focused Board of Director meetings with each of the Military Services -Continued to support Weapon System Reviews as required with the Lead Service to inform them on BMDS capabilities and cost estimates in order to facilitate future transition/transfer -Coordinated efforts with the designated Lead Services to facilitate transition/transfer of BMDS capabilities -Continued to prepare the MDA leadership on representing the Agency to the Missile Defense Executive Board on critical BMDS related topics/decisions -Emphasized regional level capabilities in support of real-world operations/contingencies ***FY 2011 Plans:*** This plan was captured in budget project MD03 Exercise and Wargames ($35.636M), Warfighter Interface Management and Combatant Commander (COCOM) Support ($6.069M) and Plans and Capability Delivery (.5475M). -AIR MISSILE DEFENSE 11-01 Centcom Exercise 1 1Q FY 2011 -AIR MISSILE DEFENSE 11-01 Centcom Exercise 2 2Q FY 2011 -AIR MISSILE DEFENSE 11-01 Centcom Exercise 3 3Q FY 2011 -AIR MISSILE DEFENSE 11-01 Centcom Exercise 4 4Q FY 2011 -AIR MISSILE DEFENSE 11-01 Eucom Exercise 1 1Q FY 2011 -AIR MISSILE DEFENSE 11-01 Eucom Exercise 2 2Q FY 2011 -AIR MISSILE DEFENSE 11-01 Eucom Exercise 3 3Q FY 2011 -AIR MISSILE DEFENSE 11-01 Eucom Exercise 4 4Q FY 2011 -ARMY CENTRAL COMMAND INTEGRATED AIR MISSILE DEFENSE SYMP 2Q FY 2011 -ASSURED RESPONSE 04X Exercise Event 1Q FY 2011 -ASSURED RESPONSE Exercise Event 4Q fY 2011 -ASSURED RESPONSE Exercise Planning 2Q FY 2011 -BMDS WARGAME Series Event 1Q FY 2011 -EAGLE RESOLVE 11 Exercise Event 3Q FY 2011 -EAGLE RESOLVE 11 Exercise Planning 2Q FY 2011			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-GLOBAL LIGHTNING 11 Exercise Event 3Q FY 2011			
-GLOBAL THUNDER 11-1 Exercise Event 1Q FY 2011			
-GLOBAL THUNDER 11-2 Exercise Event 3Q FY 2011			
-JOINT AIR DEFENSE Centcom Exercise Event 1 1Q FY 2011			
-JOINT AIR DEFENSE Centcom Exercise Event 2 1Q FY 2011			
-JOINT AIR DEFENSE Centcom Exercise Event 3 2Q FY 2011			
-JOINT AIR DEFENSE Centcom Exercise Event 4 2Q FY 2011			
-JOINT AIR DEFENSE Centcom Exercise Event 5 3Q FY 2011			
-JOINT AIR DEFENSE Centcom Exercise Event 6 3Q FY 2011			
-JOINT AIR DEFENSE Centcom Exercise Event 7 4Q FY 2011			
-JOINT AIR DEFENSE Centcom Exercise Event 8 4Q FY 2011			
-JOINT AIR DEFENSE Eucom Exercise Event 1 1Q FY 2011			
-JOINT AIR DEFENSE Eucom Exercise Event 2 1Q FY 2011			
-JOINT AIR DEFENSE Eucom Exercise Event 3 2Q FY 2011			
-JOINT AIR DEFENSE Eucom Exercise Event 4 2Q FY 2011			
-JOINT AIR DEFENSE Eucom Exercise Event 5 3Q FY 2011			
-JOINT AIR DEFENSE Eucom Exercise Event 6 3Q FY 2011			
-JOINT AIR DEFENSE Eucom Exercise Event 7 4Q FY 2011			
-JOINT AIR DEFENSE Eucom Exercise Event 8 4Q FY 2011			
-KEEN EDGE 12 Exercise Planning 3Q FY 2011			
-KEY RESOLVE 11 Exercise Event 2Q FY 2011			
-KEY RESOLVE 12 Exercise Planning 3Q FY 2011			
-MULTI-NATIONAL MISSILE DEFENSE CONFERENCE WARGAME 4Q FY 2011			
-NATIONAL MISSILE DEFENSE CONFERENCE WARGAME 2Q FY 2011			
-SHARP SENTRY Table Top Exercise 1 Event 2Q FY 2011			
-SHARP SENTRY Table Top Exercise 2 Event 2Q FY 2011			
-SHARP SENTRY Table Top Exercise 3 Event 2Q FY 2011			
-SHARP SENTRY Table Top Exercise 4 Event 3Q FY 2011			
-SHARP SENTRY Table Top Exercise 5 Event 3Q FY 2011			
-SHARP SENTRY Table Top Exercise 6 Event 3Q FY 2011			
-SHARP SENTRY Table Top Exercise 7 Event 4Q FY 2011			
-SHARP SENTRY Table Top Exercise 8 Event 4Q FY 2011			
-SHARP SENTRY Table Top Exercise 9 Event 4Q FY 2011			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-TALISMAN SABRE Event 4Q FY 2011 -TERMINAL FURY 11 Exercise Event 3Q FY 2011 -TERMINAL FURY 12 Exercise Planning 3Q FY 2011 -ULCHI FREEDOM GUARD 11 Event 4Q FY 2011 -ULCHI FREEDOM GUARD 11 Planning 1Q FY 2011 -VIGILANT SHIELD 11-1 Exercise Event 1Q FY 2011 -Provide support for Component Command participants to attend numerous missile defense exercises and wargames -Support travel requirements of the Directorate for Warfighter Interface Civilian and Military staff, to attend various exercises, wargames, planning conferences and technology conferences -Provide Contractor Technical Services Support to the Directorate for Warfighter Interface -Enables the Warfighter to define, test, deploy and employ new missile defense capabilities -Train to maintain proficiency with current capabilities -Provide feedback and support involvement in MDA`s BMDS development process -Support to the Joint Functional Component Commander for Integrated Missile Defense BMDS Table Top Exercise(s) to facilitate the Global Missile Defense Capability and to refine the European Capability Concept of Operations through low fidelity demonstration modeling simulations and MDA coordination -Develop Table Top evolutions to include future concepts (Early Intercept) and BMDS assets; conducting System Capability Reviews of new BMDS assets approaching the timeline to be fielded -Provide 24 hours a day, 7 days a week, 365 days a year MDA analysis support to Warfighter Exercises and to the Joint Staff, Services and Combatant Commands in order to document, validate, and prioritize new BMDS capabilities desired by the Warfighters, as well as enhancements to the characteristics of fielded capabilities through the Warfighter Involvement Process -Annual update of the BMDS Prioritized Capabilities List reflecting Combatant Command priorities for needed BMDS enhancements -Conduct Studies and Analyses, as required, to examine emergent Single Integrated Air Picture issues from a BMDS perspective and assess emerging technologies, studies, and theories for incorporation into future BMDS development -Conduct Studies and Analyses to support Joint Staff and Service BMDS Integration efforts required to ensure all aspects of the BMDS successfully transition from development to field use -Conduct BMDS Table Top exercises with low fidelity demonstrations for our friends and allies, working with the MDA Deputy for International Programs and the Combatant Commanders -Work with the Terminal High-Altitude Area Defense, and other Program Offices and the Warfighter to establish Concepts of Operations that will support future MDA development -Manage MDA/Geographic Combatant Command (COCOM) interfaces			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provide support to the development and update of BMD portions of COCOM Operation Plans (OPLANS) and Contingency Plans (CONPLANS) -Provide support to the BMDS Capability Delivery process and transition and transfer to the services -Support USSTRATCOM with development of the annual BMDS Military Utility Assessment ***FY 2012 Plans:*** -AIR MISSILE DEFENSE 12 Centcom Exercise 1 1Q FY 2012 -AIR MISSILE DEFENSE 12 Centcom Exercise 2 2Q FY 2012 -AIR MISSILE DEFENSE 12 Centcom Exercise 3 3Q FY 2012 -AIR MISSILE DEFENSE 12 Centcom Exercise 4 4Q FY 2012 -AIR MISSILE DEFENSE 12 Eucom Exercise 1 1Q FY 2012 -AIR MISSILE DEFENSE 12 Eucom Exercise 2 2Q FY 2012 -AIR MISSILE DEFENSE 12 Eucom Exercise 3 3Q FY 2012 -AIR MISSILE DEFENSE 12 Eucom Exercise 4 4Q FY 2012 -ARMY CENTRAL COMMAND INTEGRATED AIR MISSILE DEFENSE SYMP 3Q FY 2012 -ASSURED RESPONSE Exercise Series 4Q FY 2012 -BMDS WARGAME Series Event 3Q FY 2012 -CONGRESSIONAL WARGAME 2Q FY 2012 -CONSOLIDATED PLANNING Exercise Event 4Q FY 2012 -CONSOLIDATED PLANNING Exercise Planning 2Q FY 2012 -EAGLE RESOLVE 12 Exercise Event 3Q FY 2012 -GLOBAL LIGHTNING 12 Exercise Event 3Q FY 2012 -GLOBAL LIGHTNING 12 Exercise Planning 2Q FY 2012 -GLOBAL THUNDER 13 Planning 3Q FY 2012 -JOINT AIR DEFENSE Centcom Exercise Event 1 1Q FY 2012 -JOINT AIR DEFENSE Centcom Exercise Event 2 1Q FY 2012 -JOINT AIR DEFENSE Centcom Exercise Event 3 2Q FY 2012 -JOINT AIR DEFENSE Centcom Exercise Event 4 2Q FY 2012 -JOINT AIR DEFENSE Centcom Exercise Event 5 3Q FY 2012 -JOINT AIR DEFENSE Centcom Exercise Event 6 3Q FY 2012 -JOINT AIR DEFENSE Centcom Exercise Event 7 4Q FY 2012 -JOINT AIR DEFENSE Centcom Exercise Event 8 4Q FY 2012 -JOINT AIR DEFENSE Eucom Exercise Event 1 1Q FY 2012			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-JOINT AIR DEFENSE Eucom Exercise Event 2 1Q FY 2012 -JOINT AIR DEFENSE Eucom Exercise Event 3 2Q FY 2012 -JOINT AIR DEFENSE Eucom Exercise Event 4 2Q FY 2012 -JOINT AIR DEFENSE Eucom Exercise Event 5 3Q FY 2012 -JOINT AIR DEFENSE Eucom Exercise Event 6 3Q FY 2012 -JOINT AIR DEFENSE Eucom Exercise Event 7 4Q FY 2012 -JOINT AIR DEFENSE Eucom Exercise Event 8 4Q FY 2012 -JOINT PROJECT OPTIC WINDMILL 2013 Planning 2Q FY 2012 -KEEN EDGE 12 Exercise Event 2Q FY 2012 -KEY RESOLVE 12 Exercise Event 2Q FY 2012 -KEY RESOLVE 13 Exercise Planning 3Q FY 2012 -MISSILE DEFENSE CONFERENCE 2Q FY 2012 -MULTI-NATIONAL MISSILE DEFENSE CONFERENCE WARGAME 4Q FY 2012 -NATIONAL MISSILE DEFENSE CONFERENCE WARGAME 2Q FY 2012 -NIMBLE TITAN 12 Wargame Event 3Q FY 2012 -TERMINAL FURY 12 Exercise Event 3Q FY 2012 -ULCHI FREEDOM GUARD 12 Event 3Q FY 2012 -ULCHI FREEDOM GUARD 12 Planning 1Q FY 2012 -VIGILANT SHIELD 11-2 Exercise Event 1Q FY 2012 -VIGILANT SHIELD 13 Exercise Planning 3Q FY 2012 -Provide support for Component Command participants to attend numerous missile defense exercises and wargames -Support travel requirements of the Directorate for Warfighter Interface Civilian and Military staff, to attend various exercises, wargames, planning conferences and technology conferences -Provide Contractor Technical Services Support to the Directorate for Warfighter Interface -Enables the Warfighter to define, test, deploy and employ new missile defense capabilities -Train to maintain proficiency with current capabilities -Provide feedback and support involvement in MDA`s BMDS development process -Support to the Joint Functional Component Commander for Integrated Missile Defense BMDS Table Top Exercise(s) to facilitate the Global Missile Defense Capability and to refine the European Capability Concept of Operations through low fidelity demonstration modeling simulations and MDA coordination -Develop Table Top evolutions to include future concepts (Early Intercept) and BMDS assets; conducting System Capability Reviews of new BMDS assets approaching the timeline to be fielded			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provide 24 hours a day, 7 days a week, 365 days a year MDA analysis support to Warfighter Exercises and to the Joint Staff, Services and Combatant Commands in order to document, validate, and prioritize new BMDS capabilities desired by the Warfighters, as well as enhancements to the characteristics of fielded capabilities through the Warfighter Involvement Process -Annual update of the BMDS Prioritized Capabilities List reflecting Combatant Command priorities for needed BMDS enhancements -Conduct Studies and Analyses, as required, to examine emergent Single Integrated Air Picture issues from a BMDS perspective and assess emerging technologies, studies, and theories for incorporation into future BMDS development -Conduct Studies and Analyses to support Joint Staff and Service BMDS Integration efforts required to ensure all aspects of the BMDS successfully transition from development to field use -Conduct BMDS Table Top exercises with low fidelity demonstrations for our friends and allies, working with the MDA Deputy for International Programs and the Combatant Commanders -Work with the Terminal High-Altitude Area Defense, and other Program Offices and the Warfighter to establish Concepts of Operations that will support future MDA development -Manage MDA/COCOM interfaces -Provide support to the development and update of BMD portions of COCOM OPLANS and CONPLANS -Provide support to the BMDS Capability Delivery process and transition and transfer to the services -Support USSTRATCOM with development of the annual BMDS Military Utility Assessment			
Title: Warfighter Strategic Support	-	23.783	16.408
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: This plan was captured in budget project XX03 in Operations Support ($1.260M) and YX03 in Joint Staff/Service/COCOM Integration ($7.350M), Ballistic Missile Defense Training & Education ($7.668M), Warfighter Interface Management and Combatant Commander (COCOM) Support ($4.810M) and Plans and Capability Delivery ($2.780M). -Continued to develop Operations Support Center capabilities based on BMDS capabilities joining the operational baseline -Continued to improve situational awareness, technical reach-back and connectivity to MDA developmental, testing, and fielding organizations and assist the Joint Functional Component Command for Integrated Missile Defense in planning and executing multiple Readiness Demonstrations -Continued to streamline the BMDS scheduling/asset management process. Developed new web-based asset management tools to provide streamlined support to the Warfighter			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continued improvements in overseeing the BDMS operational configuration and increase fidelity and technical detail in configuration specifications -Continued to coordinate and align BMDS scheduled maintenance to maximize availability -Continued integration of Capability Demonstration-like objectives into the Ground Test Campaign -Continued to update the BMDS Handbook and create and publish the BMDS Handbook for BMDS Block 4 and 5 -Continued quarterly BMDS System Operability Check continuity tests -Updated BMDS-wide Integrated Logistics Support Plans and Sustainment Directive -Developed and Beta-test the BMDS Operational Readiness Reporting System as part of the operational readiness automated tool development process -Chaired and sponsored periodic (planned monthly) BMDS Integrated Logistics Support Team meetings for Action Officer-level interface and exchange -Executed the annual Joint Integrated Logistics Support Management Team Conference for Senior Mentor and Action Officer-level interface -Supported Component Command Tabletop Exercises to facilitate the development of Regional Concepts of Operation -Assisted Warfighters to update the annual BMDS Prioritized Capabilities List to reflect changes in Component Command priorities for needed BMDS enhancements -Assisted Strategic Command with its annual BMDS Military Utility Assessment -Continued to work with the Program Offices and the Warfighter to establish Concepts of Operation for transitioning BMDS capabilities -Continued Service coordination to resolve transition and transfer issues via decision-focused Board of Director meetings with each of the Military Services -Continued to support Weapon System Reviews as required with the Lead Service to inform them on BMDS capabilities and cost estimates in order to facilitate future transition/transfer -Coordinated efforts with the designated Lead Services to facilitate transition/transfer of BMDS capabilities -Continued to prepare the MDA leadership on representing the Agency to the Missile Defense Executive Board on critical BMDS related topics/decisions -Emphasized regional level capabilities in support of real-world operations/contingencies -Continued to operate the Joint BMDS Training and Education Center Campus -Continued to host Integrated Ballistic Missile Defense Training Working Groups -Developed Combatant Command training courses -Established Independent Advisory Groups to review BMD training needs -Continued to provide support for Component Command participants to attend numerous Missile Defense exercises and wargames. Supported travel requirements of the Directorate for Warfighter Interface Civilian and Military staff, to attend various			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
exercises, wargames, planning conferences and technology conferences. Provided Contractor Technical Services Support to the Directorate for Warfighter Interface -Supported Component Command Tabletop Exercises to facilitate the development of Regional Concepts of Operation -Assisted Warfighters to update the annual BMDS Prioritized Capabilities List to reflect changes in Component Command priorities for needed BMDS enhancements -Assisted Strategic Command with its annual BMDS Military Utility Assessment -Continued to work with the Program Offices and the Warfighter to establish Concepts of Operation for transitioning BMDS capabilities -Continued Service coordination to resolve transition and transfer issues via decision-focused Board of Director meetings with each of the Military Services -Continued to support Weapon System Reviews as required with the Lead Service to inform them on BMDS capabilities and cost estimates in order to facilitate future transition/transfer -Coordinated efforts with the designated Lead Services to facilitate transition/transfer of BMDS capabilities -Continued to prepare the MDA leadership on representing the Agency to the Missile Defense Executive Board on critical BMDS related topics/decisions -Emphasized regional level capabilities in support of real-world operations/contingencies			
FY 2011 Plans: This plan was captured in budget project MD03 in Operations Support ($6.903M), Joint Staff/Service/COCOM Integration ($2.602M), Ballistic Missile Defense Training & Education ($7.662M), Warfighter Interface Management and Combatant Commander (COCOM) Support ($6.069M) and Plans and Capability Delivery ($.5475M). -Man and operate MDA`s Operations Support Center (OSC) 24 hours per day, 7 days per week, 365 days per year to gather, develop, maintain, communicate and fuse all BMDS situational awareness data concerning the current Health and Status of the BMDS, maintaining operational and exercise configuration control of the BMDS architecture, reporting operational readiness, conducting pre-fielding and fielding asset coordination responsibilities, providing real time BMDS information to all BMDS stakeholders and providing crisis action planning and support during exercises and real world contingencies -Plan, organize, resource and manage BMD operations support functions to optimize mission performance -Maintain approved BMDS operational configuration and enable on-site developmental operations, sustainment, and operational activities in a Concurrent Test, Training and Operations (CTTO) environment -Precisely align BMDS components in accordance with the currently approved Operational or Test Configuration. This requires participation in the Integration Support Group and the MDA Program Change Board, and real time management to ensure the BMDS is in the specific approved Operational Configuration			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Serve as the MDA BMDS Asset Management office of primary responsibility for coordinating and providing integrated MDA development, maintenance and training inputs into the Asset Management Process. Planning and coordination includes long range planning (MDA Annual Plan), quarterly schedules, BMDS Operating Schedule (2-8 weeks of near term schedules), and Weekly Activity Message coordination and execution -Monitor, collect, and analyze BMDS operational readiness data to communicate past and present BMDS operational readiness and improve future performance -Maintain BMDS Operational Baseline documentation and associated BMDS Operational Configuration documentation to include the BMDS Handbook and technical library -Maintain BMDS applicable configuration documents for elements and Wargames Support Center -Ensure BMDS Watch Officer (BWO) and Warfighter have situational awareness of current and proposed BMDS Operational Baseline requirements -Implement BMDS Operational Readiness Reporting System (BORRS) Data for Geographic Combatant Commands (COCOMs) -Monitor BMDS Readiness (OPSCAP/PROCAP, RAM, BOCA, Maintenance Data) -Man and operate the OSPT in support of Geographic Combatant Command (COCOM) contingencies, Wargames and Exercises -Continue to enhance Operations Support Center (OSC) capabilities based on BMDS future capabilities -Continue improvement of situational awareness, technical reach-back and connectivity to MDA development, testing, and fielding organizations -Assist the Joint Functional Component Command for Integrated Missile Defense in planning and executing Warfighter Trial Periods -Continue streamlining BMDS scheduling/asset management process to support the warfighter -Continue improvements in overseeing the BMDS operational configuration and increase fidelity and technical detail in configuration specifications -Continue to coordinate and align BMDS scheduled maintenance to maximize availability -Continue integration of Capability Demonstration-like objectives into the Ground Test Campaign -Continue to update the BMDS Handbook and create and publish the BMDS Handbook for future BMDS capabilities -Continue quarterly BMDS System Operability Checks -Continue to improve the BMDS Operational Readiness Reporting System (BORRS) -Improve Operations Support Center and Asset Management Continuity of Operations capabilities -Integrate configuration management tool capabilities into the on-line Asset Management tools -Integrate situational awareness tool capabilities into the on-line Asset management tools -Continue to improve the MDA-wide BMDS Operational Reporting process			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provide strategic-level interfaces between MDA and the Military Services, the Joint Staff, and the Office of the Under Secretary of Defense for Policy (OSD (P)), with a focus on cross-Departmental initiatives (such as the transition of BMDS Elements/ Components to the Services), and cross-Departmental Corporate Boards (such as the Missile Defense Executive Board) -Maintain daily, strategic-level interfaces with the Military Services and Joint Staff, providing them with the critical information they require to plan for the delivery, fielding, and operation of BMDS capabilities -Provide direct support to the Director`s Action Group for MDA senior leadership projects -Support MDA Senior Leadership participation in the Missile Defense Executive Board (MDEB), the Joint Requirements Oversight Council, the Joint Capability Boards and other interdepartmental venues -Liaison with OSD Policy on affairs related to missile defense -Directly interface with the Services, Joint Staff and Combatant Command on missile defense policy issues Ensure senior leadership is prepared for all external engagements (executive boards, testimony, Combatant Command visits, public engagements, etc) as relates to operational BMDS strategic planning and policy -Enable BMDS operational situational awareness and real-world crisis response to the leadership through the MDA/HQ Mission Operations Center -Provide MDA`s planner level coordination for Combatant Command, Joint Staff, and inter-agency staff actions -Support Component Command Tabletop Exercises and Experiments to facilitate the development of Regional Concepts of Operation and Operational Concepts development for Early Intercept concepts and other programs such as Nimble Fire 11 -Assist Warfighters to update the annual BMDS Prioritized Capabilities List to reflect changes in Component Command priorities for needed BMDS enhancements -Assist Strategic Command with its annual BMDS military Utility Assessment -Continue to work with the Program Offices and the Warfighter to establish Concepts of Operation for transitioning BMDS capabilities -Continue to prepare the MDA leadership to represent the Agency to the Missile Defense Executive Board on critical BMDS related topics/decisions -Support Combatant Commanders in execution of real-world operations/contingencies -Manage Warfighter Request for Analysis/Request for Information (RFA/RFI) process within MDA -Operate the BMDS Training and Education Center -Provide BMDS-Level Training and Education for the Joint Warfighters, Defense Officials and Services -Provide Training Transition support to the Services -Host Integrated Ballistic Missile Defense Training Working Groups/Conferences -Review all training curriculum to ensure continuously improved Command and Control, Battle Management, and Communications -Training by the BMDS Training & Education Center -Provide 130 courses (~2500 hours of instruction) to approximately 1600 students			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provide simulated missile injects over the live Satellite Theater Event System broadcast -Continue to operate the Joint BMDS Training and Education Center Campus -Continue to host Integrated Ballistic Missile Defense Training Working Groups -Develop Combatant Command training courses -Provide support for Component Command participants to attend numerous missile defense exercises and wargames -Support travel requirements of the Directorate for Warfighter Interface Civilian and Military staff, to attend various exercises, wargames, planning conferences and technology conferences -Provide Contractor Technical Services Support to the Directorate for Warfighter Interface -Enables the Warfighter to define, test, deploy and employ new missile defense capabilities -Train to maintain proficiency with current capabilities -Provide Feedback and support involvement in MDA`s BMDS development -Support to the Joint Functional Component Commander for Integrated Missile Defense BMDS Table Top Exercise(s) to facilitate the Global Missile Defense Capability and to refine the European Capability Concept of Operations through low fidelity demonstration modeling simulations and MDA coordination Develop Table Top evolutions to include future concepts (Early Intercept) and BMDS assets; conducting System Capability Reviews of new BMDS assets approaching the timeline to be fielded -Provide 24 hours a day, 7 days a week, 365 days a year MDA analysis support to Warfighter Exercises and to the Joint Staff, Services and Combatant Commands in order to document, validate, and prioritize new BMDS capabilities desired by the Warfighters, as well as enhancements to the characteristics of fielded capabilities through the Warfighter Involvement Process -Annual update of the BMDS Prioritized Capabilities List reflecting Combatant Command priorities for needed BMDS enhancements -Conduct Studies and Analyses, as required, to examine emergent Single Integrated Air Picture issues from a BMDS perspective and assess emerging technologies, studies, and theories for incorporation into future BMDS development -Conduct Studies and Analyses to support Joint Staff and Service BMDS Integration efforts required to ensure all aspects of the BMDS successfully transition from development to field use -Conduct BMDS Table Top exercises with low fidelity demonstrations for our friends and allies, working with the MDA Deputy for International Programs and the Combatant Commanders -Work with the Terminal High-Altitude Area Defense, and other Program Offices and the Warfighter to establish Concepts of Operations that will support future MDA development -Manage MDA/Geographic Combatant Command (COCOM) interfaces -Provide support to the development and update of BMD portions of COCOM Operation Plans (OPLANS) and Contingency Plans (CONPLANS) -Provide support to the BMDS Capability Delivery process and transition and transfer to the services			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Support USSTRATCOM with development of the annual BMDS Military Utility Assessment ***FY 2012 Plans:*** -Man and operate MDA`s Operations Support Center (OSC) 24 hours per day, 7 days per week, 365 days per year to gather, develop, maintain, communicate and fuse all BMDS situational awareness data concerning the current Health and Status of the BMDS, maintaining operational and exercise configuration control of the BMDS architecture, reporting operational readiness, conducting pre-fielding and fielding asset coordination responsibilities, providing real time BMDS information to all BMDS stakeholders and providing crisis action planning and support during exercises and real world contingencies -Plan, organize, resource and manage BMD operations support functions to optimize mission performance -Maintain approved BMDS operational configuration and enable on-site developmental operations, sustainment, and operational activities in a Concurrent Test, Training and Operations (CTTO) environment -Precisely align BMDS components in accordance with the currently approved Operational or Test Configuration. This requires participation in the Integration Support Group and the MDA Program Change Board, and real time management to ensure the BMDS is in the specific approved Operational Configuration -Serve as the MDA BMDS Asset Management office of primary responsibility for coordinating and providing integrated MDA development, maintenance and training inputs into the Asset Management Process. Planning and coordination includes long range planning (MDA Annual Plan), quarterly schedules, BMDS Operating Schedule (2-8 weeks of near term schedules), and Weekly Activity Message coordination and execution -Monitor, collect, and analyze BMDS operational readiness data to communicate past and present BMDS operational readiness and improve future performance -Maintain BMDS Operational Baseline documentation and associated BMDS Operational Configuration documentation to include the BMDS Handbook and technical library -Maintain BMDS applicable configuration documents for elements and Wargames Support Center (WSC) -Ensure BMDS Watch Officer (BWO) and Warfighter have situational awareness of current and proposed BMDS Operational Baseline requirements -Implement BMDS Operational Readiness Reporting System (BORRS) Data for COCOMs -Monitor BMDS Readiness (OPSCAP/PROCAP, RAM, BOCA, Maintenance Data) -Man and operate the OSPT in support of COCOM contingencies, Wargames and Exercises -Continue to enhance Operations Support Center capabilities based on BMDS future capabilities -Continue improvement of situational awareness, technical reach-back and connectivity to MDA development, testing, and fielding organizations -Assist the Joint Functional Component Command for Integrated Missile Defense in planning and executing Warfighter Trial Periods			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continue streamlining BMDS scheduling/asset management process to support the warfighter -Continue improvements in overseeing the BMDS operational configuration and increase fidelity and technical detail in configuration specifications -Continue to coordinate and align BMDS scheduled maintenance to maximize availability -Continue integration of Capability Demonstration-like objectives into the Ground Test Campaign -Continue to update the BMDS Handbook and create and publish the BMDS Handbook for future BMDS capabilities -Continue quarterly BMDS System Operability Checks -Continue to improve the BMDS Operational Readiness Reporting System (BORRS) -Improve Operations Support Center and Asset Management Continuity of Operations capabilities -Integrate configuration management tool capabilities into the on-line Asset Management tools -Integrate situational awareness tool capabilities into the on-line Asset management tools -Continue to improve the MDA-wide BMDS Operational Reporting process -Provide strategic-level interfaces between MDA and the Military Services, the Joint Staff, and the Office of the Under Secretary of Defense for Policy (OSD (P)), with a focus on cross-Departmental initiatives (such as the transition of BMDS Elements/ Components to the Services), and cross-Departmental Corporate Boards (such as the Missile Defense Executive Board) -Maintain daily, strategic-level interfaces with the Military Services and Joint Staff, providing them with the critical information they require to plan for the delivery, fielding, and operation of BMDS capabilities -Provide direct support to the Director`s Action Group for MDA senior leadership projects -Support MDA Senior Leadership participation in the MDEB, the Joint Requirements Oversight Council, the Joint Capability Boards and other interdepartmental venues -Liaison with OSD Policy on affairs related to missile defense -Directly interface with the Services, Joint Staff and Combatant Command on missile defense policy issues -Ensure senior leadership is prepared for all external engagements (executive boards, testimony, Combatant Command visits, public engagements, etc) as relates to operational BMDS strategic planning and policy -Enable BMDS operational situational awareness and real-world crisis response to the leadership through the MDA/HQ Mission Operations Center -Provide MDA`s planner level coordination for Combatant Command, Joint Staff, and inter-agency staff actions -Support Component Command Tabletop Exercises and Experiments to facilitate the development of Regional Concepts of Operation and Operational Concepts development for Early Intercept concepts and other programs such as Nimble Fire 11 -Assist Warfighters to update the annual BMDS Prioritized Capabilities List to reflect changes in Component Command priorities for needed BMDS enhancements -Assist Strategic Command with its annual BMDS military Utility Assessment			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continue to work with the Program Offices and the Warfighter to establish Concepts of Operation for transitioning BMDS capabilities -Continue to prepare the MDA leadership to represent the Agency to the Missile Defense Executive Board on critical BMDS related topics/decisions -Support Combatant Commanders in execution of real-world operations/contingencies -Manage Warfighter Request for Analysis/Request for Information (RFA/RFI) process within MDA -Operate the BMDS Training and Education Center -Provide BMDS-Level Training and Education for the Joint Warfighters, Defense Officials and Services -Provide Training Transition support to the Services -Host Integrated Ballistic Missile Defense Training Working Groups/Conferences -Review all training curriculum to ensure continuously improved Command and Control, Battle Management, and Communications -Training by the BMDS Training & Education Center -Provide 130 courses (~2500 hours of instruction) to approximately 1600 students -Provide simulated missile injects over the live Satellite Theater Event System broadcast -Continue to operate the Joint BMDS Training and Education Center Campus -Continue to host Integrated Ballistic Missile Defense Training Working Groups -Develop Combatant Command training courses -Provide support for Component Command participants to attend numerous missile defense exercises and wargames -Support travel requirements of the Directorate for Warfighter Interface Civilian and Military staff, to attend various exercises, wargames, planning conferences and technology conferences -Provide Contractor Technical Services Support to the Directorate for Warfighter Interface -Enables the Warfighter to define, test, deploy and employ new missile defense capabilities -Train to maintain proficiency with current capabilities -Provide feedback and support involvement in MDA`s BMDS development process -Support to the Joint Functional Component Commander for Integrated Missile Defense BMDS Table Top Exercise(s) to facilitate the Global Missile Defense Capability and to refine the European Capability Concept of Operations through low fidelity demonstration modeling simulations and MDA coordination -Develop Table Top evolutions to include future concepts (Early Intercept) and BMDS assets; conducting System Capability Reviews of new BMDS assets approaching the timeline to be fielded -Provide 24 hours a day, 7 days a week, 365 days a year MDA analysis support to Warfighter Exercises and to the Joint Staff, Services and Combatant Commands in order to document, validate, and prioritize new BMDS capabilities desired by the Warfighters, as well as enhancements to the characteristics of fielded capabilities through the Warfighter Involvement Process			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Annual update of the BMDS Prioritized Capabilities List reflecting Combatant Command priorities for needed BMDS enhancements -Conduct Studies and Analyses, as required, to examine emergent Single Integrated Air Picture issues from a BMDS perspective and assess emerging technologies, studies, and theories for incorporation into future BMDS development -Conduct Studies and Analyses to support Joint Staff and Service BMDS Integration efforts required to ensure all aspects of the BMDS successfully transition from development to field use -Conduct BMDS Table Top exercises with low fidelity demonstrations for our friends and allies, working with the MDA Deputy for International Programs and the Combatant Commanders -Work with the Terminal High-Altitude Area Defense, and other Program Offices and the Warfighter to establish Concepts of Operations that will support future MDA development -Manage MDA/COCOM interfaces -Provide support to the development and update of BMD portions of COCOM OPLANS and CONPLANS -Provide support to the BMDS Capability Delivery process and transition and transfer to the services -Support USSTRATCOM with development of the annual BMDS Military Utility Assessment Defense Efficiency - Civilian Staffing Reduction. As part of the Department of Defense reform agenda, eliminates civilian full-time equivalent positions to maintain, with limited exceptions, civilian staffing at the FY 2010 level. (FY 2012 Baseline: $-.773M)			
Accomplishments/Planned Programs Subtotals	-	66.414	39.535

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603888C: *Ballistic Missile Defense Test and Targets*	737.863	1,113.425	1,071.039		1,071.039	898.680	790.906	787.113	878.215	Continuing	Continuing
• 0603896C: *BMD C2BMC*	327.074	342.625	364.103		364.103	330.337	353.081	338.835	304.217	Continuing	Continuing
• 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	82.926	86.198	69.325		69.325	64.514	55.808	56.769	54.621	Continuing	Continuing

D. Acquisition Strategy

The Joint National Integration Center Research and Development Contract is the major performing integrated contract that is competed periodically.

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The Directorate for Warfighter Interface will continue to enable the effective delivery of BMDS capabilities to the Warfighter and to ensure Warfighter participation in the identification and development of new capabilities via the Warfighter Involvement Process.

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Remarks

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
BMDS Materiel Readiness Civ Salaries/Ops Sustainment MD03	Allot	NA:MDA/Colorado Springs, Huntsville, NCR	0.361	0.378	Jan 2011	1.088	Jan 2012	-		1.088	Continuing	Continuing	Continuing
Warfighter Operational Support Civilian Salaries/Ops Sustainment MD03	Allot	MDA:Colorado Springs, Huntsville, NCR	1.850	1.919		2.362	Oct 2011	-		2.362	Continuing	Continuing	Continuing
Warfighter Operational Support Support to MDA Leadership A&AS MD03	C/FFP	MiDAESS:Colorado Springs, Huntsville, NCR	2.078	1.193		1.235	Oct 2011	-		1.235	Continuing	Continuing	Continuing
Warfighter Operational Support Combatant Commanders (COCOM) Support A&AS MD03	C/FFP	MiDAESS:Colorado Springs, Huntsville, NCR	1.900	2.050		1.223	Oct 2011	-		1.223	Continuing	Continuing	Continuing
Warfighter Operational Support Combatant Commanders (COCOM) Support MD03	C/CPAF	MDIOC/Northrop Grumman:Colorado Springs	23.058	35.339		12.277	Jan 2012	-		12.277	Continuing	Continuing	Continuing
Warfighter Operational Support BMDS Support A&AS MD03	C/FFP	MiDAESS:Colorado Springs	0.100	0.135		0.173	Oct 2011	-		0.173	Continuing	Continuing	Continuing
Warfighter Operational Support BMDS Support MD03	MIPR	Multiple:Various	1.593	1.617		1.171	Dec 2011	-		1.171	Continuing	Continuing	Continuing
Warfighter Operational Support BMDS Studies/ Analysis MD03	C/FFP	MDIOC/Northrop Grumman:Colorado Springs	-	-		3.598	Oct 2011	-		3.598	Continuing	Continuing	Continuing

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Warfighter Strategic Support Civilian Salaries/Ops Sustainment MD03	Allot	MDA:Colorado Springs/ Huntsville, NCR	4.273	3.579		3.122	Oct 2011	-		3.122	Continuing	Continuing	Continuing
Warfighter Strategic Support Support to MDA Leadership A&AS MD03	C/FFP	MiDAESS:Colorado Springs/Huntsville/NCR/ AK/CA	4.337	3.828		4.277	Oct 2011	-		4.277	Continuing	Continuing	Continuing
Warfighter Strategic Support Support to MDA Leadership MD03	MIPR	Multiple:NCR/Colorad Springs	2.440	2.154		1.540	Dec 2011	-		1.540	Continuing	Continuing	Continuing
Warfighter Strategic Support Combatant Commanders (COCOM) A&AS MD03	C/FFP	MiDAESS:Colorado Springs/NCR/Huntsville	1.570	1.703		0.933	Oct 2011	-		0.933	Continuing	Continuing	Continuing
Warfighter Strategic Support Commanders (COCOM) Support MD03	C/CPAF	MDIOC/Northrop Grumman:Colorado Springs	7.668	8.316		4.607	Jan 2012	-		4.607	Continuing	Continuing	Continuing
Warfighter Strategic Support Armed Forces (Services) Support MD03	C/CPAF	MiDAESS:Multiple	0.800	0.829		0.857	Oct 2011	-		0.857	Continuing	Continuing	Continuing
Warfighter Strategic Support BMDS Support A&AS MD03	C/FFP	MiDAESS:Colorado Springs/Huntsville/NCR	0.528	0.641		0.536	Oct 2011	-		0.536	Continuing	Continuing	Continuing
Warfighter Strategic Support BMDS Support MD03	C/FFP	MDIOC/Northrop Grumman:Colorado Springs	2.252	2.733		0.536	Oct 2011	-		0.536	Continuing	Continuing	Continuing
		Subtotal	54.808	66.414		39.535		-		39.535			

Remarks

FY12 increase in Civilian Pay due to in-sourcing of personnel.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603898C: *BMD JOINT WARFIGHTER SUPPORT*	PROJECT MD03: *Joint Warfighter Support*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Remarks

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	54.808	66.414		39.535		-		39.535			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603898C: *BMD JOINT WARFIGHTER SUPPORT*	**PROJECT** MD03: *Joint Warfighter Support*

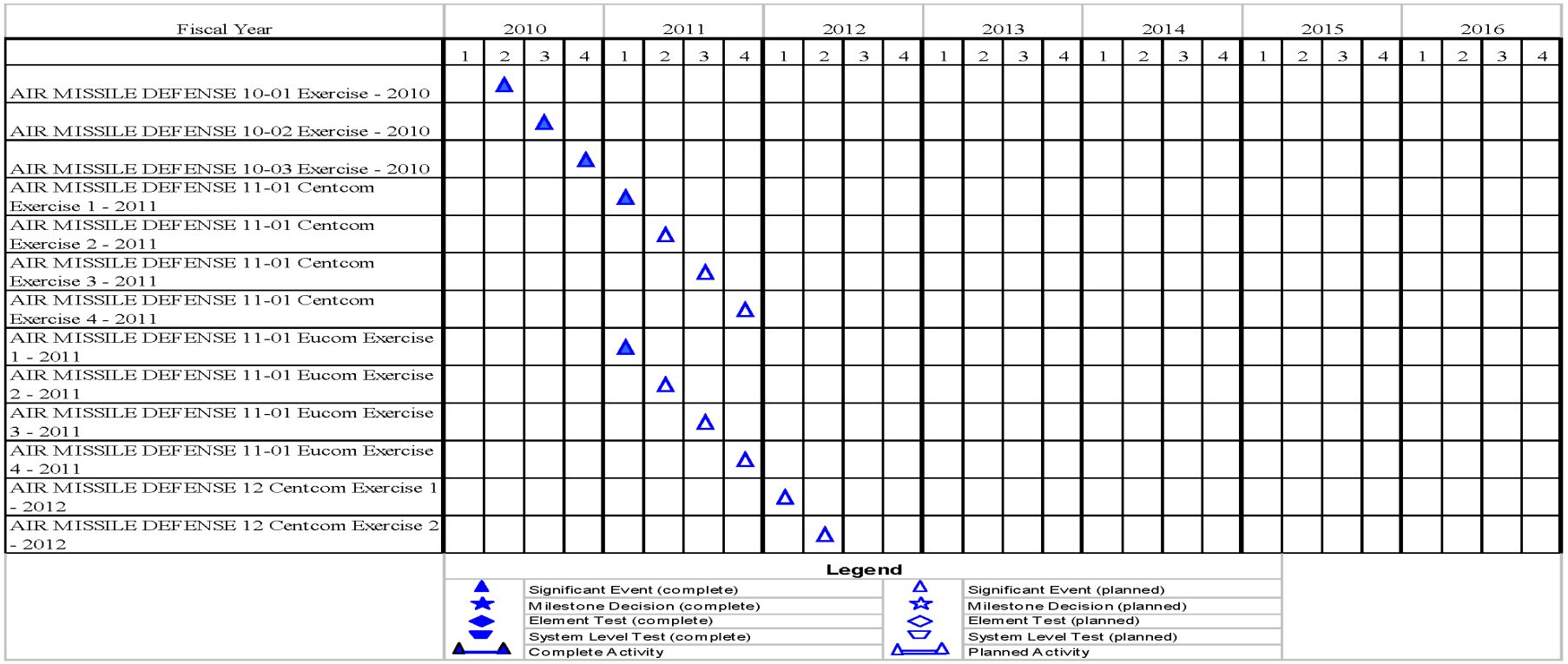

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
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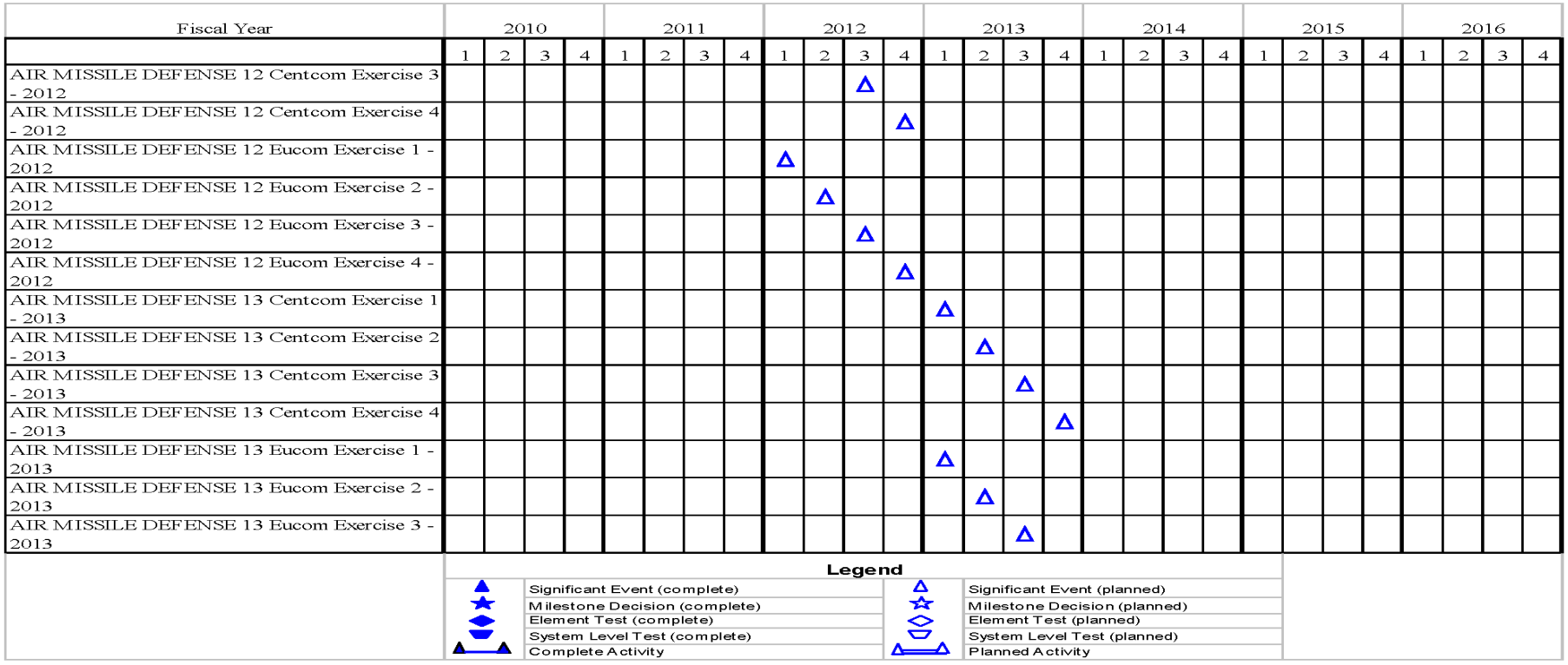

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
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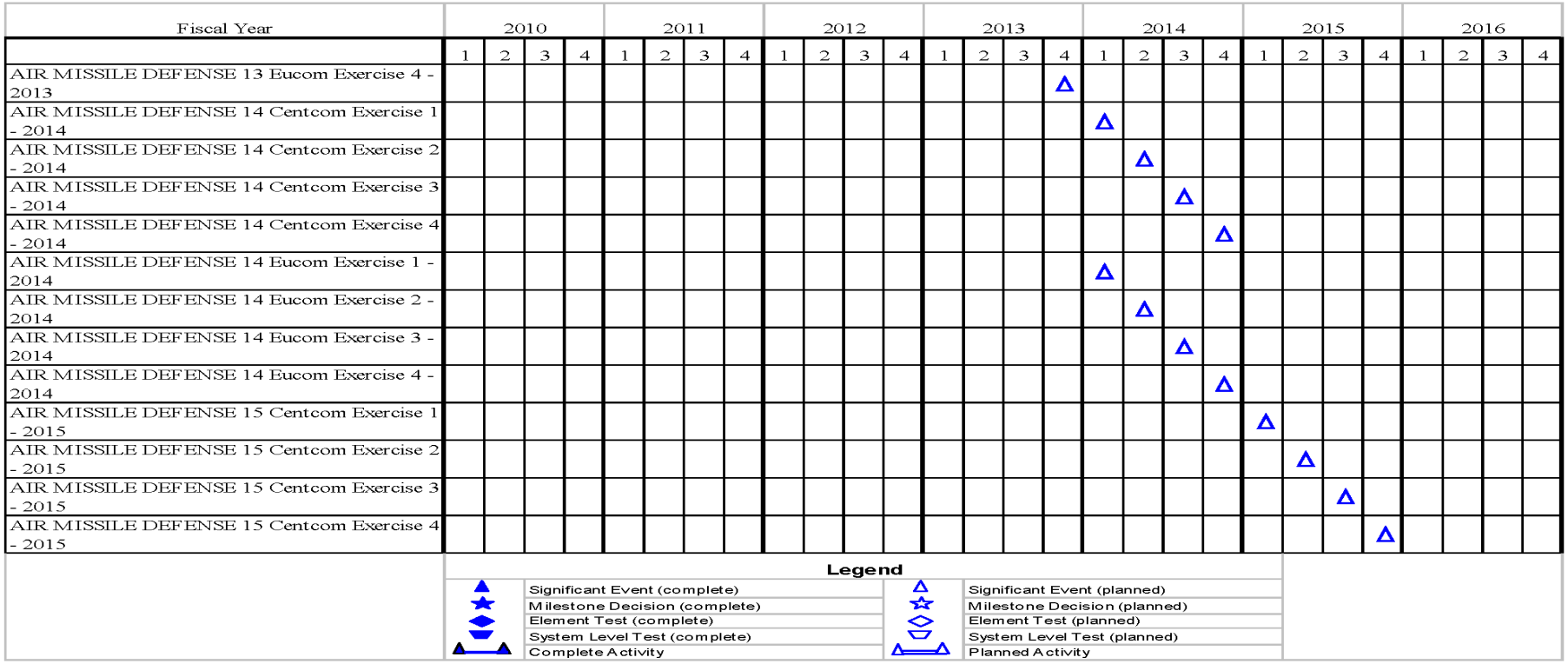

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
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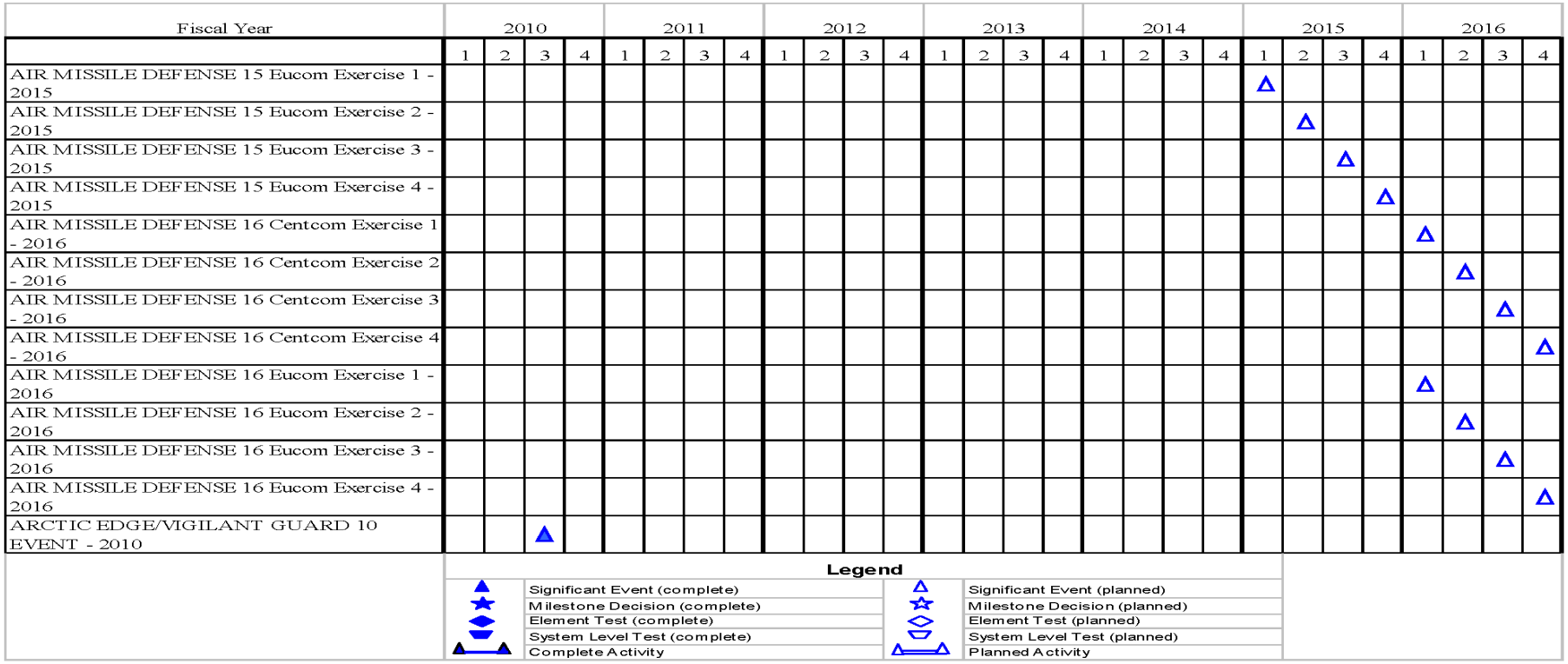

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
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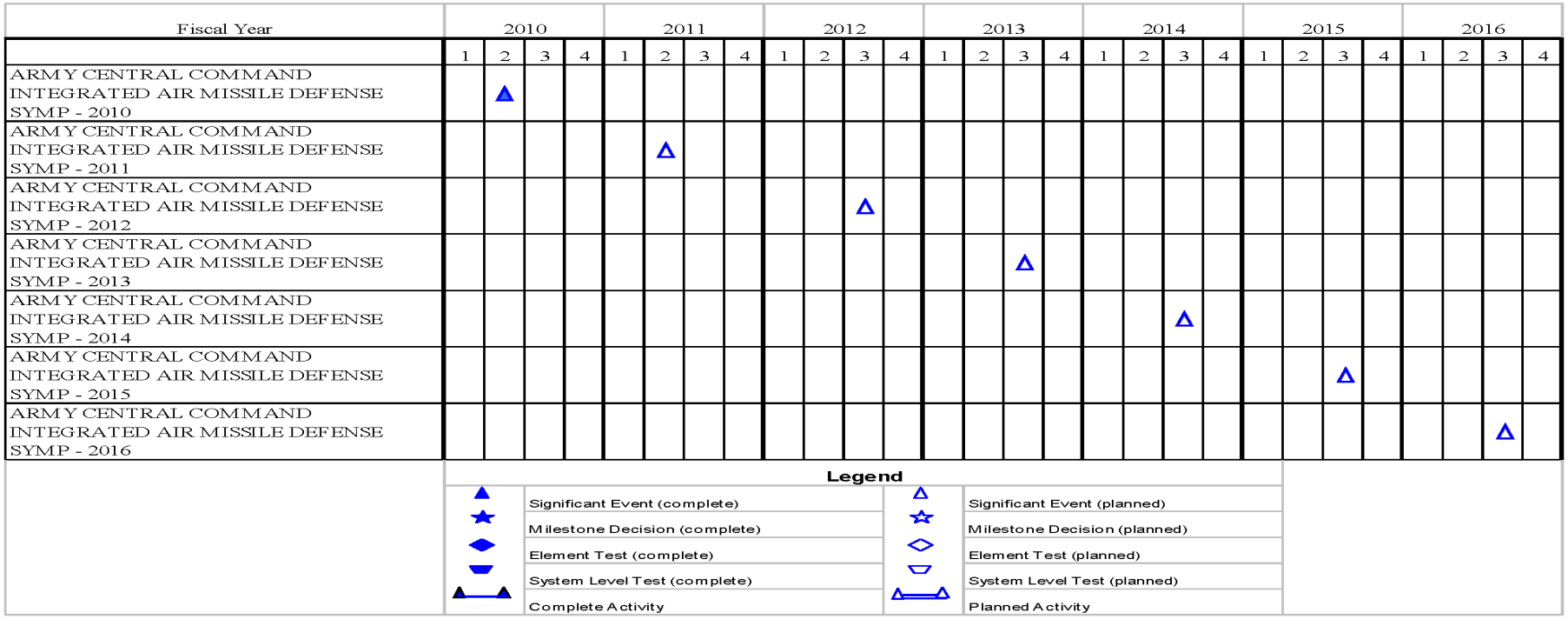

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		**DATE:** February 2011
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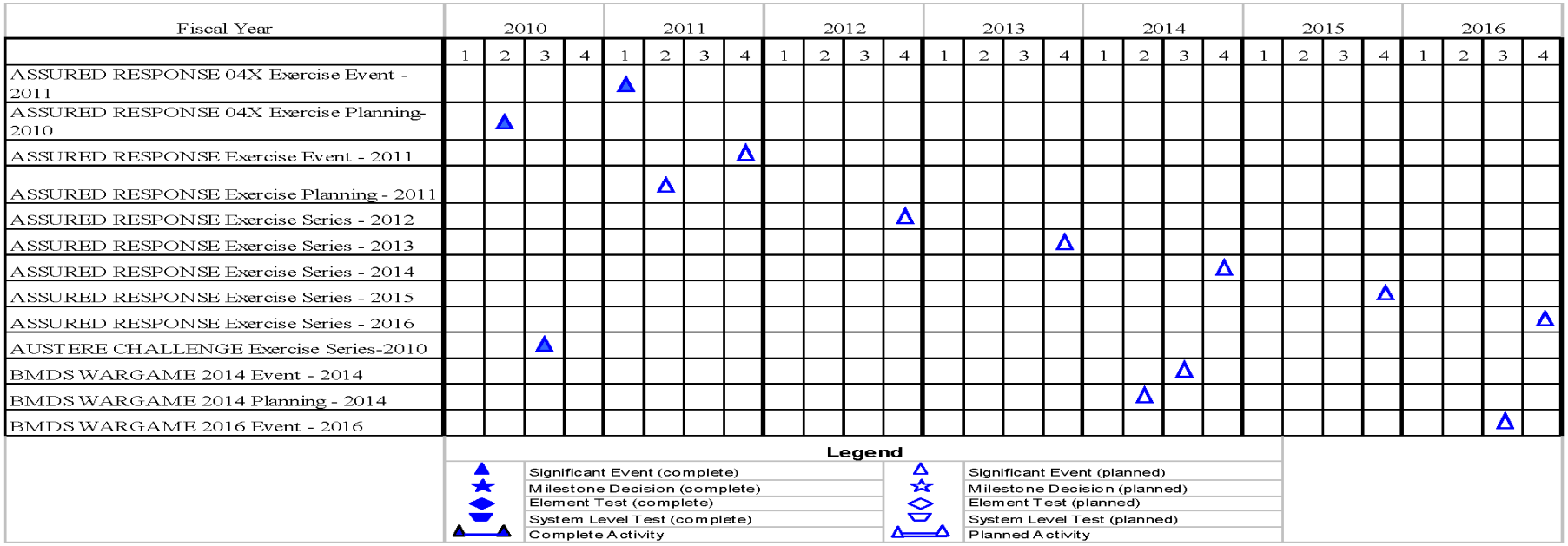

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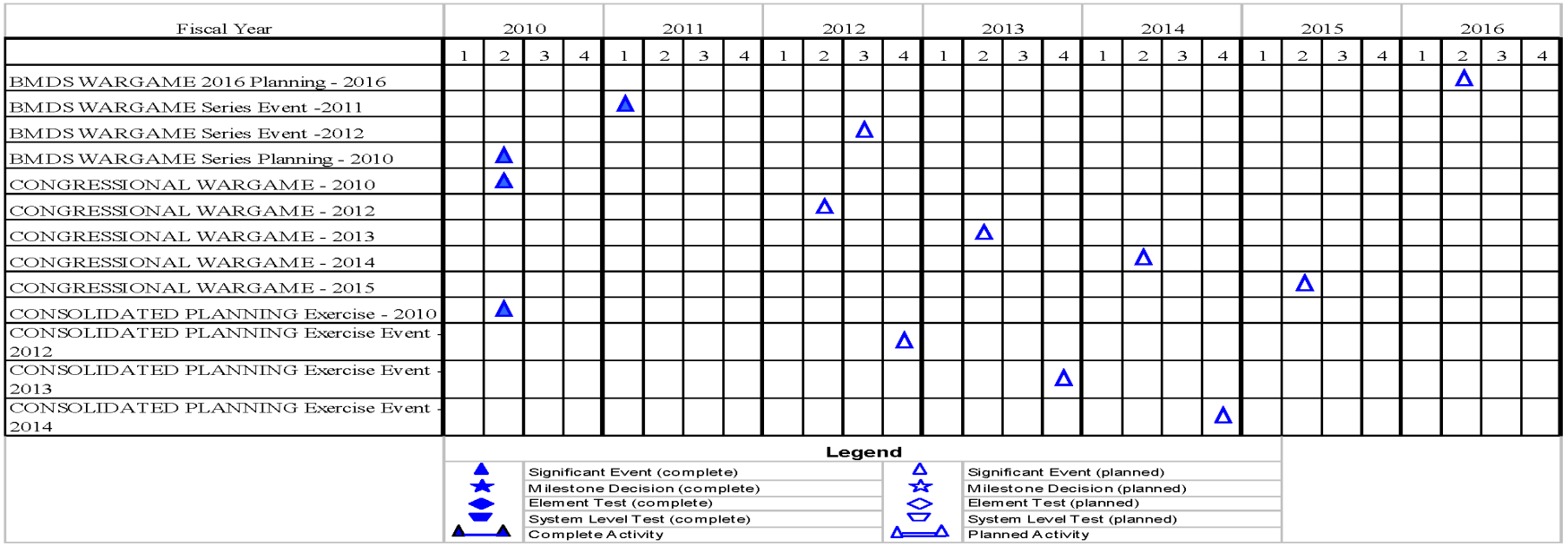

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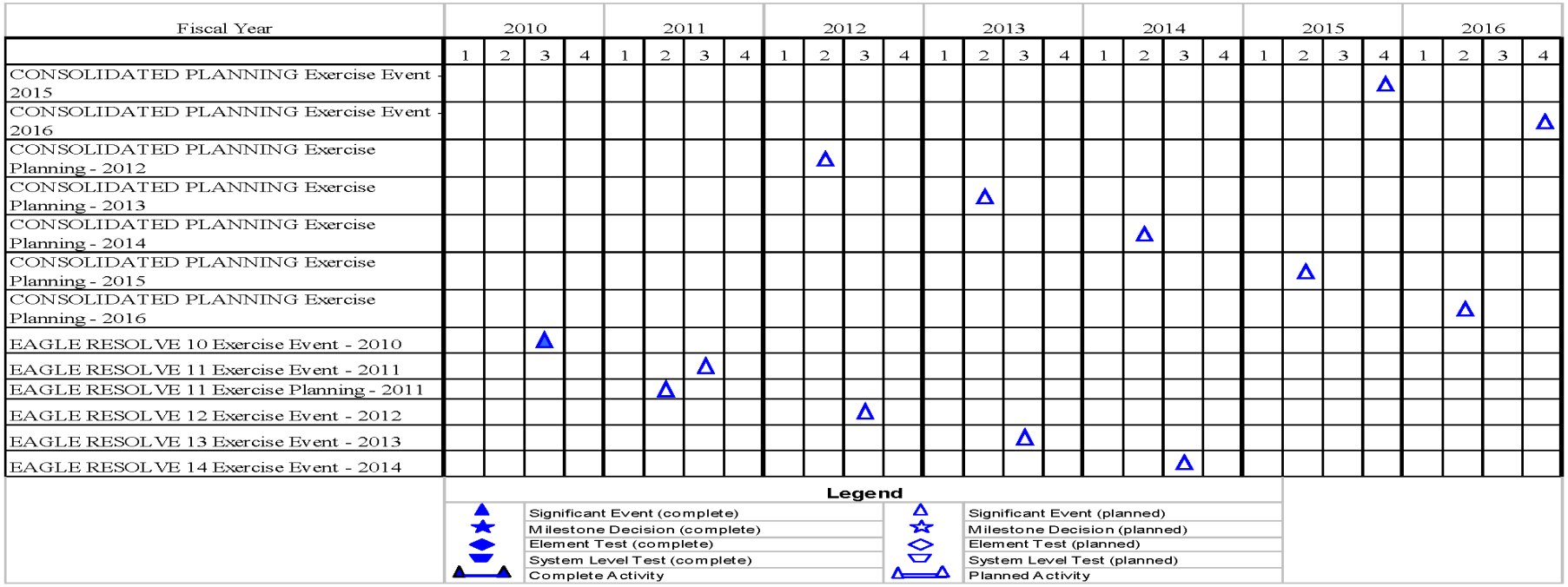

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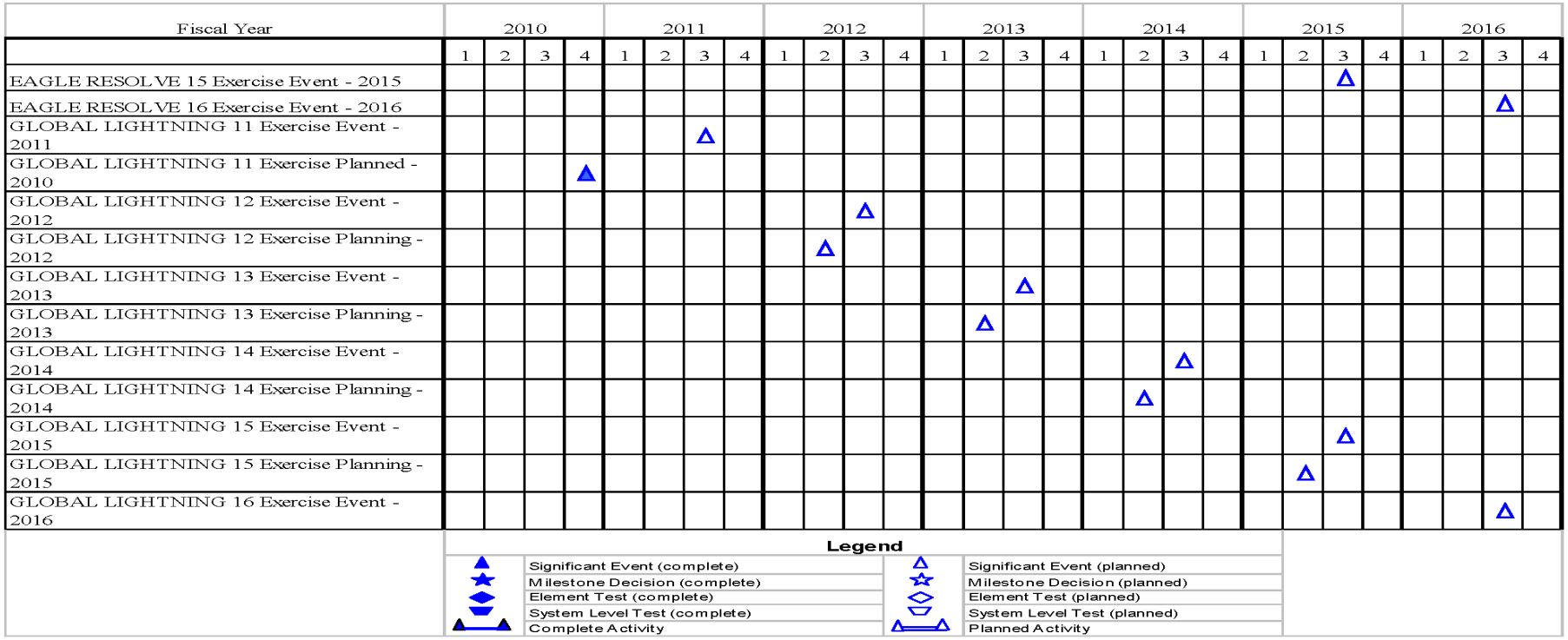

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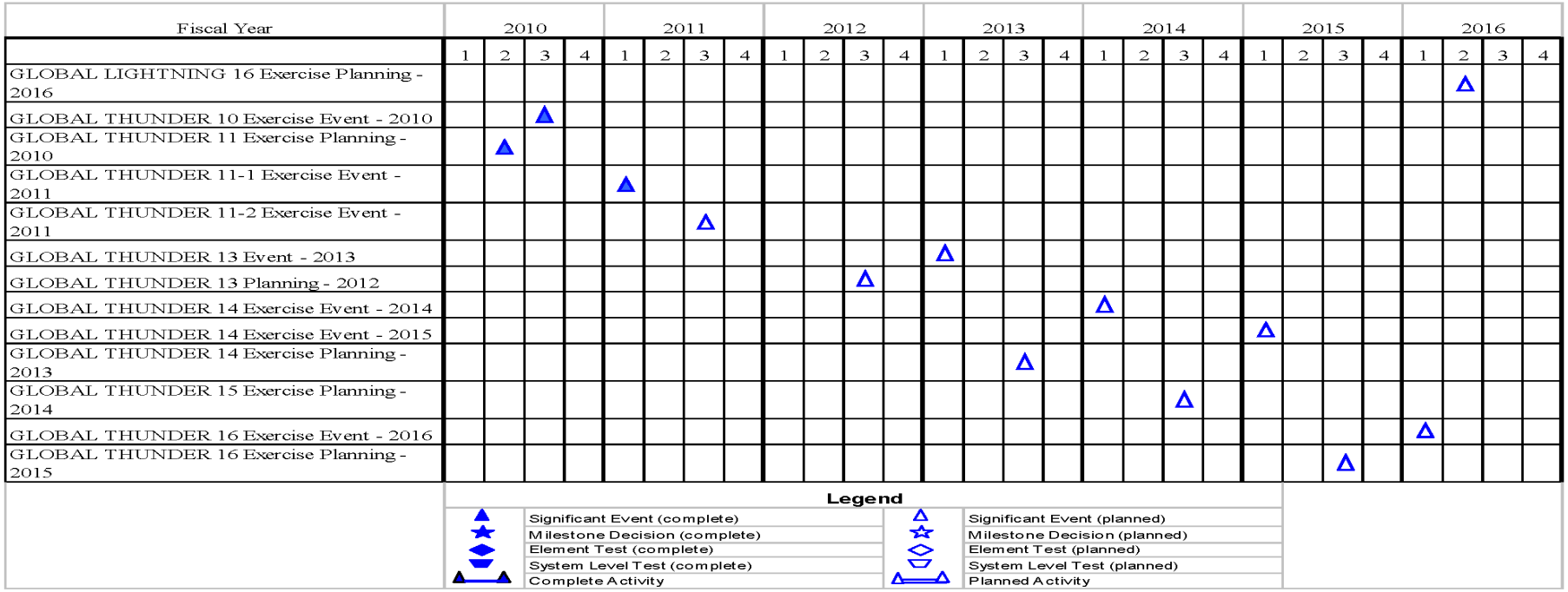

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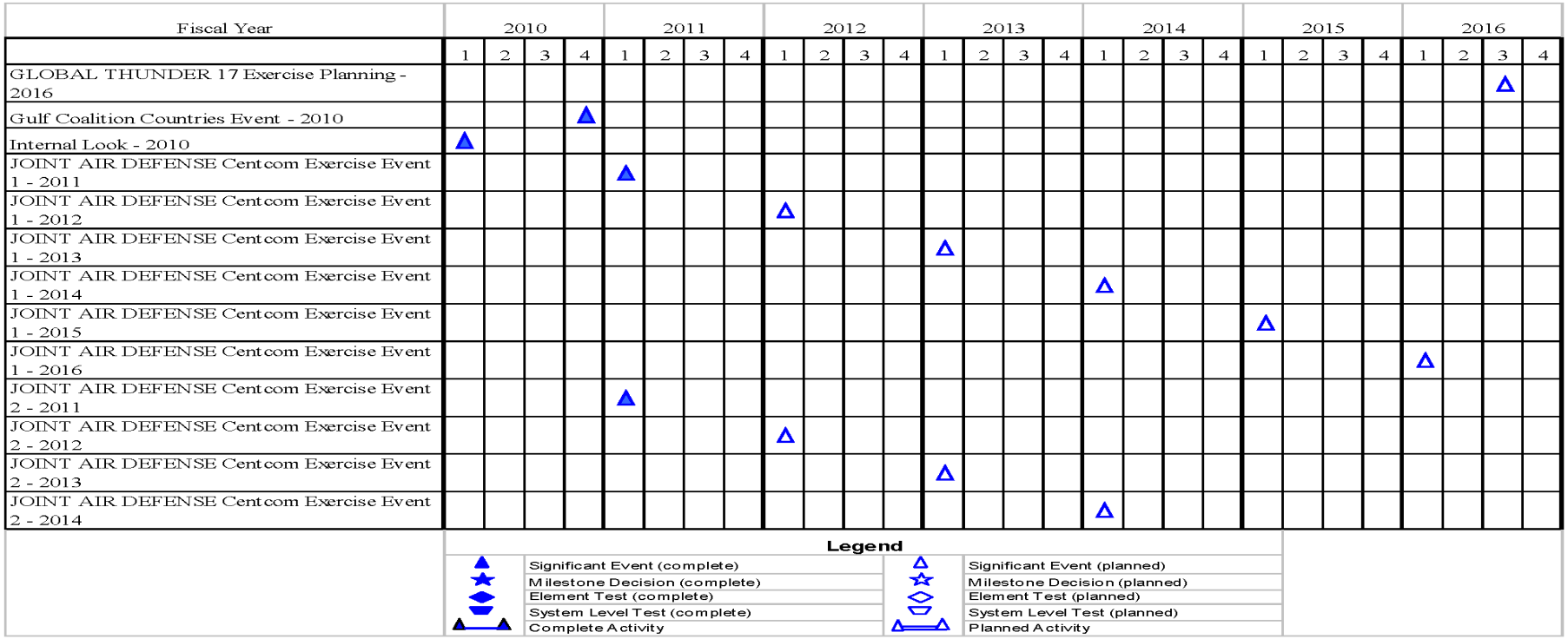

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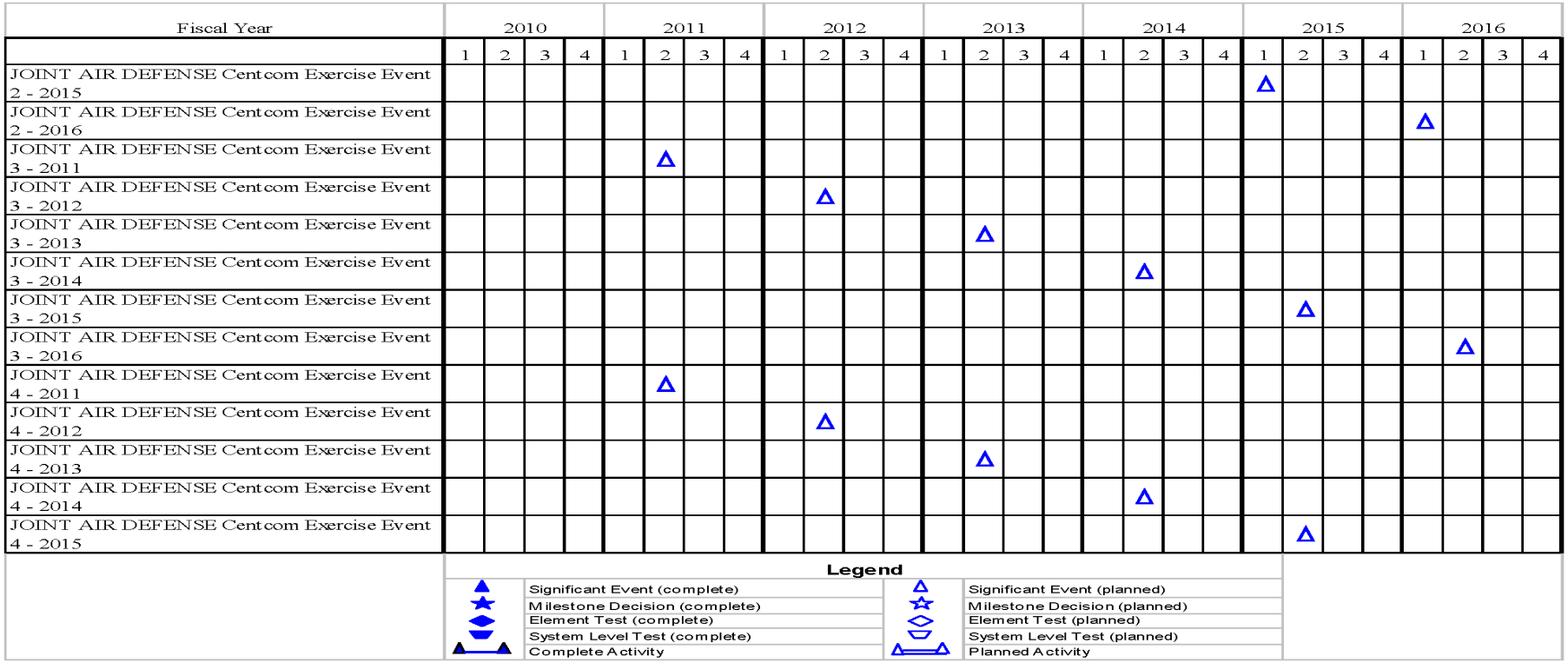

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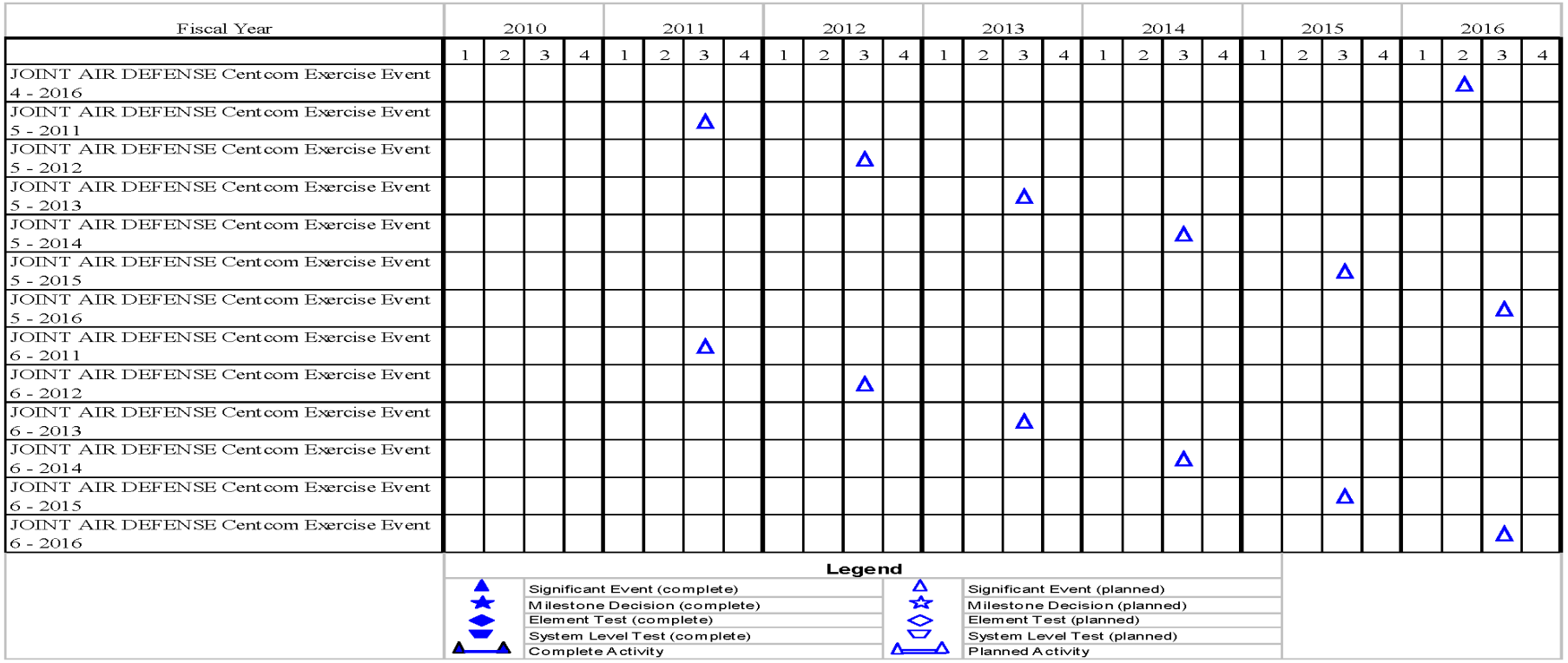

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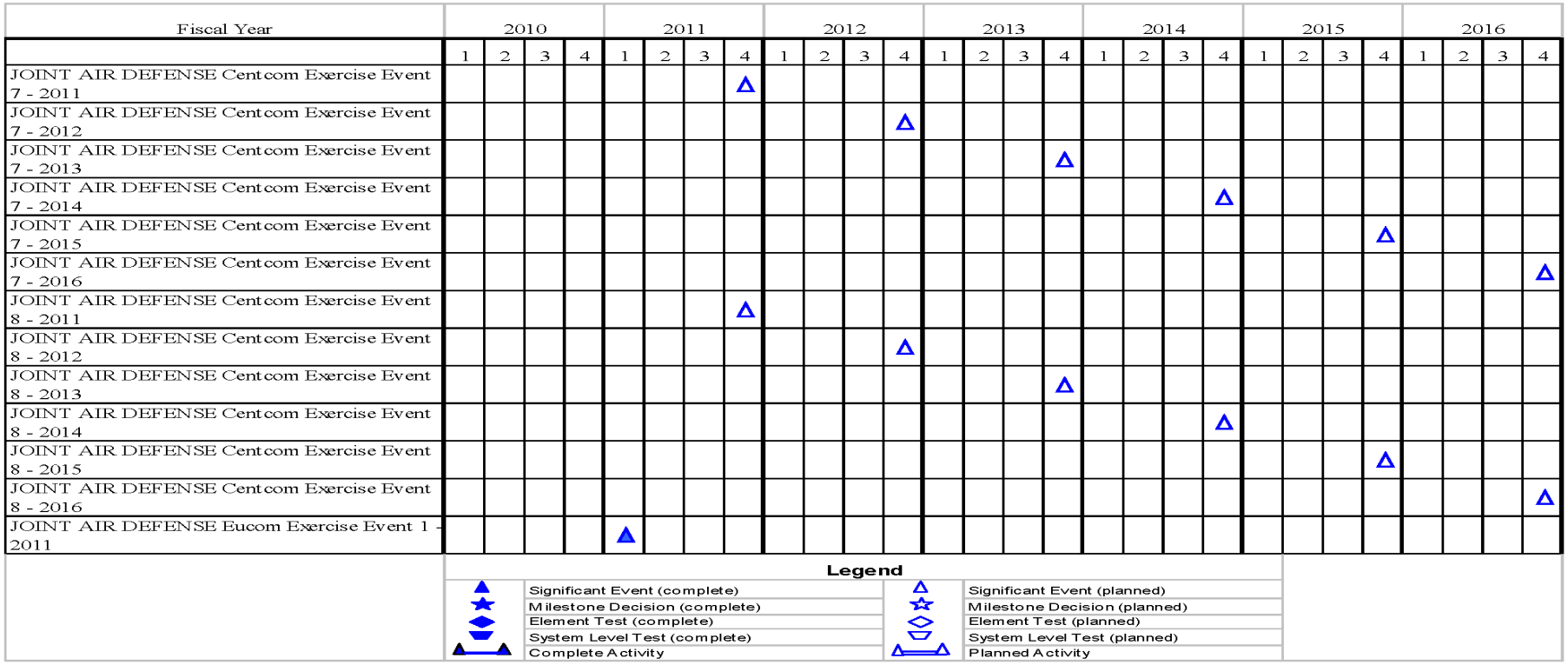

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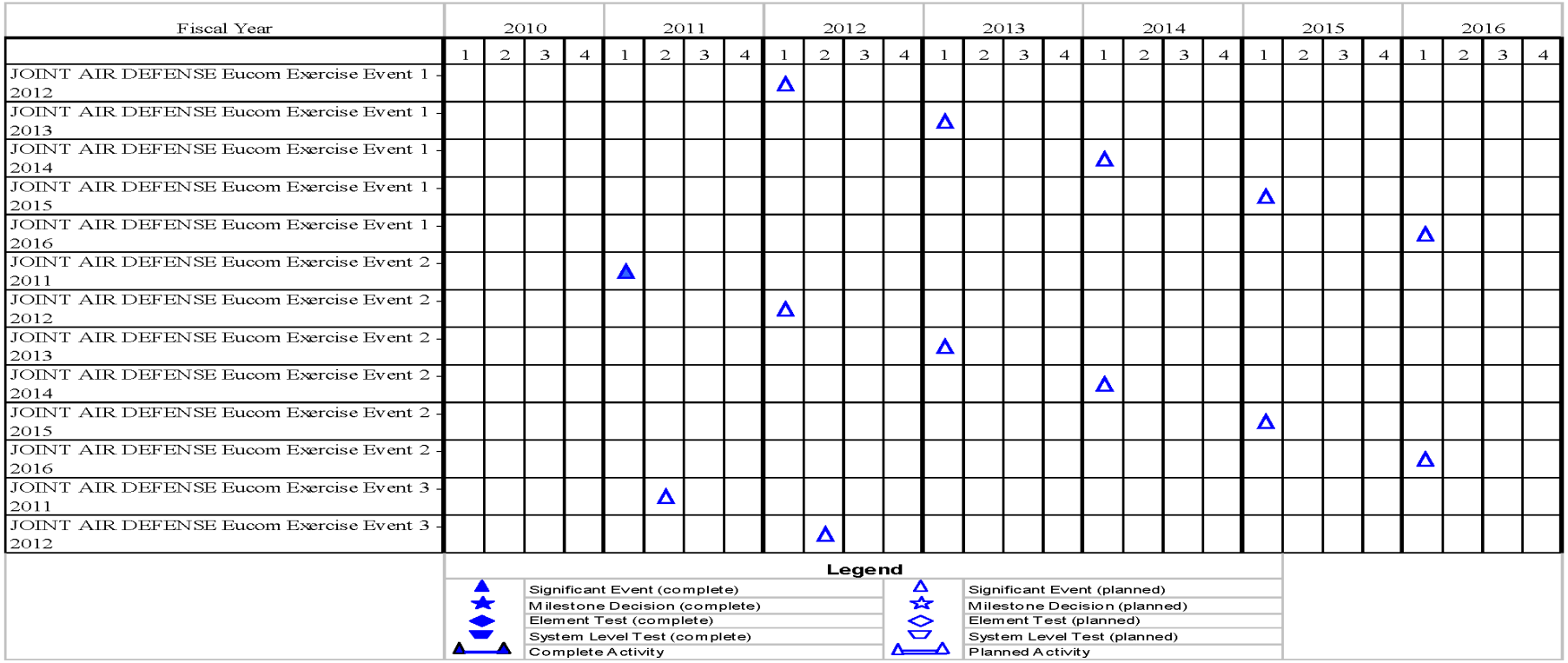

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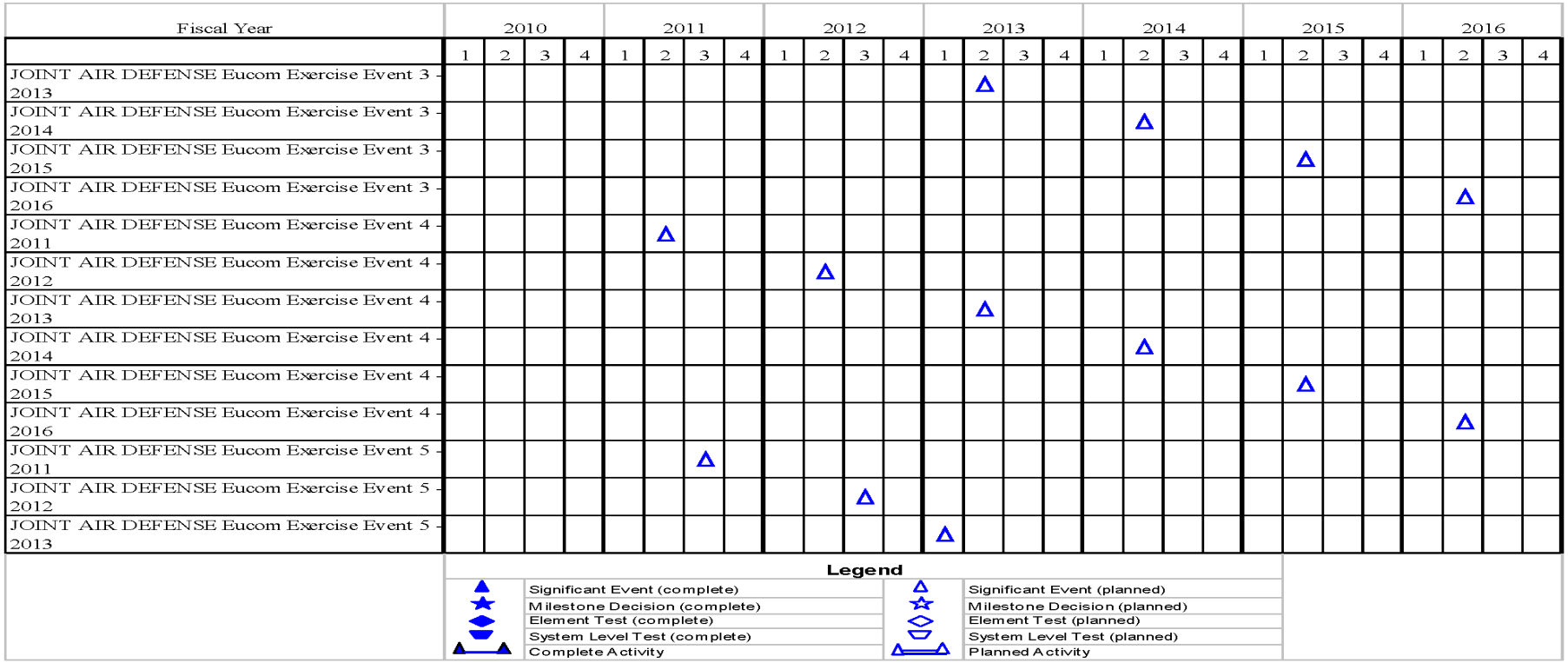

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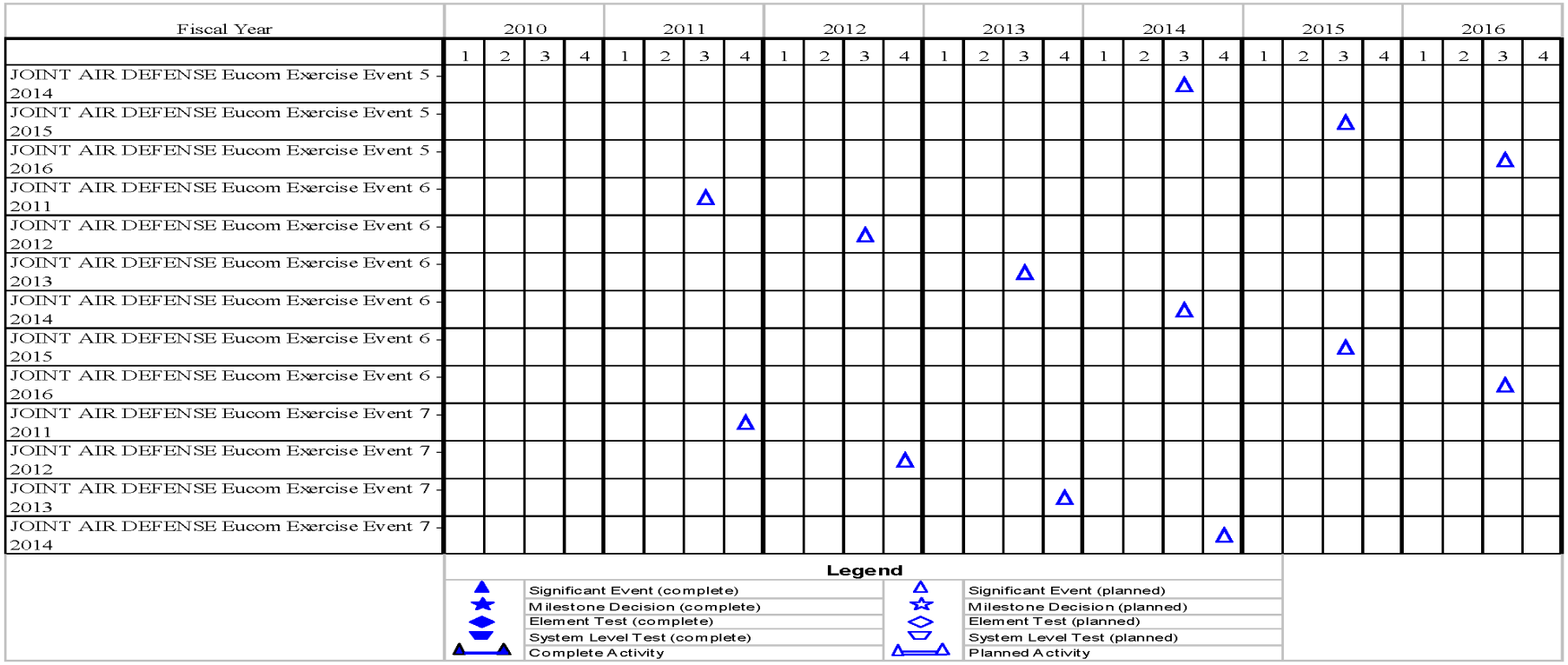

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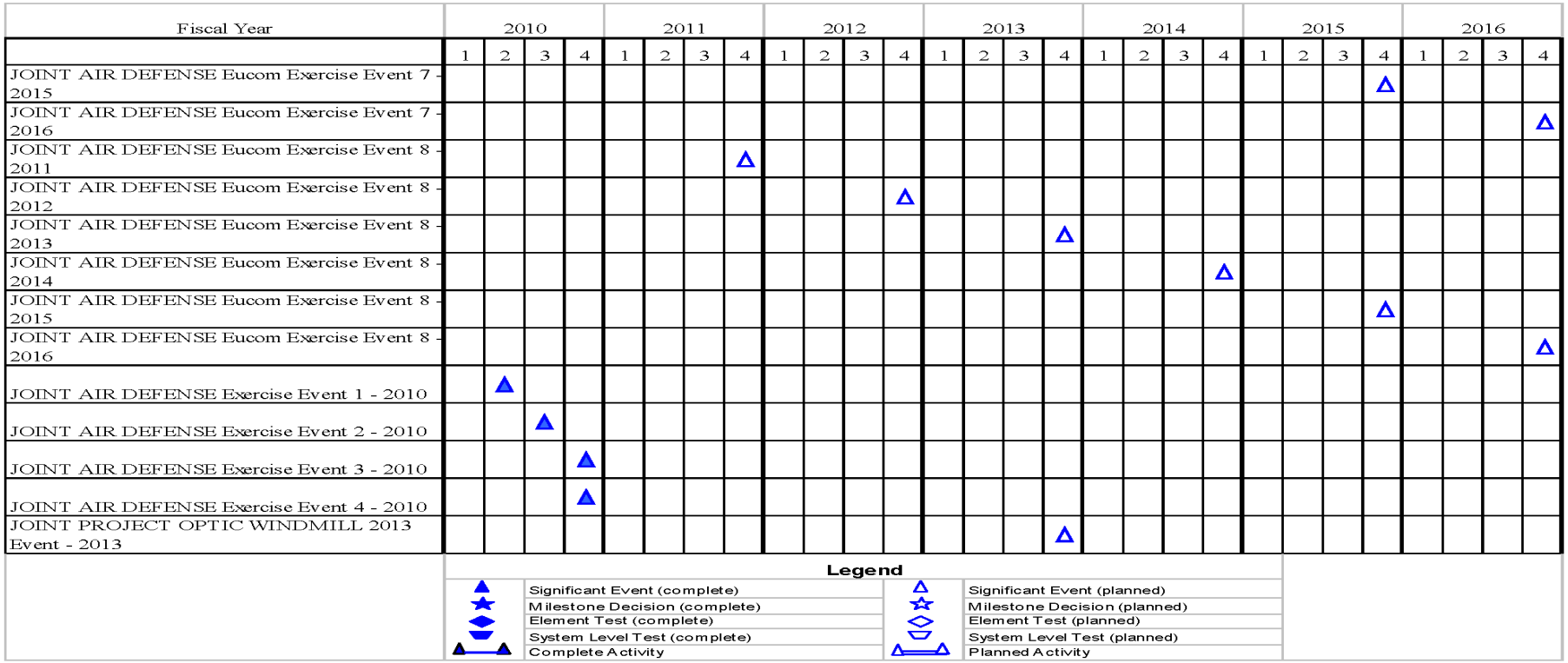

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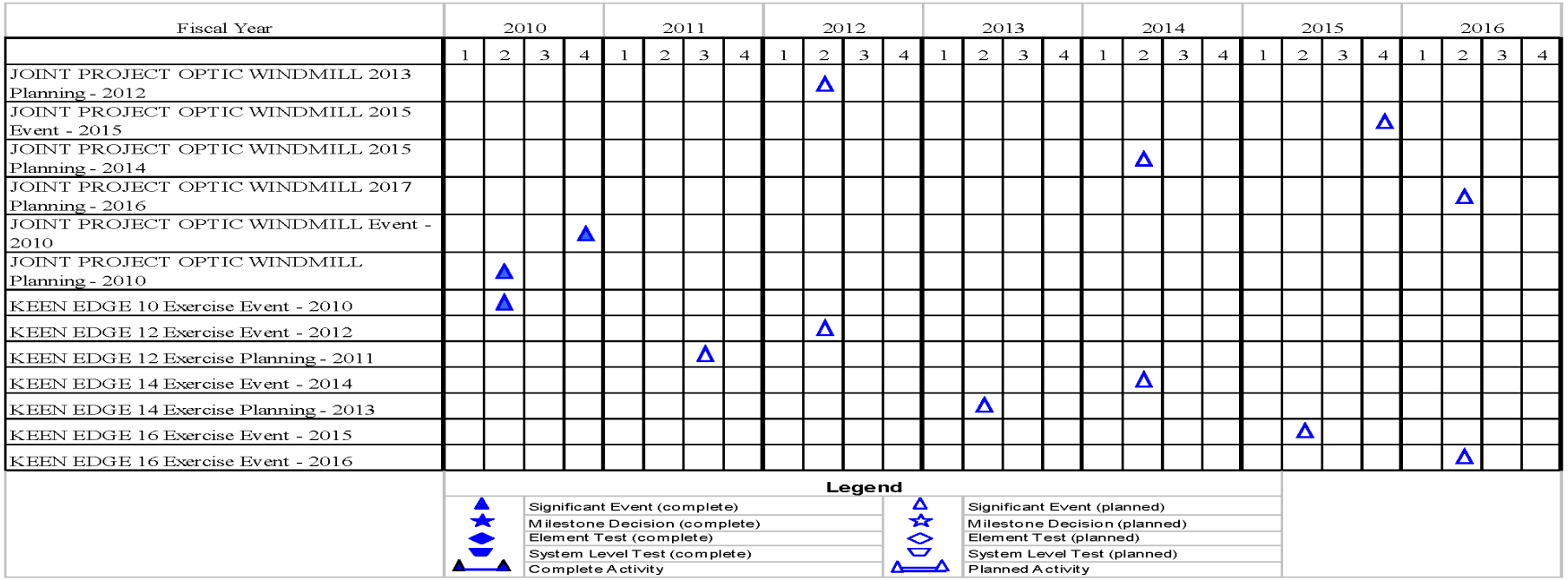

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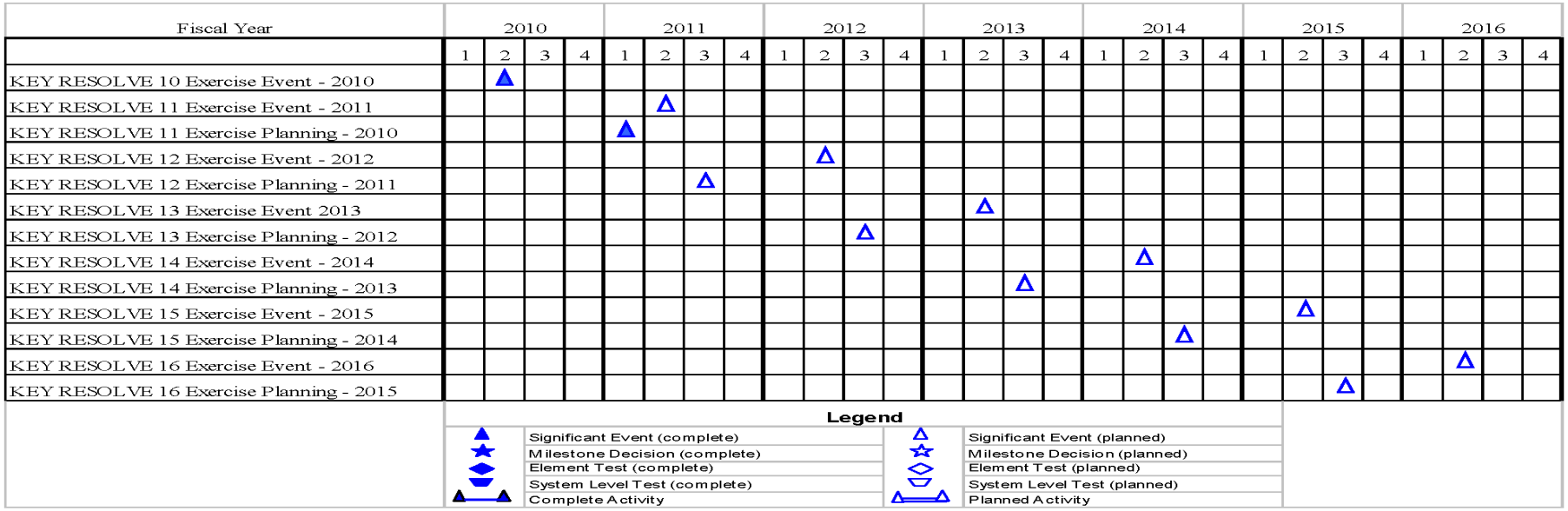

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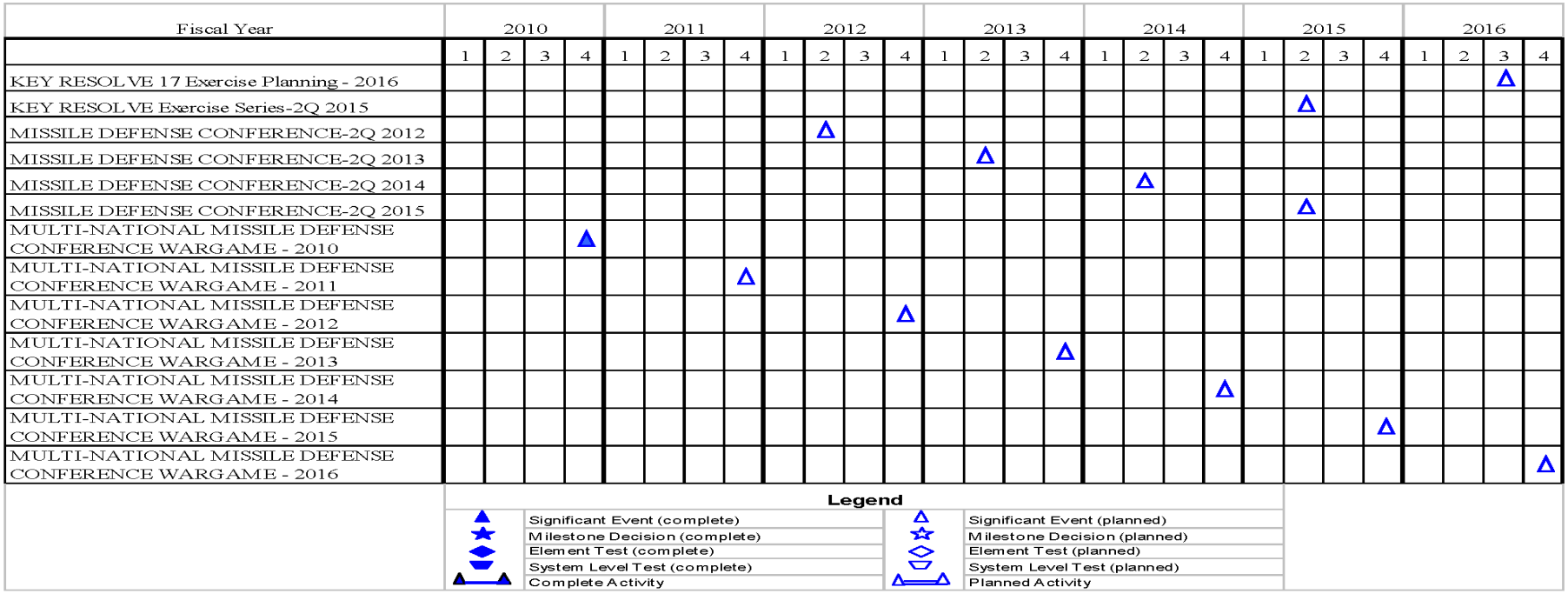

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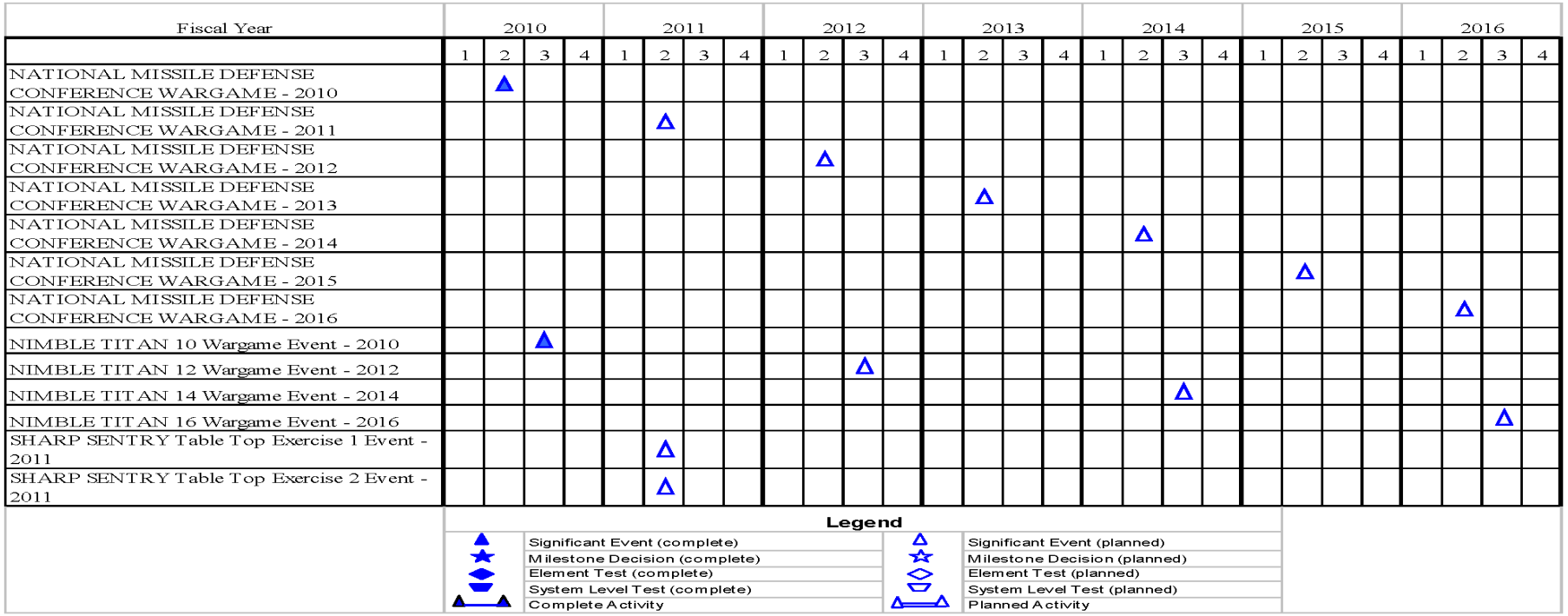

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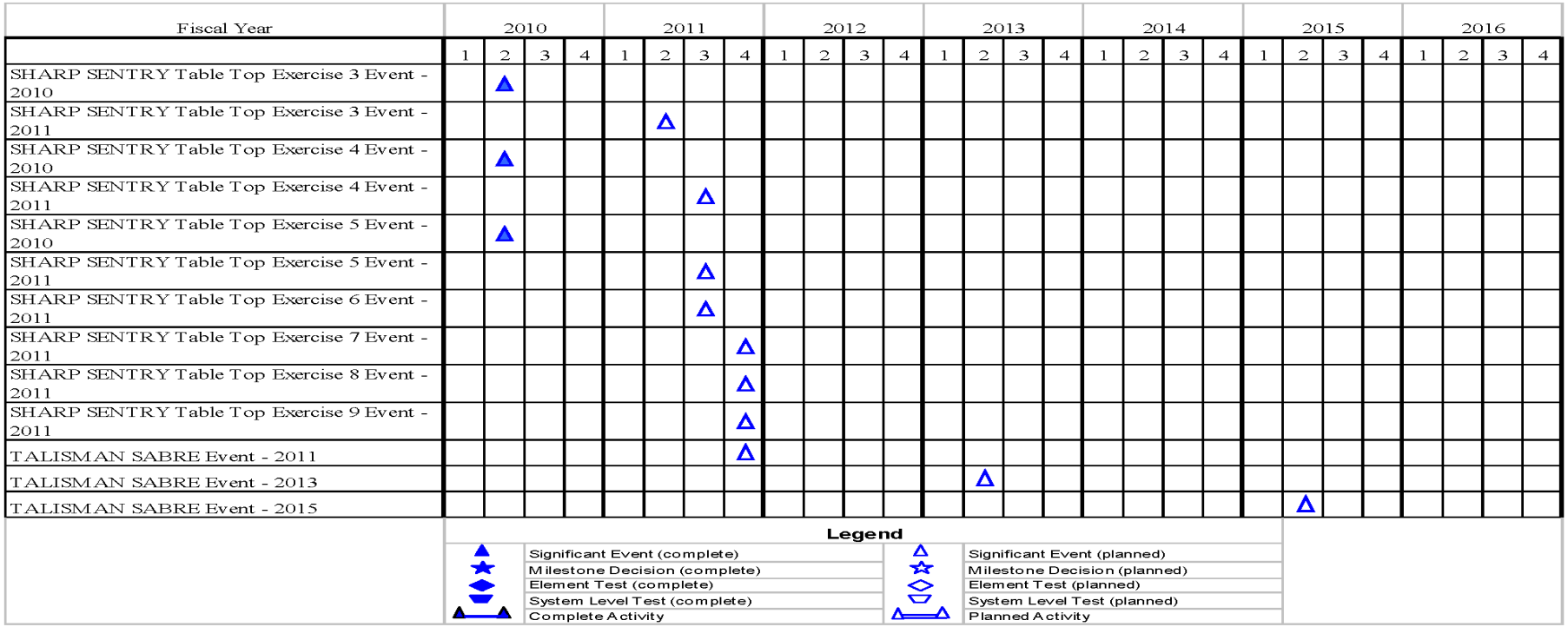

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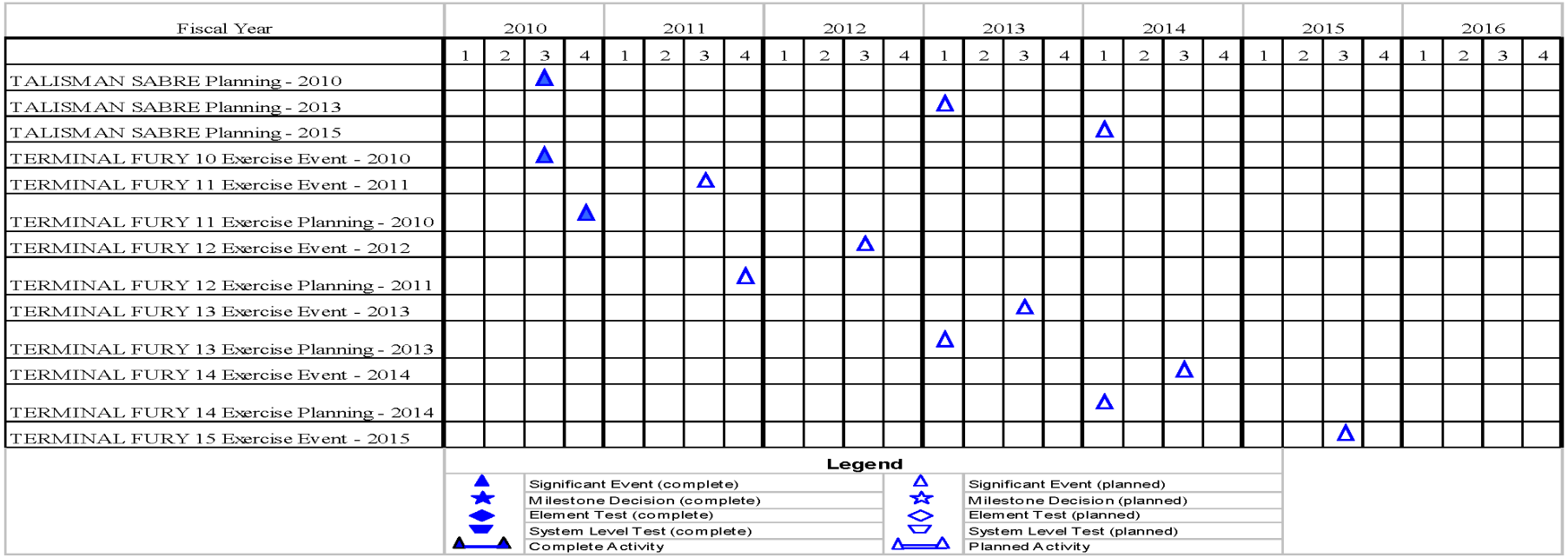

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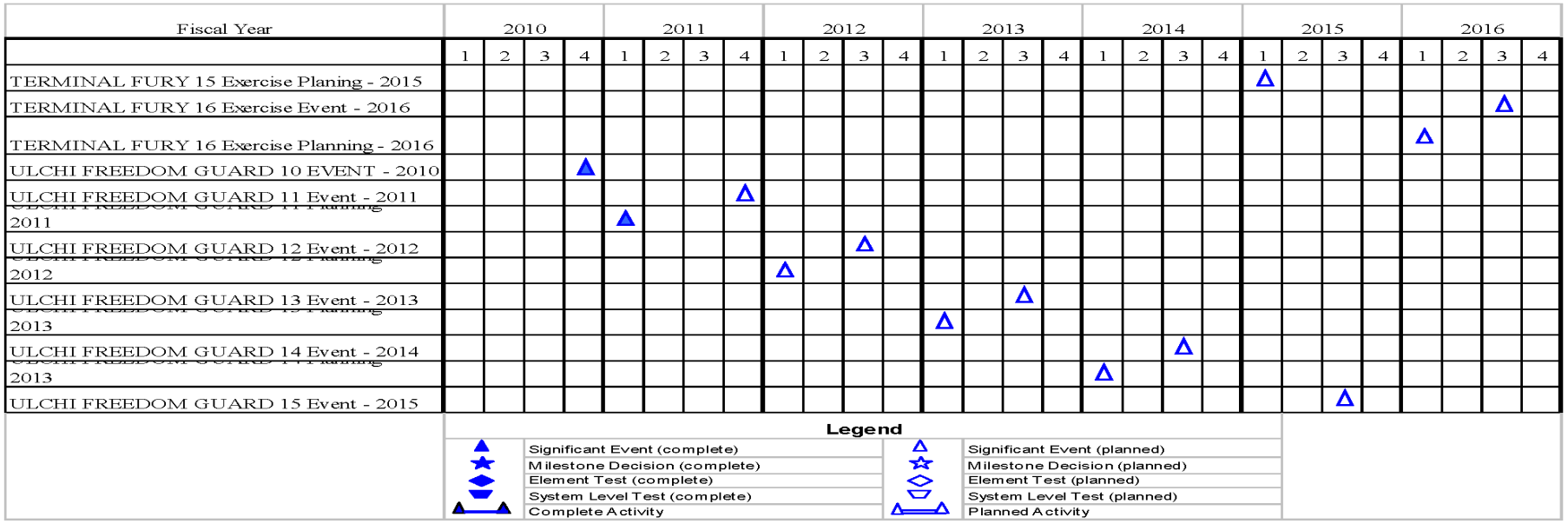

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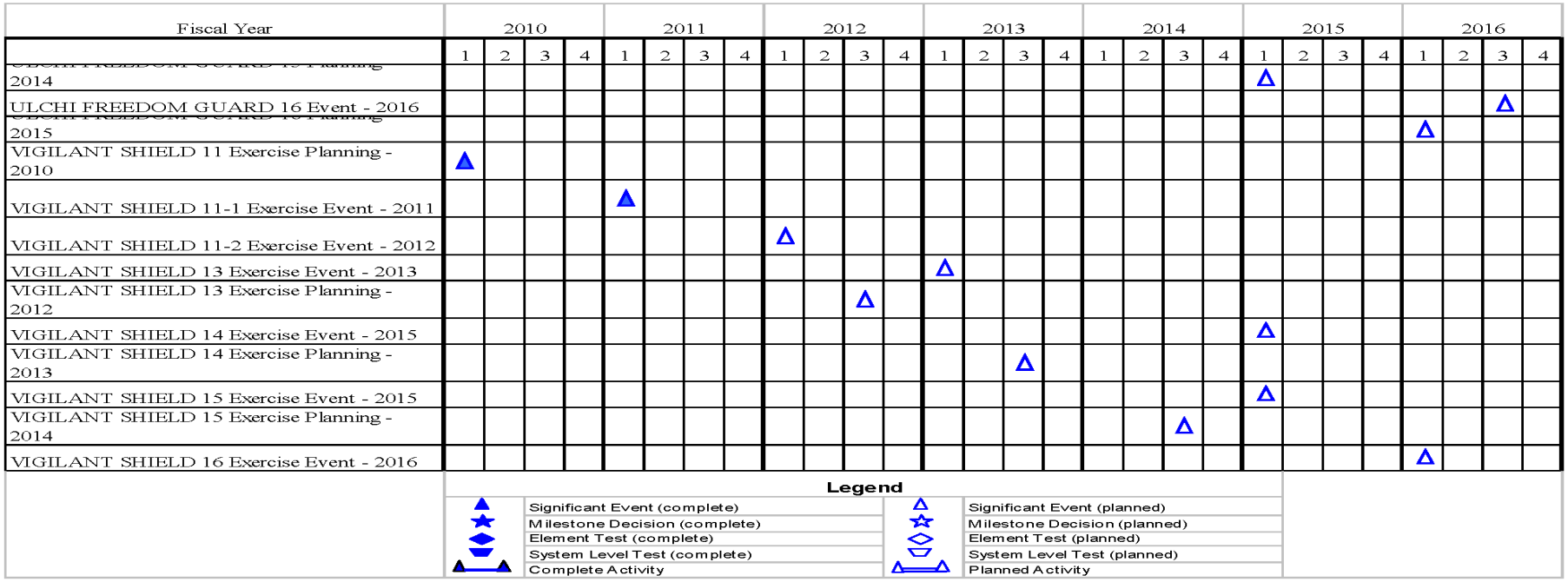

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Fiscal Year	2010				2011				2012				2013				2014				2015				2016			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
VIGILANT SHIELD 16 Exercise Planning - 2015																							△					
VIGILANT SHIELD 17 Exercise Planning - 2016																											△	

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

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603898C: *BMD JOINT WARFIGHTER SUPPORT*	**PROJECT** MD03: *Joint Warfighter Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
AIR MISSILE DEFENSE 10-01 Exercise - 2010	2	2010	2	2010
AIR MISSILE DEFENSE 10-02 Exercise - 2010	3	2010	3	2010
AIR MISSILE DEFENSE 10-03 Exercise - 2010	4	2010	4	2010
AIR MISSILE DEFENSE 11-01 Centcom Exercise 1 - 2011	1	2011	1	2011
AIR MISSILE DEFENSE 11-01 Centcom Exercise 2 - 2011	2	2011	2	2011
AIR MISSILE DEFENSE 11-01 Centcom Exercise 3 - 2011	3	2011	3	2011
AIR MISSILE DEFENSE 11-01 Centcom Exercise 4 - 2011	4	2011	4	2011
AIR MISSILE DEFENSE 11-01 Eucom Exercise 1 - 2011	1	2011	1	2011
AIR MISSILE DEFENSE 11-01 Eucom Exercise 2 - 2011	2	2011	2	2011
AIR MISSILE DEFENSE 11-01 Eucom Exercise 3 - 2011	3	2011	3	2011
AIR MISSILE DEFENSE 11-01 Eucom Exercise 4 - 2011	4	2011	4	2011
AIR MISSILE DEFENSE 12 Centcom Exercise 1 - 2012	1	2012	1	2012
AIR MISSILE DEFENSE 12 Centcom Exercise 2 - 2012	2	2012	2	2012
AIR MISSILE DEFENSE 12 Centcom Exercise 3 - 2012	3	2012	3	2012
AIR MISSILE DEFENSE 12 Centcom Exercise 4 - 2012	4	2012	4	2012
AIR MISSILE DEFENSE 12 Eucom Exercise 1 - 2012	1	2012	1	2012
AIR MISSILE DEFENSE 12 Eucom Exercise 2 - 2012	2	2012	2	2012
AIR MISSILE DEFENSE 12 Eucom Exercise 3 - 2012	3	2012	3	2012
AIR MISSILE DEFENSE 12 Eucom Exercise 4 - 2012	4	2012	4	2012
AIR MISSILE DEFENSE 13 Centcom Exercise 1 - 2013	1	2013	1	2013
AIR MISSILE DEFENSE 13 Centcom Exercise 2 - 2013	2	2013	2	2013
AIR MISSILE DEFENSE 13 Centcom Exercise 3 - 2013	3	2013	3	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
AIR MISSILE DEFENSE 13 Centcom Exercise 4 - 2013	4	2013	4	2013
AIR MISSILE DEFENSE 13 Eucom Exercise 1 - 2013	1	2013	1	2013
AIR MISSILE DEFENSE 13 Eucom Exercise 2 - 2013	2	2013	2	2013
AIR MISSILE DEFENSE 13 Eucom Exercise 3 - 2013	3	2013	3	2013
AIR MISSILE DEFENSE 13 Eucom Exercise 4 - 2013	4	2013	4	2013
AIR MISSILE DEFENSE 14 Centcom Exercise 1 - 2014	1	2014	1	2014
AIR MISSILE DEFENSE 14 Centcom Exercise 2 - 2014	2	2014	2	2014
AIR MISSILE DEFENSE 14 Centcom Exercise 3 - 2014	3	2014	3	2014
AIR MISSILE DEFENSE 14 Centcom Exercise 4 - 2014	4	2014	4	2014
AIR MISSILE DEFENSE 14 Eucom Exercise 1 - 2014	1	2014	1	2014
AIR MISSILE DEFENSE 14 Eucom Exercise 2 - 2014	2	2014	2	2014
AIR MISSILE DEFENSE 14 Eucom Exercise 3 - 2014	3	2014	3	2014
AIR MISSILE DEFENSE 14 Eucom Exercise 4 - 2014	4	2014	4	2014
AIR MISSILE DEFENSE 15 Centcom Exercise 1 - 2015	1	2015	1	2015
AIR MISSILE DEFENSE 15 Centcom Exercise 2 - 2015	2	2015	2	2015
AIR MISSILE DEFENSE 15 Centcom Exercise 3 - 2015	3	2015	3	2015
AIR MISSILE DEFENSE 15 Centcom Exercise 4 - 2015	4	2015	4	2015
AIR MISSILE DEFENSE 15 Eucom Exercise 1 - 2015	1	2015	1	2015
AIR MISSILE DEFENSE 15 Eucom Exercise 2 - 2015	2	2015	2	2015
AIR MISSILE DEFENSE 15 Eucom Exercise 3 - 2015	3	2015	3	2015
AIR MISSILE DEFENSE 15 Eucom Exercise 4 - 2015	4	2015	4	2015
AIR MISSILE DEFENSE 16 Centcom Exercise 1 - 2016	1	2016	1	2016
AIR MISSILE DEFENSE 16 Centcom Exercise 2 - 2016	2	2016	2	2016
AIR MISSILE DEFENSE 16 Centcom Exercise 3 - 2016	3	2016	3	2016

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
AIR MISSILE DEFENSE 16 Centcom Exercise 4 - 2016	4	2016	4	2016
AIR MISSILE DEFENSE 16 Eucom Exercise 1 - 2016	1	2016	1	2016
AIR MISSILE DEFENSE 16 Eucom Exercise 2 - 2016	2	2016	2	2016
AIR MISSILE DEFENSE 16 Eucom Exercise 3 - 2016	3	2016	3	2016
AIR MISSILE DEFENSE 16 Eucom Exercise 4 - 2016	4	2016	4	2016
ARCTIC EDGE/VIGILANT GUARD 10 EVENT - 2010	3	2010	3	2010
ARMY CENTRAL COMMAND INTEGRATED AIR MISSILE DEFENSE SYMP - 2010	2	2010	2	2010
ARMY CENTRAL COMMAND INTEGRATED AIR MISSILE DEFENSE SYMP - 2011	2	2011	2	2011
ARMY CENTRAL COMMAND INTEGRATED AIR MISSILE DEFENSE SYMP - 2012	3	2012	3	2012
ARMY CENTRAL COMMAND INTEGRATED AIR MISSILE DEFENSE SYMP - 2013	3	2013	3	2013
ARMY CENTRAL COMMAND INTEGRATED AIR MISSILE DEFENSE SYMP - 2014	3	2014	3	2014
ARMY CENTRAL COMMAND INTEGRATED AIR MISSILE DEFENSE SYMP - 2015	3	2015	3	2015
ARMY CENTRAL COMMAND INTEGRATED AIR MISSILE DEFENSE SYMP - 2016	3	2016	3	2016
ASSURED RESPONSE 04X Exercise Event - 2011	1	2011	1	2011
ASSURED RESPONSE 04X Exercise Planning-2010	2	2010	2	2010
ASSURED RESPONSE Exercise Event - 2011	4	2011	4	2011
ASSURED RESPONSE Exercise Planning - 2011	2	2011	2	2011
ASSURED RESPONSE Exercise Series - 2012	4	2012	4	2012
ASSURED RESPONSE Exercise Series - 2013	4	2013	4	2013
ASSURED RESPONSE Exercise Series - 2014	4	2014	4	2014
ASSURED RESPONSE Exercise Series - 2015	4	2015	4	2015
ASSURED RESPONSE Exercise Series - 2016	4	2016	4	2016
AUSTERE CHALLENGE Exercise Series-2010	3	2010	3	2010
BMDS WARGAME 2014 Event - 2014	3	2014	3	2014

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
BMDS WARGAME 2014 Planning - 2014	2	2014	2	2014
BMDS WARGAME 2016 Event - 2016	3	2016	3	2016
BMDS WARGAME 2016 Planning - 2016	2	2016	2	2016
BMDS WARGAME Series Event -2011	1	2011	1	2011
BMDS WARGAME Series Event -2012	3	2012	3	2012
BMDS WARGAME Series Planning - 2010	2	2010	2	2010
CONGRESSIONAL WARGAME - 2010	2	2010	2	2010
CONGRESSIONAL WARGAME - 2012	2	2012	2	2012
CONGRESSIONAL WARGAME - 2013	2	2013	2	2013
CONGRESSIONAL WARGAME - 2014	2	2014	2	2014
CONGRESSIONAL WARGAME - 2015	2	2015	2	2015
CONSOLIDATED PLANNING Exercise - 2010	2	2010	2	2010
CONSOLIDATED PLANNING Exercise Event - 2012	4	2012	4	2012
CONSOLIDATED PLANNING Exercise Event - 2013	4	2013	4	2013
CONSOLIDATED PLANNING Exercise Event - 2014	4	2014	4	2014
CONSOLIDATED PLANNING Exercise Event - 2015	4	2015	4	2015
CONSOLIDATED PLANNING Exercise Event - 2016	4	2016	4	2016
CONSOLIDATED PLANNING Exercise Planning - 2012	2	2012	2	2012
CONSOLIDATED PLANNING Exercise Planning - 2013	2	2013	2	2013
CONSOLIDATED PLANNING Exercise Planning - 2014	2	2014	2	2014
CONSOLIDATED PLANNING Exercise Planning - 2015	2	2015	2	2015
CONSOLIDATED PLANNING Exercise Planning - 2016	2	2016	2	2016
EAGLE RESOLVE 10 Exercise Event - 2010	3	2010	3	2010
EAGLE RESOLVE 11 Exercise Event - 2011	3	2011	3	2011

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
EAGLE RESOLVE 11 Exercise Planning - 2011	2	2011	2	2011
EAGLE RESOLVE 12 Exercise Event - 2012	3	2012	3	2012
EAGLE RESOLVE 13 Exercise Event - 2013	3	2013	3	2013
EAGLE RESOLVE 14 Exercise Event - 2014	3	2014	3	2014
EAGLE RESOLVE 15 Exercise Event - 2015	3	2015	3	2015
EAGLE RESOLVE 16 Exercise Event - 2016	3	2016	3	2016
GLOBAL LIGHTNING 11 Exercise Event - 2011	3	2011	3	2011
GLOBAL LIGHTNING 11 Exercise Planned - 2010	4	2010	4	2010
GLOBAL LIGHTNING 12 Exercise Event - 2012	3	2012	3	2012
GLOBAL LIGHTNING 12 Exercise Planning - 2012	2	2012	2	2012
GLOBAL LIGHTNING 13 Exercise Event - 2013	3	2013	3	2013
GLOBAL LIGHTNING 13 Exercise Planning - 2013	2	2013	2	2013
GLOBAL LIGHTNING 14 Exercise Event - 2014	3	2014	3	2014
GLOBAL LIGHTNING 14 Exercise Planning - 2014	2	2014	2	2014
GLOBAL LIGHTNING 15 Exercise Event - 2015	3	2015	3	2015
GLOBAL LIGHTNING 15 Exercise Planning - 2015	2	2015	2	2015
GLOBAL LIGHTNING 16 Exercise Event - 2016	3	2016	3	2016
GLOBAL LIGHTNING 16 Exercise Planning - 2016	2	2016	2	2016
GLOBAL THUNDER 10 Exercise Event - 2010	3	2010	3	2010
GLOBAL THUNDER 11 Exercise Planning - 2010	2	2010	2	2010
GLOBAL THUNDER 11-1 Exercise Event - 2011	1	2011	1	2011
GLOBAL THUNDER 11-2 Exercise Event - 2011	3	2011	3	2011
GLOBAL THUNDER 13 Event - 2013	1	2013	1	2013
GLOBAL THUNDER 13 Planning - 2012	3	2012	3	2012

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
GLOBAL THUNDER 14 Exercise Event - 2014	1	2014	1	2014
GLOBAL THUNDER 14 Exercise Event - 2015	1	2015	1	2015
GLOBAL THUNDER 14 Exercise Planning - 2013	3	2013	3	2013
GLOBAL THUNDER 15 Exercise Planning - 2014	3	2014	3	2014
GLOBAL THUNDER 16 Exercise Event - 2016	1	2016	1	2016
GLOBAL THUNDER 16 Exercise Planning - 2015	3	2015	3	2015
GLOBAL THUNDER 17 Exercise Planning - 2016	3	2016	3	2016
Gulf Coalition Countries Event - 2010	4	2010	4	2010
Internal Look - 2010	1	2010	1	2010
JOINT AIR DEFENSE Centcom Exercise Event 1 - 2011	1	2011	1	2011
JOINT AIR DEFENSE Centcom Exercise Event 1 - 2012	1	2012	1	2012
JOINT AIR DEFENSE Centcom Exercise Event 1 - 2013	1	2013	1	2013
JOINT AIR DEFENSE Centcom Exercise Event 1 - 2014	1	2014	1	2014
JOINT AIR DEFENSE Centcom Exercise Event 1 - 2015	1	2015	1	2015
JOINT AIR DEFENSE Centcom Exercise Event 1 - 2016	1	2016	1	2016
JOINT AIR DEFENSE Centcom Exercise Event 2 - 2011	1	2011	1	2011
JOINT AIR DEFENSE Centcom Exercise Event 2 - 2012	1	2012	1	2012
JOINT AIR DEFENSE Centcom Exercise Event 2 - 2013	1	2013	1	2013
JOINT AIR DEFENSE Centcom Exercise Event 2 - 2014	1	2014	1	2014
JOINT AIR DEFENSE Centcom Exercise Event 2 - 2015	1	2015	1	2015
JOINT AIR DEFENSE Centcom Exercise Event 2 - 2016	1	2016	1	2016
JOINT AIR DEFENSE Centcom Exercise Event 3 - 2011	2	2011	2	2011
JOINT AIR DEFENSE Centcom Exercise Event 3 - 2012	2	2012	2	2012
JOINT AIR DEFENSE Centcom Exercise Event 3 - 2013	2	2013	2	2013

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JOINT AIR DEFENSE Centcom Exercise Event 3 - 2014	2	2014	2	2014
JOINT AIR DEFENSE Centcom Exercise Event 3 - 2015	2	2015	2	2015
JOINT AIR DEFENSE Centcom Exercise Event 3 - 2016	2	2016	2	2016
JOINT AIR DEFENSE Centcom Exercise Event 4 - 2011	2	2011	2	2011
JOINT AIR DEFENSE Centcom Exercise Event 4 - 2012	2	2012	2	2012
JOINT AIR DEFENSE Centcom Exercise Event 4 - 2013	2	2013	2	2013
JOINT AIR DEFENSE Centcom Exercise Event 4 - 2014	2	2014	2	2014
JOINT AIR DEFENSE Centcom Exercise Event 4 - 2015	2	2015	2	2015
JOINT AIR DEFENSE Centcom Exercise Event 4 - 2016	2	2016	2	2016
JOINT AIR DEFENSE Centcom Exercise Event 5 - 2011	3	2011	3	2011
JOINT AIR DEFENSE Centcom Exercise Event 5 - 2012	3	2012	3	2012
JOINT AIR DEFENSE Centcom Exercise Event 5 - 2013	3	2013	3	2013
JOINT AIR DEFENSE Centcom Exercise Event 5 - 2014	3	2014	3	2014
JOINT AIR DEFENSE Centcom Exercise Event 5 - 2015	3	2015	3	2015
JOINT AIR DEFENSE Centcom Exercise Event 5 - 2016	3	2016	3	2016
JOINT AIR DEFENSE Centcom Exercise Event 6 - 2011	3	2011	3	2011
JOINT AIR DEFENSE Centcom Exercise Event 6 - 2012	3	2012	3	2012
JOINT AIR DEFENSE Centcom Exercise Event 6 - 2013	3	2013	3	2013
JOINT AIR DEFENSE Centcom Exercise Event 6 - 2014	3	2014	3	2014
JOINT AIR DEFENSE Centcom Exercise Event 6 - 2015	3	2015	3	2015
JOINT AIR DEFENSE Centcom Exercise Event 6 - 2016	3	2016	3	2016
JOINT AIR DEFENSE Centcom Exercise Event 7 - 2011	4	2011	4	2011
JOINT AIR DEFENSE Centcom Exercise Event 7 - 2012	4	2012	4	2012
JOINT AIR DEFENSE Centcom Exercise Event 7 - 2013	4	2013	4	2013

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JOINT AIR DEFENSE Centcom Exercise Event 7 - 2014	4	2014	4	2014
JOINT AIR DEFENSE Centcom Exercise Event 7 - 2015	4	2015	4	2015
JOINT AIR DEFENSE Centcom Exercise Event 7 - 2016	4	2016	4	2016
JOINT AIR DEFENSE Centcom Exercise Event 8 - 2011	4	2011	4	2011
JOINT AIR DEFENSE Centcom Exercise Event 8 - 2012	4	2012	4	2012
JOINT AIR DEFENSE Centcom Exercise Event 8 - 2013	4	2013	4	2013
JOINT AIR DEFENSE Centcom Exercise Event 8 - 2014	4	2014	4	2014
JOINT AIR DEFENSE Centcom Exercise Event 8 - 2015	4	2015	4	2015
JOINT AIR DEFENSE Centcom Exercise Event 8 - 2016	4	2016	4	2016
JOINT AIR DEFENSE Eucom Exercise Event 1 - 2011	1	2011	1	2011
JOINT AIR DEFENSE Eucom Exercise Event 1 - 2012	1	2012	1	2012
JOINT AIR DEFENSE Eucom Exercise Event 1 - 2013	1	2013	1	2013
JOINT AIR DEFENSE Eucom Exercise Event 1 - 2014	1	2014	1	2014
JOINT AIR DEFENSE Eucom Exercise Event 1 - 2015	1	2015	1	2015
JOINT AIR DEFENSE Eucom Exercise Event 1 - 2016	1	2016	1	2016
JOINT AIR DEFENSE Eucom Exercise Event 2 - 2011	1	2011	1	2011
JOINT AIR DEFENSE Eucom Exercise Event 2 - 2012	1	2012	1	2012
JOINT AIR DEFENSE Eucom Exercise Event 2 - 2013	1	2013	1	2013
JOINT AIR DEFENSE Eucom Exercise Event 2 - 2014	1	2014	1	2014
JOINT AIR DEFENSE Eucom Exercise Event 2 - 2015	1	2015	1	2015
JOINT AIR DEFENSE Eucom Exercise Event 2 - 2016	1	2016	1	2016
JOINT AIR DEFENSE Eucom Exercise Event 3 - 2011	2	2011	2	2011
JOINT AIR DEFENSE Eucom Exercise Event 3 - 2012	2	2012	2	2012
JOINT AIR DEFENSE Eucom Exercise Event 3 - 2013	2	2013	2	2013

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JOINT AIR DEFENSE Eucom Exercise Event 3 - 2014	2	2014	2	2014
JOINT AIR DEFENSE Eucom Exercise Event 3 - 2015	2	2015	2	2015
JOINT AIR DEFENSE Eucom Exercise Event 3 - 2016	2	2016	2	2016
JOINT AIR DEFENSE Eucom Exercise Event 4 - 2011	2	2011	2	2011
JOINT AIR DEFENSE Eucom Exercise Event 4 - 2012	2	2012	2	2012
JOINT AIR DEFENSE Eucom Exercise Event 4 - 2013	2	2013	2	2013
JOINT AIR DEFENSE Eucom Exercise Event 4 - 2014	2	2014	2	2014
JOINT AIR DEFENSE Eucom Exercise Event 4 - 2015	2	2015	2	2015
JOINT AIR DEFENSE Eucom Exercise Event 4 - 2016	2	2016	2	2016
JOINT AIR DEFENSE Eucom Exercise Event 5 - 2011	3	2011	3	2011
JOINT AIR DEFENSE Eucom Exercise Event 5 - 2012	3	2012	3	2012
JOINT AIR DEFENSE Eucom Exercise Event 5 - 2013	1	2013	1	2013
JOINT AIR DEFENSE Eucom Exercise Event 5 - 2014	3	2014	3	2014
JOINT AIR DEFENSE Eucom Exercise Event 5 - 2015	3	2015	3	2015
JOINT AIR DEFENSE Eucom Exercise Event 5 - 2016	3	2016	3	2016
JOINT AIR DEFENSE Eucom Exercise Event 6 - 2011	3	2011	3	2011
JOINT AIR DEFENSE Eucom Exercise Event 6 - 2012	3	2012	3	2012
JOINT AIR DEFENSE Eucom Exercise Event 6 - 2013	3	2013	3	2013
JOINT AIR DEFENSE Eucom Exercise Event 6 - 2014	3	2014	3	2014
JOINT AIR DEFENSE Eucom Exercise Event 6 - 2015	3	2015	3	2015
JOINT AIR DEFENSE Eucom Exercise Event 6 - 2016	3	2016	3	2016
JOINT AIR DEFENSE Eucom Exercise Event 7 - 2011	4	2011	4	2011
JOINT AIR DEFENSE Eucom Exercise Event 7 - 2012	4	2012	4	2012
JOINT AIR DEFENSE Eucom Exercise Event 7 - 2013	4	2013	4	2013

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
JOINT AIR DEFENSE Eucom Exercise Event 7 - 2014	4	2014	4	2014
JOINT AIR DEFENSE Eucom Exercise Event 7 - 2015	4	2015	4	2015
JOINT AIR DEFENSE Eucom Exercise Event 7 - 2016	4	2016	4	2016
JOINT AIR DEFENSE Eucom Exercise Event 8 - 2011	4	2011	4	2011
JOINT AIR DEFENSE Eucom Exercise Event 8 - 2012	4	2012	4	2012
JOINT AIR DEFENSE Eucom Exercise Event 8 - 2013	4	2013	4	2013
JOINT AIR DEFENSE Eucom Exercise Event 8 - 2014	4	2014	4	2014
JOINT AIR DEFENSE Eucom Exercise Event 8 - 2015	4	2015	4	2015
JOINT AIR DEFENSE Eucom Exercise Event 8 - 2016	4	2016	4	2016
JOINT AIR DEFENSE Exercise Event 1 - 2010	2	2010	2	2010
JOINT AIR DEFENSE Exercise Event 2 - 2010	3	2010	3	2010
JOINT AIR DEFENSE Exercise Event 3 - 2010	4	2010	4	2010
JOINT AIR DEFENSE Exercise Event 4 - 2010	4	2010	4	2010
JOINT PROJECT OPTIC WINDMILL 2013 Event - 2013	4	2013	4	2013
JOINT PROJECT OPTIC WINDMILL 2013 Planning - 2012	2	2012	2	2012
JOINT PROJECT OPTIC WINDMILL 2015 Event - 2015	4	2015	4	2015
JOINT PROJECT OPTIC WINDMILL 2015 Planning - 2014	2	2014	2	2014
JOINT PROJECT OPTIC WINDMILL 2017 Planning - 2016	2	2016	2	2016
JOINT PROJECT OPTIC WINDMILL Event - 2010	4	2010	4	2010
JOINT PROJECT OPTIC WINDMILL Planning - 2010	2	2010	2	2010
KEEN EDGE 10 Exercise Event - 2010	2	2010	2	2010
KEEN EDGE 12 Exercise Event - 2012	2	2012	2	2012
KEEN EDGE 12 Exercise Planning - 2011	3	2011	3	2011
KEEN EDGE 14 Exercise Event - 2014	2	2014	2	2014

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
KEEN EDGE 14 Exercise Planning - 2013	2	2013	2	2013
KEEN EDGE 16 Exercise Event - 2015	2	2015	2	2015
KEEN EDGE 16 Exercise Event - 2016	2	2016	2	2016
KEY RESOLVE 10 Exercise Event - 2010	2	2010	2	2010
KEY RESOLVE 11 Exercise Event - 2011	2	2011	2	2011
KEY RESOLVE 11 Exercise Planning - 2010	1	2011	1	2011
KEY RESOLVE 12 Exercise Event - 2012	2	2012	2	2012
KEY RESOLVE 12 Exercise Planning - 2011	3	2011	3	2011
KEY RESOLVE 13 Exercise Event 2013	2	2013	2	2013
KEY RESOLVE 13 Exercise Planning - 2012	3	2012	3	2012
KEY RESOLVE 14 Exercise Event - 2014	2	2014	2	2014
KEY RESOLVE 14 Exercise Planning - 2013	3	2013	3	2013
KEY RESOLVE 15 Exercise Event - 2015	2	2015	2	2015
KEY RESOLVE 15 Exercise Planning - 2014	3	2014	3	2014
KEY RESOLVE 16 Exercise Event - 2016	2	2016	2	2016
KEY RESOLVE 16 Exercise Planning - 2015	3	2015	3	2015
KEY RESOLVE 17 Exercise Planning - 2016	3	2016	3	2016
KEY RESOLVE Exercise Series-2Q 2015	2	2015	2	2015
MISSILE DEFENSE CONFERENCE-2Q 2012	2	2012	2	2012
MISSILE DEFENSE CONFERENCE-2Q 2013	2	2013	2	2013
MISSILE DEFENSE CONFERENCE-2Q 2014	2	2014	2	2014
MISSILE DEFENSE CONFERENCE-2Q 2015	2	2015	2	2015
MULTI-NATIONAL MISSILE DEFENSE CONFERENCE WARGAME - 2010	4	2010	4	2010
MULTI-NATIONAL MISSILE DEFENSE CONFERENCE WARGAME - 2011	4	2011	4	2011

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MULTI-NATIONAL MISSILE DEFENSE CONFERENCE WARGAME - 2012	4	2012	4	2012
MULTI-NATIONAL MISSILE DEFENSE CONFERENCE WARGAME - 2013	4	2013	4	2013
MULTI-NATIONAL MISSILE DEFENSE CONFERENCE WARGAME - 2014	4	2014	4	2014
MULTI-NATIONAL MISSILE DEFENSE CONFERENCE WARGAME - 2015	4	2015	4	2015
MULTI-NATIONAL MISSILE DEFENSE CONFERENCE WARGAME - 2016	4	2016	4	2016
NATIONAL MISSILE DEFENSE CONFERENCE WARGAME - 2010	2	2010	2	2010
NATIONAL MISSILE DEFENSE CONFERENCE WARGAME - 2011	2	2011	2	2011
NATIONAL MISSILE DEFENSE CONFERENCE WARGAME - 2012	2	2012	2	2012
NATIONAL MISSILE DEFENSE CONFERENCE WARGAME - 2013	2	2013	2	2013
NATIONAL MISSILE DEFENSE CONFERENCE WARGAME - 2014	2	2014	2	2014
NATIONAL MISSILE DEFENSE CONFERENCE WARGAME - 2015	2	2015	2	2015
NATIONAL MISSILE DEFENSE CONFERENCE WARGAME - 2016	2	2016	2	2016
NIMBLE TITAN 10 Wargame Event - 2010	3	2010	3	2010
NIMBLE TITAN 12 Wargame Event - 2012	3	2012	3	2012
NIMBLE TITAN 14 Wargame Event - 2014	3	2014	3	2014
NIMBLE TITAN 16 Wargame Event - 2016	3	2016	3	2016
SHARP SENTRY Table Top Exercise 1 Event - 2011	2	2011	2	2011
SHARP SENTRY Table Top Exercise 2 Event - 2011	2	2011	2	2011
SHARP SENTRY Table Top Exercise 3 Event - 2010	2	2010	2	2010
SHARP SENTRY Table Top Exercise 3 Event - 2011	2	2011	2	2011
SHARP SENTRY Table Top Exercise 4 Event - 2010	2	2010	2	2010
SHARP SENTRY Table Top Exercise 4 Event - 2011	3	2011	3	2011
SHARP SENTRY Table Top Exercise 5 Event - 2010	2	2010	2	2010
SHARP SENTRY Table Top Exercise 5 Event - 2011	3	2011	3	2011

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
SHARP SENTRY Table Top Exercise 6 Event - 2011	3	2011	3	2011
SHARP SENTRY Table Top Exercise 7 Event - 2011	4	2011	4	2011
SHARP SENTRY Table Top Exercise 8 Event - 2011	4	2011	4	2011
SHARP SENTRY Table Top Exercise 9 Event - 2011	4	2011	4	2011
TALISMAN SABRE Event - 2011	4	2011	4	2011
TALISMAN SABRE Event - 2013	2	2013	2	2013
TALISMAN SABRE Event - 2015	2	2015	2	2015
TALISMAN SABRE Planning - 2010	3	2010	3	2010
TALISMAN SABRE Planning - 2013	1	2013	1	2013
TALISMAN SABRE Planning - 2015	1	2014	1	2014
TERMINAL FURY 10 Exercise Event - 2010	3	2010	3	2010
TERMINAL FURY 11 Exercise Event - 2011	3	2011	3	2011
TERMINAL FURY 11 Exercise Planning - 2010	4	2010	4	2010
TERMINAL FURY 12 Exercise Event - 2012	3	2012	3	2012
TERMINAL FURY 12 Exercise Planning - 2011	4	2011	4	2011
TERMINAL FURY 13 Exercise Event - 2013	3	2013	3	2013
TERMINAL FURY 13 Exercise Planning - 2013	1	2013	1	2013
TERMINAL FURY 14 Exercise Event - 2014	3	2014	3	2014
TERMINAL FURY 14 Exercise Planning - 2014	1	2014	1	2014
TERMINAL FURY 15 Exercise Event - 2015	3	2015	3	2015
TERMINAL FURY 15 Exercise Planing - 2015	1	2015	1	2015
TERMINAL FURY 16 Exercise Event - 2016	3	2016	3	2016
TERMINAL FURY 16 Exercise Planning - 2016	1	2016	1	2016
ULCHI FREEDOM GUARD 10 EVENT - 2010	4	2010	4	2010

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ULCHI FREEDOM GUARD 11 Event - 2011	4	2011	4	2011
ULCHI FREEDOM GUARD 11 Planning - 2011	1	2011	1	2011
ULCHI FREEDOM GUARD 12 Event - 2012	3	2012	3	2012
ULCHI FREEDOM GUARD 12 Planning - 2012	1	2012	1	2012
ULCHI FREEDOM GUARD 13 Event - 2013	3	2013	3	2013
ULCHI FREEDOM GUARD 13 Planning - 2013	1	2013	1	2013
ULCHI FREEDOM GUARD 14 Event - 2014	3	2014	3	2014
ULCHI FREEDOM GUARD 14 Planning - 2013	1	2014	1	2014
ULCHI FREEDOM GUARD 15 Event - 2015	3	2015	3	2015
ULCHI FREEDOM GUARD 15 Planning - 2014	1	2015	1	2015
ULCHI FREEDOM GUARD 16 Event - 2016	3	2016	3	2016
ULCHI FREEDOM GUARD 16 Planning - 2015	1	2016	1	2016
VIGILANT SHIELD 11 Exercise Planning - 2010	1	2010	1	2010
VIGILANT SHIELD 11-1 Exercise Event - 2011	1	2011	1	2011
VIGILANT SHIELD 11-2 Exercise Event - 2012	1	2012	1	2012
VIGILANT SHIELD 13 Exercise Event - 2013	1	2013	1	2013
VIGILANT SHIELD 13 Exercise Planning - 2012	3	2012	3	2012
VIGILANT SHIELD 14 Exercise Event - 2015	1	2015	1	2015
VIGILANT SHIELD 14 Exercise Planning - 2013	3	2013	3	2013
VIGILANT SHIELD 15 Exercise Event - 2015	1	2015	1	2015
VIGILANT SHIELD 15 Exercise Planning - 2014	3	2014	3	2014
VIGILANT SHIELD 16 Exercise Event - 2016	1	2016	1	2016
VIGILANT SHIELD 16 Exercise Planning - 2015	3	2015	3	2015
VIGILANT SHIELD 17 Exercise Planning - 2016	3	2016	3	2016

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603898C: *BMD JOINT WARFIGHTER SUPPORT*	PROJECT ZX40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
ZX40: *Program-Wide Support*	3.297	-	-	-	-	-	-	-	-	0.000	3.297
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11.

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2), 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 fluctuations on a limited number of foreign contracts.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	3.297	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	3.297	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603898C: *BMD JOINT WARFIGHTER SUPPORT*	PROJECT MD40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	2.312	1.690	-	1.690	2.433	2.511	2.415	2.587	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). Includes Government Civilians, Advisory and Assistance Services, and Federally Funded Research and Development Contracts (FFRDC) providing integrity and oversight of the BMDS as well as supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2 after FY 2011), such as physical and technical security, legal services, travel and agency training, office and equipment leases, rents and utilities, data and unified communications support, supplies and maintenance, and similar operating expenses. Also includes legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.
In keeping with congressional intent, PWS is allocated among the PEs on a pro-rata basis and therefore fluctuates by year based on the total MDA budget and the individual PE`s budget amount.

Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($2,583).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	-	2.312	1.690
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($2,583).			
FY 2011 Plans: See paragraph A, Mission Description and Budget Item Justification			
FY 2012 Plans: See paragraph A, Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	2.312	1.690

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603898C: *BMD JOINT WARFIGHTER SUPPORT*	**PROJECT** MD40: *Program-Wide Support*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	82.926	86.198	69.325	-	69.325	64.514	55.808	56.769	54.621	Continuing	Continuing
CX22: *Missile Defense Integration & Operations Center (MDIOC) - Block 3.0*	21.942	-	-	-	-	-	-	-	-	0.000	21.942
YX22: *Missile Defense Integration & Operations Center (MDIOC) Core*	58.522	-	-	-	-	-	-	-	-	0.000	58.522
MD22: *Missile Defense Integration and Operations Center (MDIOC)*	-	83.298	66.484	-	66.484	61.812	53.304	54.341	52.293	Continuing	Continuing
ZX40: *Program-Wide Support*	2.462	-	-	-	-	-	-	-	-	0.000	2.462
MD40: *Program-Wide Support*	-	2.900	2.841	-	2.841	2.702	2.504	2.428	2.328	Continuing	Continuing

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project(s) CX22, YX22, and ZX40 is captured in Project MD22 and MD40 beginning FY 2011.

A. Mission Description and Budget Item Justification

The Missile Defense Integration and Operations Center (MDIOC) is MDA`s field operating activity in Colorado Springs, CO. It provides the necessary infrastructure and support services through a mission execution platform for MDA elements/components and designated Combatant Commanders` Ballistic Missile Defense System (BMDS) operations executing missions at the Missile Defense Integration and Operations Center (MDIOC). The Integration Center is the organization responsible for providing a single, integrated set of skilled personnel matrixed from across MDA to manage this mission. The Missile Defense Integration and Operations Center (MDIOC) mission facilities consists of a highly secure research and development complex and a mission support module (area) located within a military installation (Schriever AFB) that is adjacent to North American Aerospace Defense Command (NORAD) and United States Northern Command (USNORTHCOM). The MDA Integration Center provides mission critical system technical capabilities and subject matter expertise in a dedicated and adaptable environment that enables developers, testers, and operators to evolve, assess and deliver the capabilities for layered missile defense execution for homeland defense and theater/regional support. The Missile Defense Integration and Operations Center (MDIOC) interfaces with the Information Technology/Information Assurance Enterprise to provide high availability access to worldwide secure communications connectivity, network health and status monitoring, mission critical restoral capability, and technical expertise for all MDA directed activities and events. The MDIOC functions as the mission control for BMDS distributed ground test and system wide flight tests. The mission and test directors for these key tests control both main and associated test operations using secure voice, test, and mission network hubs at the MDIOC. The Missile Defense Integration and Operations Center (MDIOC) also functions (within MDA`s capabilities-based acquisition strategy) as the only system-level integration and interoperability mission execution platform for BMDS fire control; and it provides the physical interface between the developers and the Combatant Command Warfighters.

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*

Missile Defense Integration and Operations Center (MDIOC) mission facilities contribute to the BMDS by directly supporting the concept of Concurrent Test, Training, and Operations (CTTO) for the BMDS. The Missile Defense Integration and Operations Center (MDIOC) accomplishes this by providing engineering integration, resource scheduling, configuration management, and implementation development support for MDA and BMDS-level test, training, and operational mission execution. The Integration Center provides engineering and operational integration by:

- Implementing the technical event architectures for the models and simulations used to support missile defense planning seminars,wargames, exercises, and analyses
- Supporting the planning and execution of the only end-to-end operator-in-the-loop/element-in-the-loop missile defense wargames
- Supporting BMDS Critical Engagement Conditions (CEC) testing and analysis by operating the Test Execution Control (TEC) for distributed BMDS ground tests (i.e. GTX, GTI, and GTD), and ensuring the integrity of their technical system architecture
- Providing network operations and information assurance for all on-site integration activities - Integrating and sustaining the enabling infrastructure, services, and processes that support the operation of designated elements of the BMDS and resident Combatant Command (COCOM) operations and/or support centers
- Providing technical support for the BMDS Watch Officers (BWO`s), BMDS Safety Officers (BSO`s), and Information Assurance Officers in their efforts to monitor and assess the health and status of the networks and elements that impact BMDS test and operations
- Operating the Joint Early Warning Laboratory (JEWL) for anomaly resolution
- Supporting the Intelligence Support Center (ISC) for critical situational awareness intelligence on worldwide ballistic missile developments that could affect the development and/or operation of the BMDS

Missile Defense Integration and Operations Center (MDIOC) Major Program Goals

- Provide the capabilities and services necessary to support engineering integration, resource scheduling for ground and flight tests, configuration management, and implementation development support of on-site activities
- Ensure around the clock support and restoral of designated BMDS operational activities
- Improve interface with designated Combatant Command (COCOM) missile defense activities; host/support the headquarters and operations center for United States Strategic Command (USSTRATCOM`s) Joint Functional Component Command - Integrated Missile Defense (JFCC-IMD)
- Continue to achieve cost effectiveness and efficiencies through the leveraging of existing Missile Defense Integration and Operations Center (MDIOC) infrastructure, services, processes, and expertise to support assigned missions
- Maintain and improve as designated the reliability, availability, and maintainability of mission critical systems

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	86.483	86.198	88.181	-	88.181
Current President's Budget	82.926	86.198	69.325	-	69.325
Total Adjustments	-3.557	-	-18.856	-	-18.856
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-0.058	-			
• SBIR/STTR Transfer	-1.748	-			
• Other Adjustment Detail	-1.751	-	-18.856	-	-18.856

Change Summary Explanation

The FY 2012 $18.856 million dollar decrease in this program element is the result of program adjustments and $1.201 million in efficiency savings.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	PROJECT CX22: *Missile Defense Integration & Operations Center (MDIOC) - Block 3.0*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
CX22: *Missile Defense Integration & Operations Center (MDIOC) - Block 3.0*	21.942	-	-	-	-	-	-	-	-	0.000	21.942
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project CX22 has been transferred to project MD22

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD22 for FY 2010 Accomplishments	21.942	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	21.942	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	PROJECT YX22: *Missile Defense Integration & Operations Center (MDIOC) Core*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
YX22: *Missile Defense Integration & Operations Center (MDIOC) Core*	58.522	-	-	-	-	-	-	-	-	0.000	58.522
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project YX22 has been transferred to project MD22

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD22 for FY 2010 Accomplishments	58.522	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	58.522	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	PROJECT MD22: *Missile Defense Integration and Operations Center (MDIOC)*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD22: *Missile Defense Integration and Operations Center (MDIOC)*	-	83.298	66.484	-	66.484	61.812	53.304	54.341	52.293	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project(s) CX22, YX22, and ZX40 is captured in Project MD22 and MD40 beginning FY 2011. (CX22 $21.942M, YX22 $58.522M, ZX40 $2.462M)

A. Mission Description and Budget Item Justification

The Missile Defense Integration and Operations Center (MDIOC) sustains and operates a 24 hours a day, 7 days a week, 365 days a year mission complex for critical research, development, testing, training, and operations for BMDS activities. The Missile Defense Integration and Operations Center (MDIOC) supports the Ground-based Midcourse Missile Defense Mission Control Center Facility, as well as the Command, Control, Battle Management, and Communications (C2BMC) Integration and Test Centers and the C2BMC Experimentation Laboratories. It provides infrastructure support for the Satellite Tracking and Surveillance System`s (STSS) Missile Defense Space Experimentation Center (MDSEC); and the Targets and Countermeasures` (TC) Joint Target Operations Center (JTOC). The Missile Defense Integration and Operations Center (MDIOC) also provides developmental support to the Enterprise Sensors Laboratory (ESL) composed of a common satellite ground station and sensor netting test bed for designated Ballistic Missile Defense System (BMDS) elements. It supports BMDS Critical Engagement Conditions testing and analysis through the operation of the Test Execution Control node for distributed BMDS ground tests. During system flight test, the MDIOC provides infrastructure (power, HVAC, and communications) support to the Flight Test Director and crew, and ensures the protection of those critical facility and test assets throughout the test window. Further, the Missile Defense Integration and Operations Center (MDIOC) provides the facilities that support operations of the Missile Defense Element, manned by the U.S. Army 100th Missile Defense Brigade, the United States Northern Command (USNORTHCOM) Command, Control, Battle Management and Communications (C2BMC) Command and Control Center (CCC), the United States Strategic Command`s (USSTRATCOM`s) Joint Functional Component Command-Integrated Missile Defense (JFCC-IMD) and the Missile Defense Agency (MDA) Warfighter Support Center. In addition, the Missile Defense Integration and Operations Center (MDIOC) supports the MDA Operations Support Center, which provides situational awareness of the health and status of the end-to-end BMDS, provides network subject matter expertise and technical reach back for the program elements and Combatant Commanders. The Missile Defense Integration and Operations Center (MDIOC) hosts BMDS wargames and exercises in support of the warfighter, and delivers requisite infrastructure for Modeling and Simulation to provide and integrate digital modeling and simulation assets to the Digital Simulation Architecture that form system-level constructive simulations for full-envelope BMDS performance assessment with surrogate capability for BMDS ground tests. The Missile Defense Integration and Operations Center (MDIOC) maintains a technical repository of BMDS Implementation Architectures for real-time operations and configuration control; provides both state change management and asset management technical support for the BMDS; and provides the technical environment for BMDS Watch Officers, Safety Officers, and Information Assurance Officers to execute their assigned duties. The Missile Defense Integration and Operations Center (MDIOC) also supports the operations of the Joint Early Warning Laboratory (JEWL), which provides United States Strategic Command (USSTRATCOM) with quick response analyses of real-world launches, and rapid anomaly identification and resolution.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	**PROJECT** MD22: *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Infrastructure Systems and Support	-	19.246	21.178
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY 2010 accomplishments is reported in prior year Budget Project YX22 ($20.185M) -Computing Center (Operating Systems, Print/Storage Services, Audio/Visual, Operations and Maintenance) -Continued to maintain a mission execution platform to provide an enabling infrastructure (to include hardware, software maintenance, licenses, and upgrades) that supports MDA Research, Development, Test and Evaluation (RDT&E) efforts at the Missile Defense Integration and Operations Center (MDIOC) for the MDA elements/components, and Combatant Command and warfighter operational elements -Provided computer hosting of specified threat models and support the integration of other threat tools as required -Planned/Initiated, when directed, the installation of additional intelligence data feeds required to support the Operations Support Center (OSC) -Provided file, print, and messaging services; managed and maintained automated patching software, and virus protection servers. Managed and maintained the MDA Enterprise directory services supporting user access to MDA Enterprise network resources; performed preventive maintenance and ensured data recovery capability through proper data backup scheduling and execution -Piloted implementation of Missile Defense Integration and Operations Center (MDIOC) Audio/Visual (A/V) Distribution and Infrastructure to provide digital video compression and transport of test and even video information -Completed technical refresh of Presentation Center A/V distribution to include a three-head display and soundboard refresh/ upgrade -Missile Defense Integration and Operations Center (MDIOC) Communication Services -Installed communications and networking infrastructure (hardware/software) in support of evolving mission requirements of resident MDA development, test, training, and operational activities -Provided telephony services to include: Provided local, long distance and Defense Switch Network telephone systems. Telephone Switch Operations: Operated, maintained, and upgraded telephone switches, nodes, and Private Branch Exchanges to include 911 support -Network Management Transport Services			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	PROJECT MD22: *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Acquired and distributed mission critical unclassified and secure communications capability to ten resident MDA elements/ components and BMDS and warfighter operational elements -Provided management of network capabilities by monitoring and controlling the network infrastructure, available bandwidth, hardware, and distributed software resources -Maintained the technical infrastructure and equipment which includes, routers and switches, Core Cryptographic Devices; Edge Encryption Devices; Global Engagement Manager (GEM); base and long-haul communications -Information Assurance Systems -Provided information assurance to MDA elements/components, BMDS elements, and Combatant Command (COCOM) and warfighter operational elements resident at the Missile Defense Integration and Operations Center (MDIOC) -Maintained DoD Information Assurance Certification and Accreditation Process (DIACAP) accreditation packages; managed the Information Assurance Vulnerability Assessment Program and provided technical assistance to Controls Validation Tests -Provided DoD Information Assurance Certification and Accreditation Process (DIACAP) package management; ensured timely submissions to Information Assurance Manager/Designated Accrediting Authority (IAM/DAA) for MDA Admin/General Services (GENSER) and Event Packages -Performed architecture design, engineering, and configuration management reviews for all assigned projects -Managed the Information Assurance Vulnerability Assessment and Communications Tasking Order remediation and implementation efforts to ensure Defense Information Systems Agency/Joint Task Force - Global Network Operations (DISA/JTF-GNO) directed compliance -Conducted activities supporting a Joint Task Force - Global Network Operations (JTF-GNO) driven Command Cyber Readiness Inspection resulting in an ``Outstanding`` rating in overall network and system security posture -Implemented seamless network access control for MDA IT customers -Infrastructure Implementation Engineering -Implemented intelligence hardware/software updates as required to support the Operations Support Center -Provided Missile Defense Integration and Operations Center (MDIOC) centric test event network related detailed designs in support of Test Events and real world operational events, provided implementation plans, updated interface control documents and performed Change Control and Configuration Management services			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	**PROJECT** MD22: *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Planned, designed, tested and operated the IT and communications technical architecture including Internet Protocol addressing schema, routing tables, switching policies, data paths, information assurance controls, fire wall configurations, application configurations, band width allocations for sub networks and eventual post event return to base line -Provided technical health and status monitoring, troubleshooting, and break/fix, IT/Communications support for each of the event architectures including critical asset identification, monitoring, Quality Assurance/Quality Control (QA/QC) seals with configuration management and job control -Planned/Designed/Implemented interim Defense Information System Agency - Global Information Grid (DISA GIG) Mission Assurance node installation -Planned/Designed/Implemented Electronic Security System Upgrade for Missile Defense Integration and Operations Center (MDIOC) physical security improvements/technology refreshment -Software Licenses, Services and Applications -Maintained critical software licensing and maintenance agreements to meet critical customer and legal requirements enabling continued software support necessary to maintain the directed computer network defense posture and ensured continued system operational availability -Planned/Designed/Implemented Classified Local Area Network (CLAN) trouble ticketing and IT asset management system -Implemented Missile Defense Integration and Operations Center (MDIOC)-based IT integrated test lab providing application and software configuration management services			
FY 2011 Plans: -Computing Center (Operating Systems, Print/Storage Services, Audio/Visual, Operations and Maintenance) -Continue to maintain a mission execution platform to provide an enabling infrastructure (to include hardware, software maintenance, licenses, and upgrades) that supports MDA Research, Development, Test and Evaluation (RDT&E) efforts at the Missile Defense Integration Operations Center (MDIOC) for the MDA elements/components, and Combatant Command and warfighter operational elements -Provide computer hosting of specified threat models and support the integration of other threat tools as required -Plan/Initiate, when directed, the installation of any additional intelligence data feeds required to support the Operations Support Center (OSC) -Provide file, print, and messaging services; manage and maintain automated patching software, and virus protection servers. Manage and maintain the MDA Enterprise directory services supporting user access to MDA Enterprise network resources; perform preventive maintenance and ensure data recovery capability through proper data backup scheduling and execution			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	PROJECT MD22: *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Plan/Design enhancements to the Missile Defense Integration and Operations Center (MDIOC) Data Center including floorspace allocations, equipment staging areas, and streamlined logistics support function -Design/Implement upgrades to audio/visual support to the Missile Defense Integration and Operations Center (MDIOC) cafeteria supporting the distribution of signals over Internet Protocol -Missile Defense Integration and Operations Center (MDIOC) Communication Services -Install communications and networking infrastructure)hardware/software) in support of evolving mission requirements of resident MDA development, testing, training, and operational activities -Implement Class and Unclassified Voice Over Internet Protocol (VOIP) expansion to include the completion of the Missile Defense Integration and Operations Center (MDIOC) VOIP implementation -Provide telephony service to include: Telephone/Fax Service: Provide local, long distance and Defense Switch Network telephone systems. Telephone Witch Operations: Operate, maintain, and upgrade telephone switches, nodes, and Private Branch Exchanges to include 911 support -Network Management Transport Services -Acquire and distribute mission critical unclassified and secure communications capability to ten resident MDA elements/ components and BMDS and warfighter operational elements -Provide management of network capabilities by monitoring and controlling the network infrastructure, available bandwidth, hardware, and distributed software resources. -Maintain the technical infrastructure and equipment which includes, routers and switches, Core Cryptographic Devices; Edge Encryption Devices; Global Engagement Manager (GEM); base and long-haul communications -Information Assurance Systems -Provide information assurance to MDA elements/components, BMDS elements, and Combatant Command (COCOM) and warfighter operational elements resident at the Missile Defense Integration and Operations Center (MDIOC) -Maintain DoD Information Assurance Certification and Accreditation Process (DIACAP) accreditation packages; manage the Information Assurance Vulnerability Assessment Program and provide technical assistance to Controls Validation Tests -Provide DoD Information Assurance Certification and Accreditation (DIACAP) package management; ensure timely submissions to Information Assurance Manager/Designated Approval Authority (IAM/DAA) for MDA Admin/General Services (GENSER) and Event Packages -Perform architecture design, engineering, and configuration management reviews for all assigned projects			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	PROJECT MD22: *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Manage the Information Assurance Vulnerability Assessment and Communications Tasking Order remediation and implementation efforts to ensure Defense Information Systems Agency/Joint Task Force - Global Network Operations (DISA/JTF-GNO) directed compliance -Infrastructure Implementation Engineering -Implement intelligence hardware/software updates as required to support the Operations Support Center -Provide Missile Defense Integration and Operations Center (MDIOC) centric test event network related detailed designs in support of Test Events and real world operational events, provide implementation plans, update interface control documents and perform Change Control and Configuration Management services -Plan, design, test and operate the IT and communications technical architecture including Internet Protocol addressing schema, routing tables, switching policies, data paths, information assurance controls, fire wall configurations, application configurations, band width allocations for sub networks and eventual post event return to base line -Provide technical health and status monitoring, troubleshooting, and break/fix, IT/Communications support for each of the event architectures including critical asset identification, monitoring, Quality Assurance/Quality Control (QA/QC) seals with configuration management and job control -Implement final Defense Information Systems Agency Global Information Grid (DISA GIG) Mission Assurance node configuration -Software Licenses, Services and Applications -Maintain critical software licensing and maintenance agreements to meet critical customer and legal requirements, enable continued software support necessary to maintain the directed computer network defense posture and ensure continued system operational availability -Plan/Design/Implement technical lifecycle, refresh, and standardization of Missile Defense Integration and Operations Center (MDIOC) print services -Implement Missile Defense Integration and Operations Center (MDIOC) web cam upgrade and technology refresh -Implement a consolidated MS Project Server and deliver as a web based service ***FY 2012 Plans:*** -Computing Center (Operating Systems, Print/Storage Services, Audio/Visual, Operations and Maintenance) -Continue to maintain a mission execution platform to provide an enabling infrastructure (to include hardware, software maintenance, licenses, and upgrades) that supports MDA Research, Development, Test and Evaluation (RDT&E) efforts at the			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Missile Defense Integration and Operations Center (MDIOC) for the MDA elements/components, and Combatant Command and warfighter operational elements -Provide computer hosting of specified threat models and support the integration of other threat tools as required -Plan/Initiate, when directed, the installation of any additional intelligence data feeds required to support the Operations Support Center (OSC) -Provide file, print, and messaging services; manage and maintain automated patching software, and virus protection servers. Manage and maintain the MDA Enterprise directory services supporting user access to MDA Enterprise network resources; perform preventive maintenance and ensure data recovery capability through proper data backup scheduling and execution -Plan/Design enhancements to the Missile Defense Integration and Operations Center (MDIOC) Data Center including floorspace allocations, equipment staging areas, and streamlined logistics support function -Design/Implement upgrades to audio/visual support to the Missile Defense Integration and Operations Center (MDIOC) cafeteria supporting the distribution of signals over Internet Protocol -Missile Defense Integration and Operations Center (MDIOC) Communication Services -Install communications and networking infrastructure (hardware/software) in support of evolving mission requirements of resident MDA development, testing, training, and operational activities -Implement Class and Unclassified Voice Over Internet Protocol (VOIP) expansion to include the completion of the Missile Defense Integration and Operations Center (MDIOC) VOIP implementation -Provide telephony services to include: Telephone/Fax Service: Provide local, long distance and Defense Switch Network telephone systems. Telephone Switch Operations: Operate, maintain, and upgrade telephone switches, nodes, and Private Branch Exchanges to include 911 support -Network Management Transport Services -Acquire and distribute mission critical unclassified and secure communications capability to ten resident MDA elements/ components and BMDS and warfighter operational elements -Provide management of network capabilities by monitoring and controlling the network infrastructure, available bandwidth, hardware, and distributed software resources -Maintain the technical infrastructure and equipment which includes, routers and switches, Core Cryptographic Devices; Edge Encryption Devices; Global Engagement Manager (GEM); base and long-haul communications -Information Assurance Systems			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provide information assurance to MDA elements/components, BMDS elements, and Combatant Command (COCOM) and warfighter operational elements resident at the Missile Defense Integration and Operations Center (MDIOC) -Maintain DoD Information Assurance Certification and Accreditation Process (DIACAP) accreditation packages; manage the Information Assurance Vulnerability Assessment Program and provide technical assistance to Controls Validation Tests -Provide DoD Information Assurance Certification and Accreditation Process (DIACAP) package management; ensure timely submissions to Information Assurance Manager/Designated Accrediting Authority (IAM/DAA) for MDA Admin/General Services (GENSER) and Event Packages -Perform architecture design, engineering, and configuration management reviews for all assigned projects -Manage the Information Assurance Vulnerability Assessment and Communications Tasking Order remediation and implementation efforts to ensure Defense Information Systems Agency/Joint Task Force - Global Network Operations (DISA/JTF-GNO) directed compliance -Infrastructure Implementation Engineering -Implement intelligence hardware/software updates as required to support the Operations Support Center -Provide Missile Defense Integration and Operations Center (MDIOC) centric test event network related detailed designs in support of Test Events and real world operational events, provide implementation plans, update interface control documents and perform Change Control and Configuration Management services -Plan, design, test and operate the IT and communications technical architecture including Internet Protocol addressing schema, routing tables, switching policies, data paths, information assurance controls, fire wall configurations, application configurations, band width allocations for sub networks and eventual post event return to base line -Provide technical health and status monitoring, troubleshooting, and break/fix, IT/Communications support for each of the event architectures including critical asset identification, monitoring, Quality Assurance/Quality Control (QA/QC) seals with configuration management and job control -Implement final Defense Information Systems Agency - Global Information Grid (DISA GIG) Mission Assurance node configuration -Software Licenses, Services and Applications -Maintain critical software licensing and maintenance agreements to meet critical customer and legal requirements, enable continued software support necessary to maintain the directed computer network defense posture and ensure continued system operational availability			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Plan/Design/Implement technical lifecycle, refresh, and standardization of Missile Defense Integration and Operations Center (MDIOC) print services -Implement Missile Defense Integration and Operations Center (MDIOC) web cam upgrade and technology refresh -Implement a consolidated MS Project Server and deliver as a web based service			
Title: Facilities and Maintenance	-	18.743	19.056
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** Funding for these FY 2010 accomplishments is reported in prior year Budget Project YX22 ($18.413M) -Utilities (Electrical, Gas, Sewer, Water, Steam, & Chilled Water) -Procured utility services through 50th AF Space Wing (Host Base) -Sustained utility infrastructure and delivery systems -Environmental, Safety & Occupational Health (ESOH) -Continued maintenance and updating of the program accident prevention plan -Provided required industrial safety training to facility services personnel -Procured and distributed personal protection equipment for contracted activities Ensured compliance with Hazardous Waste/Hazardous Material/Recycling, and National Environmental Policy Act (NEPA) programs -Conducted recurring safety and environmental audits -Facility Operations and Sustainment -Provided 24 hours a day, 7 days a week, 365 days a year, facility maintenance break/fix response for all facility systems (electrical; Heating, Ventilating, Air-conditioning; plumbing; locksmith) -Conducted over 1750 preventative maintenance inspections (PMIs) a month for all building systems -Facilities Repair & Sustainment			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Upgraded facility electrical distribution system for dual redundancy (1100, 1200 & 2200 Quadrants) -Replaced failed Uninterruptable Power Supplies with new automated, high efficiencies technologies -Upgraded heating, ventilation and air conditioning system for the data center -Replaced basement air handling unit -Planned and built-out the 1201 Sector of Building 720 -Retrofitted the fire detection and suppression system -Replaced obsolete 12,470 kVa switchgear components with new automated technology -Facilities Engineering -Conducted Management Process/Facility Installation Standard Audits -Provided risk management analysis and mitigation plans -Maintained infrastructure drawings/configuration management databases -Developed and documented facility long range planning/programming -Provided consulting services, preliminary designs and engineering/rough order of magnitude estimates for required infrastructure builds/changes -Missile Defense Integration and Operations Center (MDIOC) Operating Expenses -Leased General Services Administration (GSA) Vehicles and two commercial warehouses -Funded Schriever AFB Support Costs for Defense Red Switch Network (DRSN) Support, Local Dial Tone, Long Distance, Cable TV, & Grounds Maintenance -Facility Services -Provided custodial services for over 675,000 sq ft of floor space in Buildings 720/730 -Provided Copy Center and Shuttle Services for over 2,000 personnel -Provided In/Out Processing & Personnel Moves -Cable Plant/Cubicle/Workstation -Installed facility connectivity cabling; provided trouble shooting and repair -Installed and reconfigured furniture and workstations -Independent Assessments -Conducted Arch Flash electrical safety analysis			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Conducted an electrical coordination study of technical and non-technical services -Evaluated the design for an improved 12, 470 Volt Switch Gear ***FY 2011 Plans:*** -Utilities (Electrical, Gas, Sewer, Water, Steam, & Chilled Water) -Procure utility services through 50th AF Space Wing (Host Base) -Sustain utility infrastructure and delivery systems -Environmental, Safety & Occupational Health (ESOH) -Continue maintenance and updating of the program accident prevention plan -Provide required industrial safety training to facility services personnel -Procure and distribute personal protection equipment for contracted activities -Ensure compliance with Hazardous Waste/Hazardous Material/Recycling, and National Environmental Policy Act (NEPA) programs -Conduct recurring safety and environmental audits -Facilities Operations and Sustainment -Provide 24 hours a day, 7 days a week, 365 days a year, facility maintenance break/fix response for all facility systems (electrical; Heating, Ventilation, and Air Conditioning; plumbing; locksmith) -Conduct preventive maintenance inspections (PMIs) for all building systems -Facilities Repair & Sustainment -Upgrade facility electrical distribution system for dual redundancy (Phase II) and (Phase III) -Upgrade elevator (Phase II) -Replace roof on Building 730 -Replace Building 720 concrete seals (Phase I and II) -Upgrade property management software -Diversify chilled water system distribution -Facilities Engineering -Conduct Management Process/Facility Installation Standard Audits			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provide risk management analysis and mitigation plans -Maintain infrastructure drawings/configuration management databases -Develop and document facility long range planning/programming -Provide consulting services, preliminary designs and engineering/rough order of magnitude estimates for required infrastructure builds/changes -Missile Defense Integration and Operations Center (MDIOC) Operating Expenses -Lease General Services Administration (GSA) Vehicles and two commercial warehouses -Fund Schriever AFB Support Costs (Defense Red Switch Network (DRSN) Support, Local Dial Tone, Long Distance, & Cable TV) -Facility Services -Provide custodial services for over 675,000 sf of floor space in Bldgs 720/730 -Provide limited Copy Center and Shuttle Services for over 2,000 personnel -Provide In/Out Processing & Personnel Moves -Cable Plant/Cubicle/Workstation -Install facility connectivity cabling; provide trouble shooting and repair -Install and reconfigure furniture and workstations -Independent Assessments -Conduct root cause analysis and consulting services as required -Conduct an electrical coordination study of technical and non-technical services -Provide Quality Assurance Assessments ***FY 2012 Plans:*** -Utilities (Electrical, Gas, Sewer, Water, Steam, & Chilled Water) -Procure utility services through 50th AF Space Wing (Host Base) -Sustain utility infrastructure and delivery systems -Environmental, Safety & Occupational Health (ESOH) -Continue maintenance and updating of the program accident prevention plan			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provide required industrial safety training to facility services personnel -Procure and distribute personal protection equipment for contracted activities -Ensure compliance with Hazardous Waste/Hazardous Material/Recycling, and National Environmental Policy Act (NEPA) programs -Conduct recurring safety and environmental audits -Facilities Operations and Sustainment -Provide 24 hours a day, 7 days a week, 365 days a year, facility maintenance break/fix response for all facility systems (electrical; Heating, Ventilation, and Air Conditioning; plumbing; locksmith) extended from 15 minute response to two hour response time after normal duty hours -Conduct preventative maintenance inspections (PMIs) for all building systems -Facilities Repair & Sustainment -Provide emergency response and repair of infrastructure systems -Facilities Engineering -Conduct Management Process/Facility Installation Standard Audits -Provide risk management analysis and mitigation plans -Maintain infrastructure drawings/configuration management databases on a limited/minimum basis -Develop and document facility long range planning/programming -Provide consulting services, preliminary designs and engineering/rough order of magnitude estimates for required infrastructure builds/changes -Missile Defense Integration and Operations Center (MDIOC) Operating Expenses -Lease General Services Administration (GSA) Vehicles and two commercial warehouses -Fund Schriever AFB Support Costs (Defense Red Switch Network (DRSN) Support, Local Dial Tone, Long Distance, Cable TV, & Grounds Maintenance) -Facility Services -Provide custodial services for over 675,000 sf of floor space in Bldgs 720/730 -Provide limited Copy Center and Shuttle Services for over 2,000 personnel -Provide In/Out Processing & Personnel Moves			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Cable Plant/Cubicle/Workstation -Install facility connectivity cabling; provide trouble shooting and repair on a critical basis -Install and reconfigure furniture and workstations on a critical basis			
Title: Engineering and Event Services	-	11.531	8.526
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** Funding for these FY 2010 accomplishments is reported in prior year Budget Project YX22 ($11.982M) -Mission Assurance and Event Execution Support -Implemented baseline technical control for all Missile Defense Integration and Operations Center (MDIOC) mission critical subsystems and services -Executed Missile Defense Integration and Operations Center (MDIOC) engineering management, quality assurance, configuration management and integration of all mission critical systems including: -Technical power distribution, Uninterruptable Power Supply Systems, major transformer substations, and circuit protection -Heating, Ventilation and Air Conditioning (HVAC), chilled water and steam systems -Secure and non-secure voice communications for BMDS Operations, major tests, and general constituencies -Local and wide area secure data networking environments 24 hours a day, 7 days a week, 365 days a year and network health and status tools -Ensured high availability and economic maintenance of integrated Missile Defense Integration and Operations Center (MDIOC) systems 24 hours a day, 7 days a week, 365 days a year for BMDS Operations support -Implemented `last mile` integration for BMDS Operations, BMDS test, Wargaming, exercise, training and general/administrative services -Executed comprehensive configuration baseline integrity freezes, periods of interest and work screening for all major tests and real world contingencies -Coordinated process improvement investments across all mission areas			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Executed aggressive, proactive and tailored risk management to ensure integrity and persistent connectivity for all Missile Defense Integration and Operations Center (MDIOC) missions including: -Command, Control, Battle Management and Communications (C2MBC) incremental development and integration across the Integration Laboratory, Experimentation Laboratory (X-Lab), and the International Point of Presence -BMDS focused, system and distributed ground testing and Hardware-in-the-Loop execution -Modeling and Simulation program management; Digital Simulation Architecture Development; Validation, Verification & Accreditation -BMDS flight tests including Flight Test Ground-Based Midcourse Defense (FTG) execution; Flight Test - Aegis (FTM) and Flight Test - THAAD (FTT) planning, coordination and situational awareness. (For system flight tests directed from the MDIOC, ensure the protection of power, HVAC, and communications critical to test execution and control). -Joint Target Operations Center (JTOC) Target of Opportunity (TOO) and target tracking, coordination and visualization -BMDS Operational Support Center 24 hours a day, 7 days a week, 365 days a year for technical integration and implementation services -MDA Intelligence Support Cell and Threat Modeling Center services -BMDS Wargame, exercise and Distributed Multi-Echelon Training System (DMETS) training execution; Warfighter Support Center program integration -Missile Defense Space Experimentation Center (MDSEC) Satellite Operations, Ground System and experiment support operations -Enterprise Sensor Laboratory experimental, networking, and facility support and coordination -Ground-Based Midcourse Defense (GMD) Fire Control component-level operations, integration, testing, and training -Joint Early Warning Laboratory mission services and connectivity -Combatant Command (COCOM) operations work centers including the United States Northern Command (USNORTHCOM) Command, Control, Battle Management and Communications (C2BMC) Control Center (CCC), Army 100th Missile Defense Brigade, and United States Strategic Command`s (USSTRATCOM`s) Joint Functional Component Command-Integrated Missile Defense -MDA General Services Network and Operational Support Center and Network Communications Center -MDA Computer Emergency Response Team -24 Hours a Day, 7 Days a Week, 365 Days a Year Technical Watch Support -Provided on-site technical environment for BMDS Watch Officers, Safety Officers, and Information Assurance Officers to execute their duties 24 hours a day, 7 days a week, 365 days a year			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Implemented recall procedures to augment subject matter expertise availability during contingencies and major events -Executed tabletop exercises to asses readiness for Combatant Command (COCOM) Operational contingencies and major BMDS tests -Provided state change management and asset management technical support for the BMDS -Coordinated, reported and escalate critical information and BMDS test and operational event information to all Missile Defense Integration and Operations Center (MDIOC) technical and management staff to ensure rapid break/fix actions were executed -Joint National Integration Center (JNIC) Research and Development Contract (JRDC) Business & Finance Operations -Provided overarching contract and financial management support for all Joint National Integration Center (JNIC) Research and Development Contract (JRDC) integrated programs/projects -Provided engineering coordination, resource management, and event integration across all Missile Defense Integration and Operations Center (MDIOC) mission areas -Conducted continuous process improvement and implementation across all Joint National Integration Center (JNIC) Research and Development Contract (JRDC) execution and Missile Defense Integration and Operations Center (MDIOC) missions -Delivered integrated skill mix planning, coordination and workforce deployment across the dynamic spectrum of Missile Defense Integration and Operations Center (MDIOC) events -Executed integrated resource forecasting and de-confliction -Performed project management for discrete enterprise enhancements -Event Architecture & Engineering Design -Coordinated design and implementation of technical architectures for all major Missile Defense Integration and Operations Center (MDIOC) hosted BMDS tests, training and operations -Delivered technical documentation packages for all major BMDS flight tests, ground tests, training and Combatant Command (COCOM) exercise support -Led requirements coordination and technical architecture enhancements for BMDS wargame, exercise and training networks -Updated BMDS end-to-end Combatant Command (COCOM) deployed architecture as-built documentation reflecting new incremental content and deployments -Maintained a technical repository of BMDS Implementation Architectures for real-time operations and configuration management -Event and Personnel Support			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provided quality event planning, coordination, logistics, security access and host support for all Missile Defense Integration and Operations Center (MDIOC) events and visitors -Delivered integrated service coordination for all Missile Defense Integration and Operations Center (MDIOC) event and protocol support including: -Event Registration Website -Offsite event registration -Security processing, including clearance verification and badging -Coordination of group lodging -Arrangement/Coordination/Scheduling of Bus Transportation -Liaison between event Point of Contact (POC) and catering POC -Reserved, setup, and coordinated access for all primary shared Missile Defense Integration and Operations Center (MDIOC) conference rooms -Operated Audio Visual equipment during events -Prepared and conducted official ceremonies; coordinated and hosted Distinguished Visitor itineraries; obtained information disclosure approval; coordinated offsite dinners and socials -Special Program Support -Developed and coordinated Cross-Domain Solution architectures for high priority BMDS testing and contingency deployments -Coordinated MDA leveraged involvement in multi-mission integration opportunities sponsored by external agencies and customers			
FY 2011 Plans: -Mission Assurance and Event Execution Support -Implement baseline technical control for all Missile Defense Integration and Operations Center (MDIOC) mission critical subsystems and services -Execute Missile Defense Integration and Operations Center (MDIOC) engineering management, quality assurance, configuration management and integration of all mission critical systems including: -Technical power distribution, Uninterruptable Power Supply Systems, major transformer substations, and circuit protection -Heating, Ventilation and Air Conditioning, chilled water and steam systems			

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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Secure and non-secure voice communications for BMDS Operations, major tests, and general constituencies -Local and wide area secure data networking environments and network health and status tools 24 hours a day, 7 days a week, 365 days a year -Ensure high availability and maintenance de-confliction of integrated Missile Defense Integration and Operations Center (MDIOC) systems and BMDS Operations support 24 hours a day, 7 days a week, 365 days a year -Implement `last mile` integration for BMDS Operations, BMDS test, Wargaming, exercise, training and general/admin services -Execute comprehensive configuration baseline integrity freezes, periods of interest and work screening for all major tests and real world contingencies -Coordinate process improvement investments across all mission areas -Support the initial relocation of Space Tracking and Surveillance System (STSS) program office personnel from LAAFB to the MDIOC -Execute aggressive, proactive and tailored risk management to ensure integrity and persistent connectivity for all Missile Defense Integration and Operations Center (MDIOC) missions including: -Command, Control, Battle Management and Communications (C2MBC) incremental development and integration across the Integration Laboratory, Experimentation Laboratory (X-Lab), and the International Point of Presence -BMDS focused, system and distributed ground testing and Hardware-in-the-Loop (HWIL) execution -Modeling and Simulation program management; Digital Simulation Architecture Development; Validation, Verification & Accreditation -BMDS flight tests including Flight Test Ground-Based Midcourse Defense (FTG) execution; Flight Test - Aegis (FTM) and Flight Test - THAAD (FTT) planning, coordination and situational awareness. (For system flight tests directed from the MDIOC, ensure the protection of power, HVAC, and communications critical to test execution and control). -Joint Target Operations Center (JTOC) Target of Opportunity (TOO) and target tracking, coordination and visualization -BMDS Operational Support Center and technical integration and implementation services 24 hours a day, 7 days a week, 365 days a year -MDA Intelligence Support Cell and Threat Modeling Center services -BMDS Wargame, exercise and DMETS training execution; Warfighter Support Center program integration -Missile Defense Space Experimentation Center (MDSEC) Satellite Operations, Ground System and experiment support operations, and Airborne Infrared Radar (ABIR), and Space Tracking and Surveillance System (STSS) testing -Enterprise Sensor Laboratory experimental, networking and facility support and coordination -Ground-Based Midcourse Defense (GMD) Fire Control component-level operations, integration, testing, and training -Joint Early Warning Laboratory mission services and connectivity			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	**PROJECT** MD22: *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Combatant Command (COCOM) operations work centers including the United States Northern Command (USNORTHCOM) Command, Control, Battle Management and Communications (C2BMC) Control Center (CCC), Army 100th Missile Defense Brigade, and United States Strategic Command`s (USSTRATCOM`s) Joint Functional Component Command-Integrated Missile Defense -MDA General Services Network and Operational Support Center and Network Communications Center -MDA Computer Emergency Response Team -24 Hours a Day, 7 Days a Week, 365 Days a Year, Technical Watch Support -Provide on-site technical environment for BMDS Watch Officers, Safety Officers, and Information Assurance Officers to execute their duties 24 hours a day, 7 days a week, 365 days a year -Implement recall procedures to augment subject matter expertise availability during contingencies and major events -Execute tabletop exercises to asses readiness for Combatant Command (COCOM) Operational contingencies and major BMDS tests -Provide state change management and asset management technical support for the BMDS -Coordinate, report and escalate critical information and BMDS test and operational event information to all Missile Defense Integration and Operations Center (MDIOC) technical and management staff to ensure rapid break/fix actions are executed -Joint National Integration Center (JNIC) Research and Development Contract (JRDC) Business & Finance Operations -Provide overarching contract and financial management support for all Joint National Integration Center (JNIC) Research and Development Contract (JRDC) integrated programs/projects -Provide engineering coordination, resource management, and event integration across all Missile Defense Integration and Operations Center (MDIOC) mission areas -Conduct continuous process improvement and implementation across all JRDC execution and Missile Defense Integration and Operations Center (MDIOC) missions -Deliver integrated skill mix planning, coordination and workforce deployment across the dynamic spectrum of Missile Defense Integration and Operations Center (MDIOC) events -Execute integrated resource forecasting and de-confliction -Perform project management for discrete enterprise enhancements -Event Architecture & Engineering Design			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	**PROJECT** MD22: *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Coordinate design and implementation of technical architectures for all major Missile Defense Integration and Operations Center (MDIOC) hosted BMDS tests, training and operations -Deliver technical documentation packages for all major BMDS flight tests, ground tests, training and Combatant Command (COCOM) exercise support -Lead requirements coordination and technical architecture enhancements for BMDS wargame, exercise and training networks -Update BMDS end-to-end Combatant Command (COCOM) deployed architecture as-built documentation reflecting new incremental content and deployments -Maintain a technical repository of BMDS Implementation Architectures for real-time operations and configuration management -Event and Personnel Support -Provide quality event planning, coordination, logistics, security access and host support for all Missile Defense Integration and Operations Center (MDIOC) events and visitors -Deliver integrated service coordination for all Missile Defense Integration and Operations Center (MDIOC) event and protocol support including: -Event Registration Website -Offsite event registration -Security processing, including clearance verification and badging -Coordination of group lodging -Arrangement/Coordination/Scheduling of Bus Transportation -Liaison between event Point of Contact (POC) and catering POC -Reserve, setup, and coordinate access for all primary shared Missile Defense Integration and Operations Center (MDIOC) conference rooms -Operate Audio Visual equipment during events -Prepare and conduct official ceremonies; coordinate and host Distinguished Visitor itineraries; obtain information disclosure approval; coordinate offsite dinners and socials -Special Program Support -Develop and coordinate Cross-Domain Solution architectures for high priority BMDS testing and contingency deployments -Coordinate MDA leveraged involvement in multi-mission integration opportunities sponsored by external agencies and customers			
FY 2012 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	PROJECT MD22: *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Mission Assurance and Event Execution Support -Implement baseline technical control for all Missile Defense Integration and Operations Center (MDIOC) mission critical subsystems and services -Execute Missile Defense Integration and Operations Center (MDIOC) engineering management, quality assurance, configuration management and integration of all mission critical systems including: -Technical power distribution, Uninterruptable Power Supply Systems, major transformer substations, and circuit protection -Heating, Ventilation and Air Conditioning, chilled water and steam systems -Secure and non-secure voice communications for BMDS Operations, major tests, and general constituencies -Local and wide area secure data networking environments and network health and status tools 24 hours a day, 7 days a week, 365 days a year -Ensure high availability of integrated Missile Defense Integration and Operations Center (MDIOC) systems and BMDS Operations support 24 hours a day, 7 days a week, 365 days a year -Implement `last mile` integration for BMDS Operations, BMDS test, Wargaming, exercise, training and general/admin services -Execute comprehensive configuration baseline integrity freezes, periods of interest and work screening for all major tests and real world contingencies -Coordinate process improvement investments across all mission areas -Support the completion of the relocation of the Space Tracking and Surveillance System (STSS) program office to the MDIOC -Execute aggressive, proactive and tailored risk management to ensure integrity and persistent connectivity for all Missile Defense Integration and Operations Center (MDIOC) missions including: -Command, Control, Battle Management and Communications (C2MBC) incremental development and integration across the Integration Laboratory, Experimentation Laboratory (X-Lab), and the International Point of Presence -BMDS focused, system and distributed ground testing and Hardware-in-the-Loop (HWIL) execution -Modeling and Simulation program management; Digital Simulation Architecture Development; Validation, Verification & Accreditation -BMDS flight tests including Flight Test Ground-Based Midcourse Defense (FTG) execution; Flight Test - Aegis (FTM) and Flight Test - THAAD (FTT) planning, coordination and situational awareness. (For system flight tests directed from the MDIOC, ensure the protection of power, HVAC, and communications critical to test execution and control). -Joint Target Operations Center (JTOC) Target of Opportunity (TOO) and target tracking, coordination and visualization			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	PROJECT MD22: *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-BMDS Operational Support Center and technical integration and implementation services 24 hours a day, 7 days a week, 365 days a year -MDA Intelligence Support Cell and Threat Modeling Center services -BMDS Wargame, exercise and DMETS training execution; Warfighter Support Center program integration -Missile Defense Space Experimentation Center (MDSEC) Satellite Operations, Ground System and experiment support operations, and Airborne Infrared Radar (ABIR), and Space Tracking and Surveillance System (STSS) testing -Enterprise Sensor Laboratory experimental, networking and facility support and coordination -Ground-Based Midcourse Defense (GMD) Fire Control component-level operations, integration, testing, and training -Joint Early Warning Laboratory mission services and connectivity -Combatant Command (COCOM) operations work centers including the United States Northern Command (USNORTHCOM) Command, Control, Battle Management and Communications (C2BMC) Control Center (CCC), Army 100th Missile Defense Brigade, and United States Strategic Command`s (USSTRATCOM`s) Joint Functional Component Command-Integrated Missile Defense -MDA General Services Network and Operational Support Center and Network Communications Center -MDA Computer Emergency Response Team -Technical Watch Support -Provide on-site technical environment for BMDS Watch Officers, Safety Officers, and Information Assurance Officers to execute their duties 8 hours a day, 5 days a week with a capability to surge to 24 hours a day, 7 days a week for contingency operations -Implement recall procedures to augment subject matter expertise availability during contingencies and major events -Execute tabletop exercises to asses readiness for Combatant Command (COCOM) Operational contingencies and major BMDS tests -Provide state change management and asset management technical support for the BMDS -Coordinate, report and escalate critical information and BMDS test and operational event information to all Missile Defense Integration and Operations Center (MDIOC) technical and management staff to ensure rapid break/fix actions are executed -Joint National Integration Center (JNIC) Research and Development Contract (JRDC) Business & Finance Operations -Provide overarching contract and financial management support for all Joint National Integration Center (JNIC) Research and Development Contract (JRDC) integrated programs/projects -Provide engineering coordination, resource management, and event integration across all Missile Defense Integration and Operations Center (MDIOC) mission areas			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	**PROJECT** MD22: *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Conduct continuous process improvement and implementation across all JRDC execution and Missile Defense Integration and Operations Center (MDIOC) missions -Deliver integrated skill mix planning, coordination and workforce deployment across the dynamic spectrum of Missile Defense Integration and Operations Center (MDIOC) events -Execute integrated resource forecasting and de-confliction -Perform project management for discrete enterprise enhancements -Event Architecture & Engineering Design -Coordinate design and implementation of technical architectures for all major Missile Defense Integration and Operations Center (MDIOC) hosted BMDS tests, training and operations -Deliver technical documentation packages for all major BMDS flight tests, ground tests, training and Combatant Command (COCOM) exercise support -Lead requirements coordination and technical architecture enhancements for BMDS wargame, exercise and training networks -Update BMDS end-to-end Combatant Command (COCOM) deployed architecture as-built documentation reflecting new incremental content and deployments -Maintain a technical repository of BMDS Implementation Architectures for real-time operations and configuration management -Event and Personnel Support -Provide quality event planning, coordination, logistics, security access and host support for all Missile Defense Integration and Operations Center (MDIOC) events and visitors -Deliver integrated service coordination for all Missile Defense Integration and Operations Center (MDIOC) event and protocol support including: -Event Registration Website -Offsite event registration -Security processing, including clearance verification and badging -Coordination of group lodging -Arrangement/Coordination/Scheduling of Bus Transportation -Liaison between event Point of Contact (POC) and catering POC -Reserve, setup, and coordinate access for all primary shared Missile Defense Integration and Operations Center (MDIOC) conference rooms			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	PROJECT MD22: *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Operate Audio Visual equipment during events -Prepare and conduct official ceremonies; coordinate and host Distinguished Visitor itineraries; obtain information disclosure approval; coordinate offsite dinners and socials			
Title: Operations and Sustainment	-	8.231	6.038
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY 2010 accomplishments is reported in prior year Budget Project YX22 ($7.942M) -Government Civilian, Contract Support Services (CSS), Training, Travel, Federally Funded Research and Development Contract (FFRDC) -Funded Civilian, Contract Support Services (CSS), Federally Funded Research and Development Contract (FFRDC) positions supporting operations and sustainment of all MDIOC activities contributing to the mission execution platform -Funded Training and Travel			
FY 2011 Plans: -Government Civilian, Contract Support Services (CSS), Training, Travel, Federally Funded Research and Development Contract (FFRDC) -Fund Civilian, Contract Support Services (CSS) and Federally Funded Research and Development Contract (FFRDC) positions supporting operations and sustainment of all MDIOC activities contributing to the mission execution platform -Fund Training and Travel			
FY 2012 Plans: -Government Civilian, Contract Support Services (CSS), Training, Travel, Federally Funded Research and Development Contract (FFRDC) -Fund Civilian, Contract Support Services (CSS) and Federally Funded Research and Development Contract (FFRDC) positions supporting operations and sustainment of all MDIOC activities contributing to the mission execution platform -Fund Training and Travel			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	**PROJECT** MD22: *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Defense Efficiency - Contractor Staff Support. As part of the Department of Defense reform agenda, reduces funds below the aggregate level reported in FY 2010 for controls that augment staff functions. ($1.202 thousands)			
Title: C2BMC Test Beds	-	21.613	-
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY 2010 accomplishments is reported in prior year Budget Project CX22 ($19.793M) Maintained, sustained, and upgraded Missile Defense Integration and Operations Center (MDIOC) Command, Control, Battle Management and Communications (C2BMC) Testbed to support integration, test, training, and experimentation -Provided technical expertise to BMDS Command, Control, Battle Management and Communications (C2BMC) Early Warning Integration -Provided and test BMDS Command, Control, Battle Management and Communications (C2BMC) -Performed Operational Early Warning Anomaly Tracking and Analysis -Performed Operator/Warfighter theater Missile Warning (TMW) Exercise Data Analysis -Performed BMDS Early Warning test, integration and fielding -Provided in-theater Global Command and Communications System (GCCS) and technical expertise to the Combatant Command (COCOM) warfighters via the United States Strategic Command (USSTRATCOM) led Combatant Command (COCOM) Tier I health checks -Performed Joint Early Warning operational assessments and analysis -Developed Combatant Command (COCOM) Theater Missile Warning (TMW) architecture drawings -Continued to record data on all missile events broadcast over Theater Event System (TES) -Continued to populate and maintained database on all missile events recorded since Jan 2003 -Performed United States Strategic Command (USSTRATCOM) Theater Missile Warning (TMW) Configuration Control Board (CCB) assessments of new systems for inclusion in Theater Missile Warning (TMW) Theater Event System (TES) Architecture -Provided Subject Matter Expertise to the United States Strategic Command (USSTRATCOM) Theater Missile Warning (TMW) Configuration Control Board (CCB) Engineering Subgroup -Performed testing and integration of Theater Missile Warning (TMW) producer improvement initiatives testing			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	**PROJECT** MD22: *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provided Subject Matter Expertise to Early Warning communications integration -Performed testing on new systems for inclusion into the Theater Missile Warning (TMW) architecture -Produced Early Warning Target of Opportunity (TOO) initial Quick Reports and Comparative Analysis Reports -Provided inputs concerning integration and testing of the Command, Control, Battle Management and Communications (C2BMC) Net Centric Architecture -Continued to populate the Early Warning Incident / Anomaly tracking database for the Theater Missile Warning (TMW) Configuration Control Board (CCB) and BMDS Early Warning Special Product Team (EW SPT) reporting and metrics tracking -Upgraded Joint Early Warning Laboratory (JEWL) hardware/software/communications -Performed Command, Control, Battle Management and Communications (C2BMC) display analysis -Continued to provide Early Warning-Special Product Team (EW-SPT) missile warning technical expertise for the COCOM warfighters			
FY 2011 Plans: 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 consider employing the BMDS in ways other than originally planned or against threats unknown at this time. -Complete the transition the Missile Defense Integration and Operations Center (MDIOC) Command, Control, Battle Management and Communications (C2BMC) Testbed to support sustainment testing of C2BMC Spiral 6.4 -Start the Command, Control, Battle Management and Communications (C2BMC) Testbed Test Environment transition to C2BMC Spiral 8.2 -Plan, collect data, assess, examine, and report on MDA directed Command, Control, Battle Management and Communications (C2BMC) spiral integration testing -Support continuing integration of missile defense elements into the BMDS command and control structure -Support interoperability and integration of the BMDS program elements -Improve the operational realism of the system test architectures -Conduct a system test campaign across the architecture based on the Integrated Master Plan Test (IMPT) Schedule -Support the field testing of the European Deployment -Sustain the Command, Control, Battle Management and Communications (C2BMC) Components of the Distributed Multi-Echelon Distributed Training system (DMETS) in the conduct of BMDS-level wargames, exercises, and training			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	**PROJECT** MD22: *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provide infrastructure, network, and troubleshooting support to: -C2BMC Control Center (CCC) -System Test and Operations Center (STOC) -BMDS Communications Network (BCN) -Parallel Staging Network (PSN) -BMDS Network Operations and Security Center (BNOSC) -Conduct Command, Control, Battle Management and Communications (C2BMC) Experimentation Laboratory (X-Lab) Events and Experimentation -Refine Command, Control, Battle Management and Communications (C2BMC) interfaces to BMDS Elements and Sensors -Complete BMD Overhead Persistent Infrared (OPIR) Architecture (BOA) performance assessments, integration, and testing -Conduct concept development for highly adaptive, highly secure, highly reliable Concurrent Test, Training and Operations (CTTO) Network Architectures -Conduct initial prototypes and associated operations with Concurrent Test, Training, and :Operations (CTTO) interfaces and architectures ***FY 2012 Plans:*** Plans captured in Project MD01, PE 0603896C			
Title: Joint Early Warning Laboratory (JEWL) ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** Funding for these FY2010 accomplishments is reported in prior year Budget Project CX22 ($2.149M) -Provided technical expertise to BMDS Command, Control, Battle Management and Communications (C2BMC) Early Warning Integration -Provided and test BMDS Command, Control, Battle Management and Communications (C2BMC) -Performed Operational Early Warning Anomaly Tracking and Analysis -Performed Operator/Warfighter theater Missile Warning (TMW) Exercise Data Analysis -Performed BMDS Early Warning test, integration and fielding	- 0	2.190 0	- 0

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Provided in-theater Global Command and Communications System (GCCS) and radio technical expertise to the Combatant Command (COCOM) warfighters via the United States Strategic Command (USSTRATCOM) led Combatant Command (COCOM) Tier I health checks -Performed Joint Early Warning operational assessments and analysis -Developed Combatant Command (COCOM) Theater Missile Warning (TMW) architecture drawings -Continued to record data on all missile events broadcast over Theater Event System (TES) -Continued to populate and maintained database on all missile events recorded since Jan 2003 -Performed United States Strategic Command (USSTRATCOM) Theater Missile Warning (TMW) Configuration Control Board (CCB) assessments of new systems for inclusion in Theater Missile Warning (TMW) Theater Event System (TES) Architecture -Provided Subject Matter Expertise to the United States Strategic Command (USSTRATCOM) Theater Missile Warning (TMW) Configuration Control Board (CCB) Engineering Subgroup -Performed testing and integration of Theater Missile Warning (TMW) producer improvement initiatives testing -Provided Subject Matter Expertise to Early Warning communications integration -Performed testing on new systems for inclusion into the Theater Missile Warning (TMW) architecture -Produced Early Warning Target of Opportunity (TOO) initial Quick Reports and Comparative Analysis Reports -Provided inputs concerning integration and testing of the Command, Control, Battle Management and Communications (C2BMC) Net Centric Architecture -Continued to populate the Early Warning Incident / Anomaly tracking database for the Theater Missile Warning (TMW) Configuration Control Board (CCB) and BMDS Early Warning Special Product Team (EW SPT) reporting and metrics tracking -Upgraded Joint Early Warning Laboratory (JEWL) hardware/software/communications -Performed Command, Control, Battle Management and Communications (C2BMC) display analysis -Continued to provide Joint Early Warning Laboratory (JEWL) technical expertise for BMDS Early Warning Special Product Team (EW SPT)			
FY 2011 Plans: As the USSTRATCOM designated facility for testing all changes or additions to the Theater Event System (TES) architecture, the Joint Early Warning Lab (JEWL) replicates all known theater Early Warning (EW) architecture and maintains a replay capability for fault isolation, anomaly identification, and can modify data to isolate anomalies. The JEWL provides timely analysis and comparisons of the legacy EW and BMD systems. -Perform BMDS Early Warning test, integration and fielding support -Perform Joint Early Warning operational assessments and support			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Record data on all missile events broadcast over Theater Event System (TES) -Maintain database on all missile events recorded since January 2003 -Perform analysis pertaining to live events -Support testing and integration of Theater Missile Warning (TMW) and Integrated Air Missile Defense (IAMD) architecture improvements -Perform United States Strategic Command (USSTRATCOM) Configuration Control Board (CCB) assessments and technical evaluations of new systems for inclusion in Theater Missile Warning (TMW) Architecture -Conduct Theater Missile Warning (TMW) Health Checks to assist Combatant Command (COCOMs) in evaluating their missile warning architecture, and optimize their early warning coverage in conjunction with United States Strategic Command (USSTRATCOM) -Support the Global Command and Control System (GCCS) Theater Air and Missile Defense (TAMD) workgroup and sustainment of Theater Missile Warning (TMW) capabilities in Global Command and Control System (GCCS) -Maintain web-based documentation of Combatant Command (COCOM) Tier-1 sites Theater Missile Warning (TMW) equipment configuration -Provide subject-matter expertise in support of BMDS and Theater Missile Warning (TMW) architecture convergence -Perform testing on new systems for inclusion into the Theater Missile Warning (TMW) architecture -Perform Early Warning Target of Opportunity (TOO) initial quick reports and comparative analysis -Perform Operational Early Warning Anomaly Tracking and Analysis -Provide BMDS Command, Control, Battle Management and Communications (C2BMC) Early Warning Integration support -Perform Operator/Warfighter Theater Missile Warning (TMW) Exercise Data Analysis -Provide and chair United States Strategic Command (USSTRATCOM) Configuration Control Board (CCB) Engineering Subgroup -Establish the Early Warning Incident / Anomaly tracking database in support of the Theater Missile Warning (TMW) Configuration Control Board (CCB) and BMDS Early Warning Special Product Team (EW SPT) reporting and metrics tracking -Upgrade Joint Early Warning Laboratory (JEWL) hardware/software/communications -Provide Command, Control, BAttle Management and Communications (C2BMC) display analysis for inclusion in the BMDS Integrated Tactical Warning/Attack Assessment (ITWAA) Theater Event System (TES) Comparison Reports -Continue to provide Early Warning-Special Product Team (EW-SPT) missile warning technical expertise for the COCOM warfighters ***FY 2012 Plans:*** Plans captured in Project MD01, PE 0603896C			
Title: Modeling & Simulation Systems Engineering and Integration	-	1.744	1.686

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** Activity did not exist in the MDIOC PE FY 2010 ***FY 2011 Plans:*** Conduct alternative concepts, technical Feasibility Analysis, and preliminary trade studies. These include concept definition for Airborne Infrared Radar (ABIR) and technical assessment of unique high-performance design options for Standard Missile (SM)-3 Block IIB. Provide analysis support to the Chief Architect (Architecture Trade Studies, Initiatives by Office of the Secretary of Defense (OSD), Joint Chiefs of Staff (JCS), Combatant Command (COCOMs), Special Programs and other Special Studies. -Continue planning and coordination for real-time track demonstrations using a Unmanned Aerial Vehicle (UAV) (associated with scheduled BMDS test events) using an existing airborne platform -Start design work on high-performance design options for Standard Missile (SM)-3 Block IIB -Continue to support assigned Office of the Secretary of Defense (OSD), Joint Chiefs of Staff (JCS), Combatant Command (COCOMs) and other special studies ***FY 2012 Plans:*** Conduct alternative concepts, technical Feasibility Analysis, and preliminary trade studies. These include concept definition for Airborne Infrared Radar (ABIR) and technical assessment of unique high-performance design options for Standard Missile (SM)-3 Block IIB. Provide analysis support to the Chief Architect (Architecture Trade Studies, Initiatives by Office of the Secretary of Defense (OSD), Joint Chiefs of Staff (JCS), Combatant Command (COCOMs), Special Programs, and other Special Studies. -Continue planning and coordination for real-time track demonstrations using a Unmanned Aerial Vehicle (UAV) (associated with scheduled BMDS test events) using an existing airborne platform -Continue design work on high-performance design options for SM-3 Block IIB -Support pre-mission analysis involving Space Tracking and Surveillance System (STSS) with Aegis testing -Continue to support assigned Office of the Secretary of Defense (OSD), Joint Chiefs of Staff (JCS), Combatant Command (COCOMs) and other special studies			
Title: IT Infrastructure Recapitalization	-	-	10.000
Articles:	0	0	0

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	**PROJECT** MD22: *Missile Defense Integration and Operations Center (MDIOC)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Description: See Description Below ***FY 2010 Accomplishments:*** Activity did not exist in the MDIOC PE FY 2010 ***FY 2011 Plans:*** Activity did not exist in the MDIOC PE FY 2011 ***FY 2012 Plans:*** -Invest $10 million in IT Recapitalization to include desk tops, laptops, thin clients, servers, routers, and switches. Approximately ten percent of the 12,850 desktop computers, laptops, and thin client devices within the Missile Defense Agency are older than five years compared to an industry refresh standard of three years. The Missile Defense Agency requires $42 million for recapitalization of obsolete desktop systems by year 2012. Continuing to extend refresh rates is increasing the risk for downtime and increased labor requirements to sustain obsolete systems.			
Accomplishments/Planned Programs Subtotals	-	83.298	66.484

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603175C: *Ballistic Missile Defense Technology*	164.670	132.220	75.003		75.003	103.844	111.712	164.378	170.851	Continuing	Continuing
• 0603882C: *Ballistic Missile Defense Mid-Course Segment*	1,022.019	1,346.181	1,161.001		1,161.001	1,040.949	925.943	856.839	875.969	Continuing	Continuing
• 0603888C: *Ballistic Missile Defense Test and Targets*	737.863	1,113.425	1,071.039		1,071.039	898.680	790.906	787.113	878.215	Continuing	Continuing
• 0603890C: *Ballistic Missile Defense Enabling Programs*	355.870	402.769	373.563		373.563	331.203	314.193	336.749	346.560	Continuing	Continuing
• 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	148.506	112.678	96.353		96.353	53.577	47.592	32.289	34.308	Continuing	Continuing
• 0603895C: *BMD SYSTEM SPACE PROGRAM*	11.913	10.942	7.951		7.951	6.781	6.465	6.496	6.915	Continuing	Continuing
• 0603896C: *BMD C2BMC*	327.074	342.625	364.103		364.103	330.337	353.081	338.835	304.217	Continuing	Continuing
	58.105	68.726	41.225		41.225	58.089	55.961	56.479	60.684	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603898C: *BMD JOINT WARFIGHTER SUPPORT*											

D. Acquisition Strategy

The Joint National Integration Center Research and Development Contract is the major performing integrated contract that is competed periodically.

The acquisition strategy for Missile Defense Integration and Operation Center (MDIOC) mission execution is to employ a contract to perform designated integration and sustainment tasks to conduct Ballistic Missile Defense System (BMDS) Research, Development, Test and Evaluation (RDT&E). The Missile Defense Integration and Operations Center (MDIOC) is operated by missile defense subject matter experts (SME) composed of Government military and civilian personnel, Federally Funded Research and Development Center (FFRDC), Missile Defense Integration and Operations Center (MDIOC) Technical Advisory and Assistance Services, and major defense contractors.

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
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Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Infrastructure Systems and Support MDIOC NG MD22	C/CPAF	MDIOC/Northrop Grumman Mission Systems:Colorado Springs, CO	20.185	19.246	Nov 2010	21.178	Nov 2011	-		21.178	Continuing	Continuing	Continuing
Facilities and Maintenance MDIOC NG MD22	C/CPAF	MDIOC/Northrop Grumman Mission Systems:Colorado Springs, CO	15.478	14.997	Nov 2010	15.614	Nov 2011	-		15.614	Continuing	Continuing	Continuing
Facilities and Maintenance MDIOC GSA / Leases / Calibration MD22	MIPR	Various (GSA, 50th Space Wing, Warehouses):Colorado Springs, CO	0.835	1.572	Dec 2010	1.182	Dec 2011	-		1.182	2.754	6.343	Continuing
Facilities and Maintenance MDIOC Utilities MD22	MIPR	50th Space Wing:Schriever AFB, CO	2.100	2.174	Oct 2010	2.260	Oct 2011	-		2.260	Continuing	Continuing	Continuing
Engineering and Event Services MDIOC NG MD22	C/CPAF	MDIOC/Northrop Grumman Mission Systems:Colorado Springs, CO	11.982	11.531	Oct 2010	8.526	Oct 2011	-		8.526	Continuing	Continuing	Continuing
Operations and Sustainment Ops & Sustainment MD22	Allot	MDIOC:Colorado Springs, CO	4.384	4.370	Oct 2010	3.076	Oct 2011	-		3.076	Continuing	Continuing	Continuing
Operations and Sustainment CSS/A&AS MD22	C/FFP	SRS/ManTech/ MiDAESS Multi:Colorado Springs, CO	2.742	2.939	Oct 2010	2.463	Oct 2011	-		2.463	6.502	14.646	Continuing
	FFRDC		0.693	0.727	Oct 2010	0.371	Oct 2011	-		0.371	1.098	2.889	Continuing

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Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Operations and Sustainment FFRDC MD22		MDIOC:Colorado Springs, CO											
Operations and Sustainment Travel and Training MD22	Allot	MDIOC:Colorado Springs, CO	0.123	0.195	Oct 2010	0.128	Oct 2011	-		0.128	0.323	0.769	Continuing
Modeling & Simulation Systems Engineering and Integration BMDS Architecture MD22	C/CPAF	MDIOC/Northrop Grumman Mission Systems:Colorado Springs, CO	-	1.744	Oct 2010	1.686	Oct 2011	-		1.686	3.537	6.967	Continuing
IT Infrastructure Recapitalization Information Technology MD22	C/CPAF	MDIOC/Northrop Grumman Mission Systems/:Colorado Springs, CO	-	-		10.000	Jan 2012	-		10.000	Continuing	Continuing	Continuing
		Subtotal	58.522	59.495		66.484		-		66.484			

Remarks

Funds for utilities and base communications or specified in the Inter-service Support Agreement with the 50th Space Wing. In addition, the Missile Defense Integration and Operations Center (MDIOC) provides Federally Funded Research and Development Center (FFRDC) and Technical Advisory and Assistance Services employees, for MDIOC operations and oversight of the Joint Research and Development Contractor (JRDC), as well as funding for JRDC work as required by the government.

FY 2012 IT Infrastructure Recapitalization did not exist in FY 2010 and FY 2011; Invest $10 million in IT Recapitalization to include desk tops, laptops, thin clients, servers, routers, and switches. Approximately ten percent of the 12,850 desktop computers, laptops, and thin client devices within the Missile Defense Agency are older than five years compared to an industry refresh standard of three years. The Missile Defense Agency requires $42 million for recapitalization of obsolete desktop systems by year 2012. Continuing to extend refresh rates is increasing the risk for downtime and increased labor requirements to sustain obsolete systems.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C2BMC Test Beds C2BMC Testbed - 1 MD22	C/FFP	Mantech/ MiDAESS:Colorado Springs, CO	17.661	1.664	Oct 2010	-		-		-	Continuing	Continuing	Continuing
	FFRDC		0.815	0.900	Oct 2010	-		-		-	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
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Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
C2BMC Test Beds C2BMC Testbed - 2 MD22		IDA:Colorado Springs, CO											
C2BMC Test Beds BMDS Level Testing MD22	C/CPAF	Northrop Grumman Mission Systems:Colorado Springs, CO	1.317	19.049	Oct 2010	-		-		-	Continuing	Continuing	Continuing
Joint Early Warning Laboratory (JEWL) JEWL MD22	C/CPAF	MULTI:Colorado Springs, CO	2.149	2.190	Oct 2010	-		-		-	Continuing	Continuing	Continuing
		Subtotal	21.942	23.803		-		-		-			

Remarks

FY 2012 Plans captured in Project MD01, PE 0603896C

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	80.464	83.298		66.484		-		66.484			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
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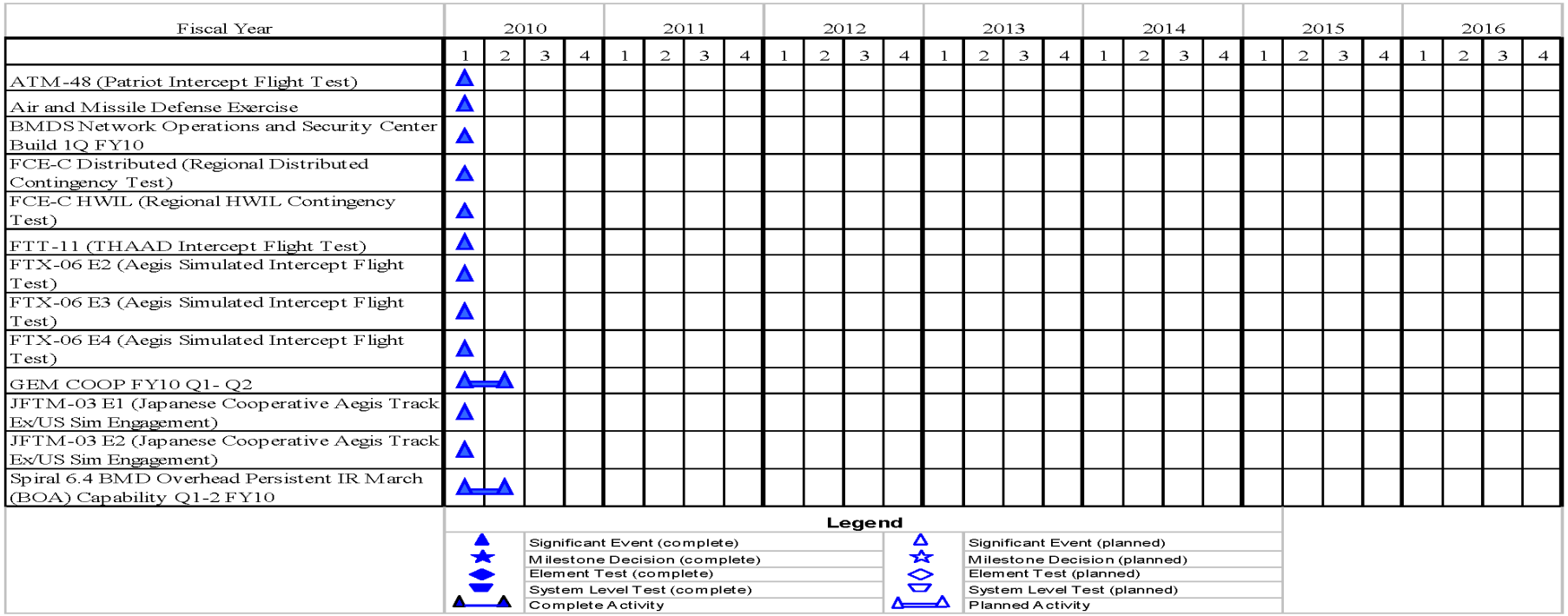

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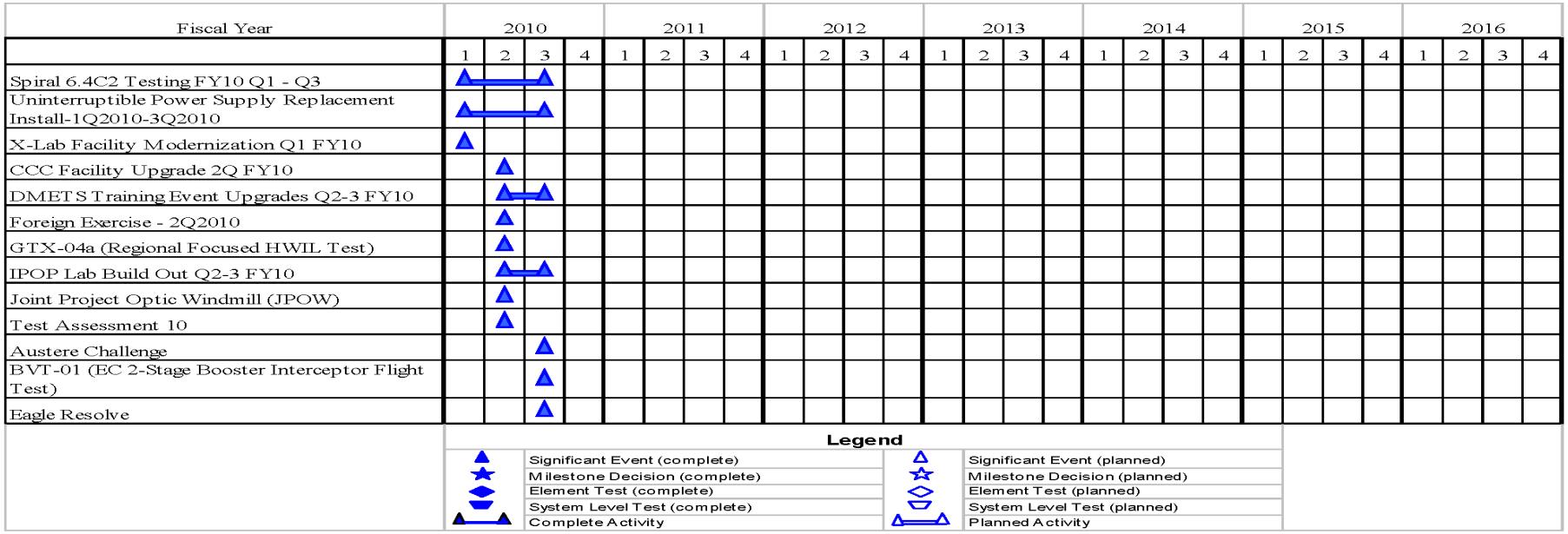

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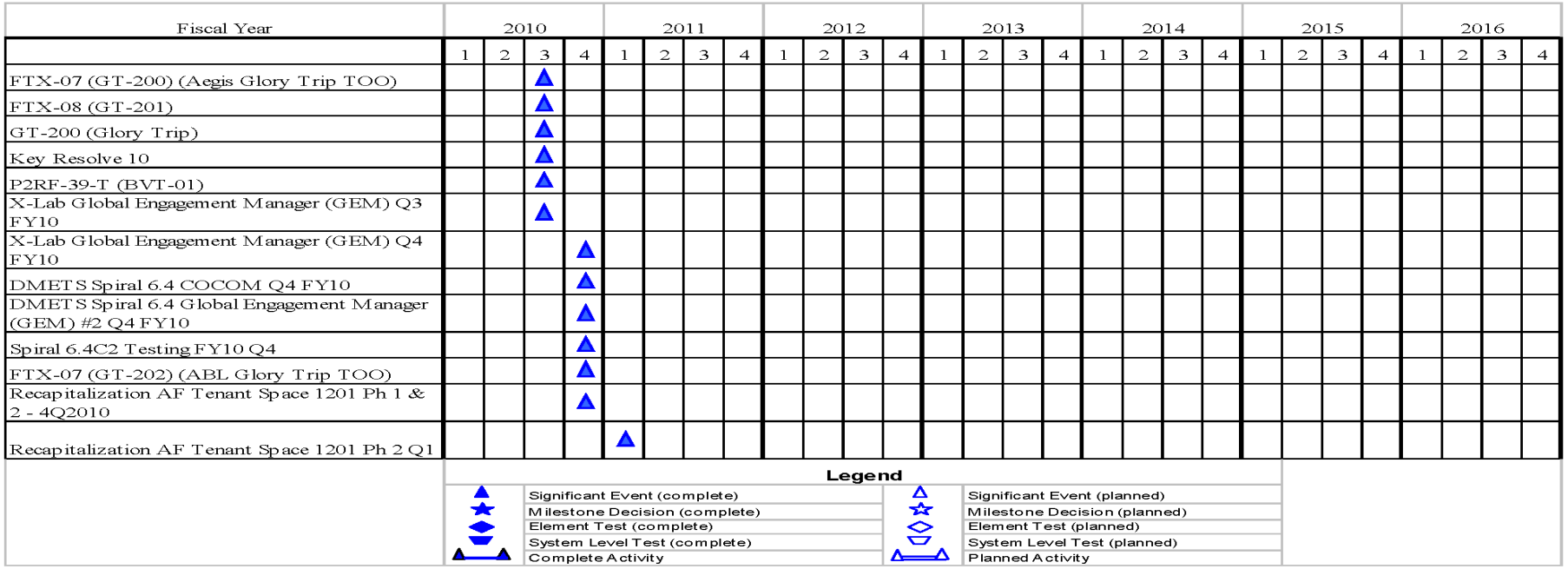

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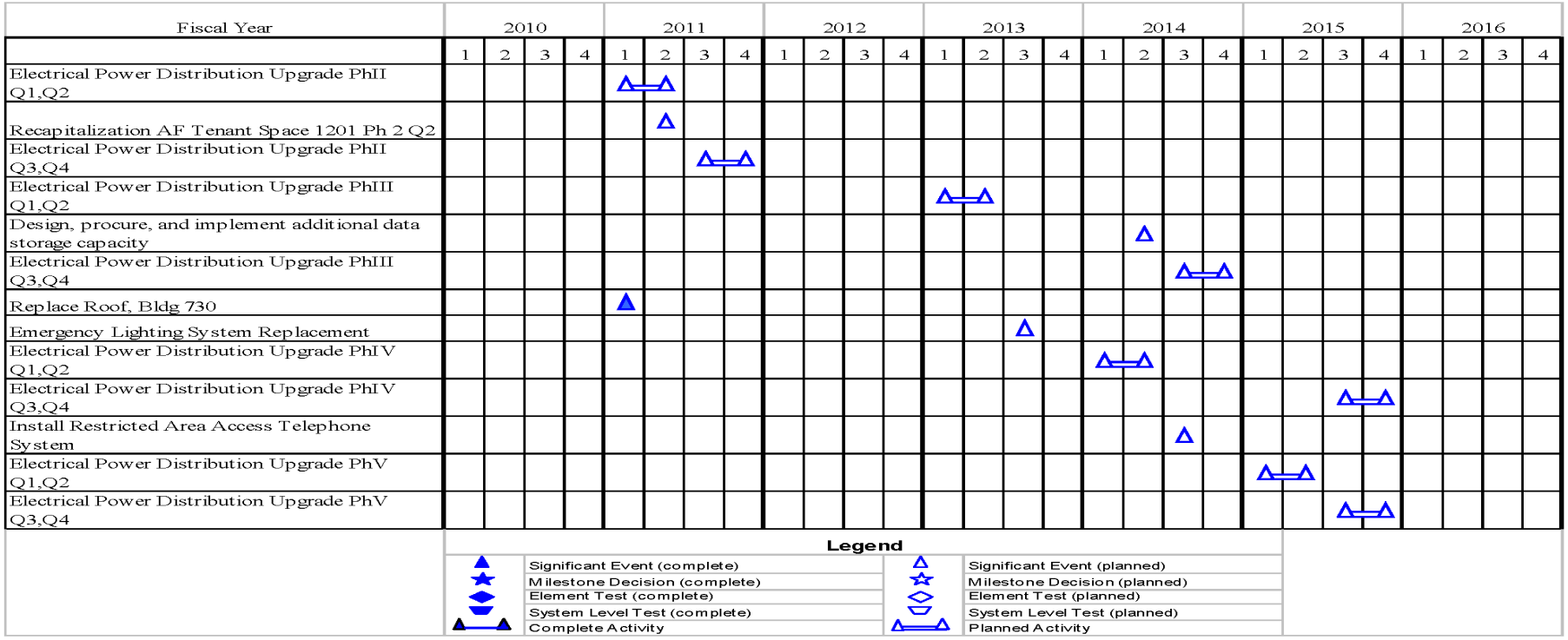

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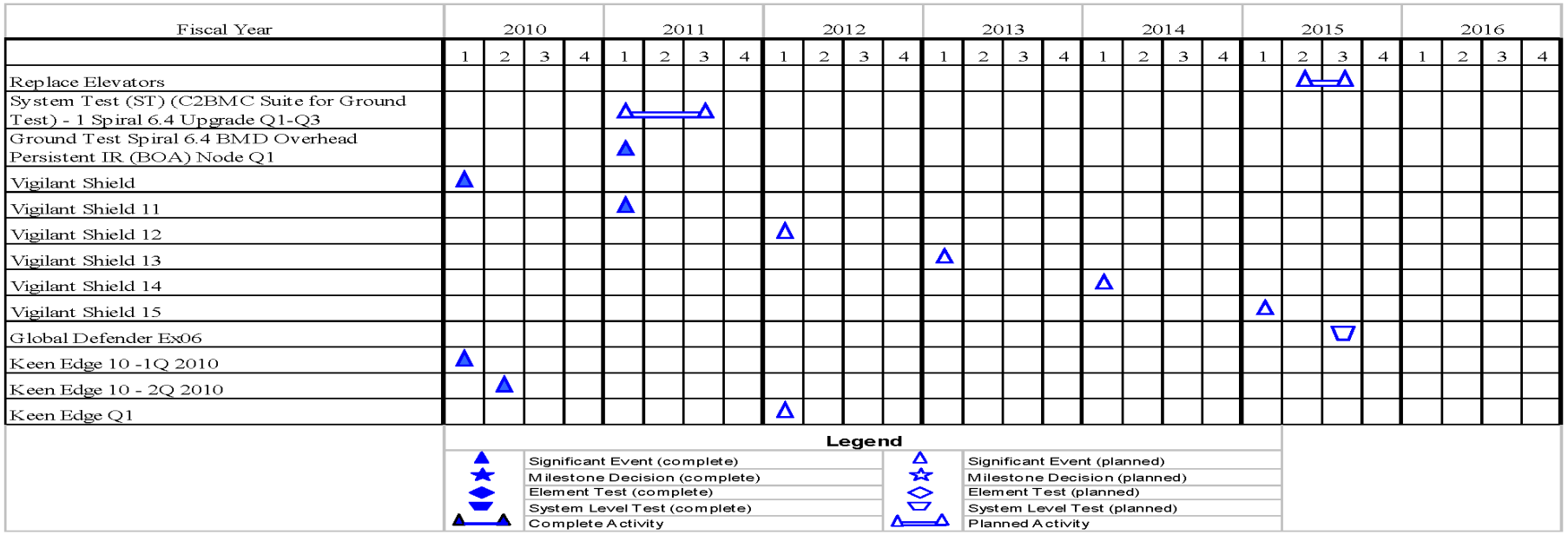

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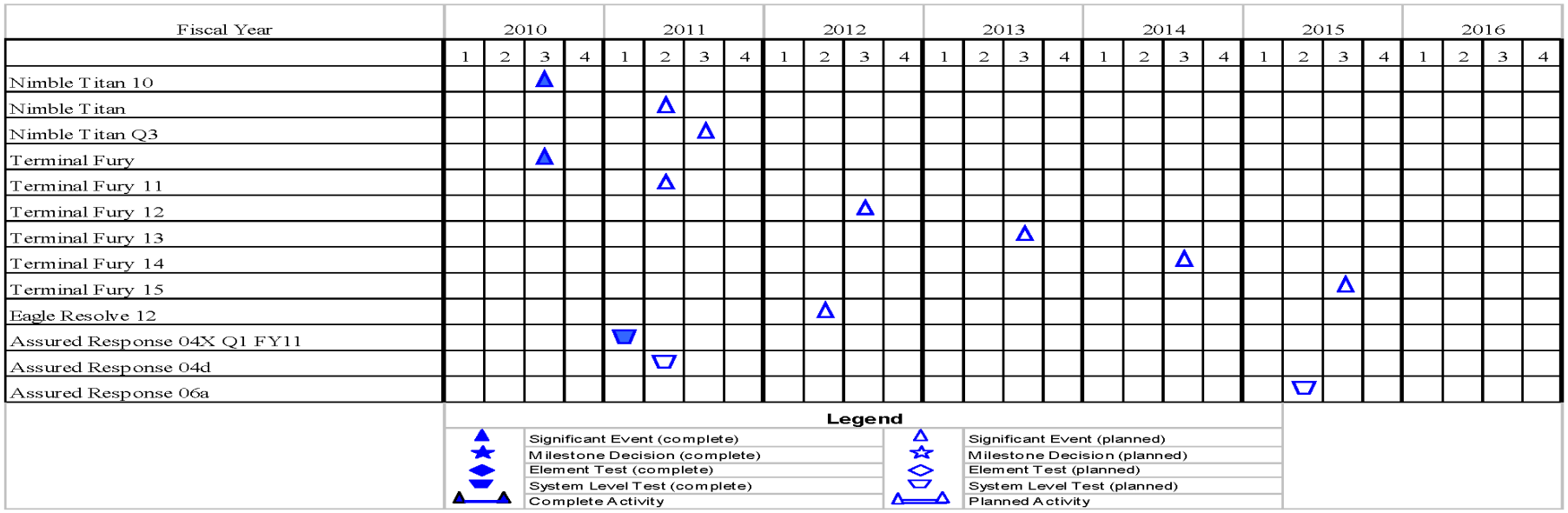

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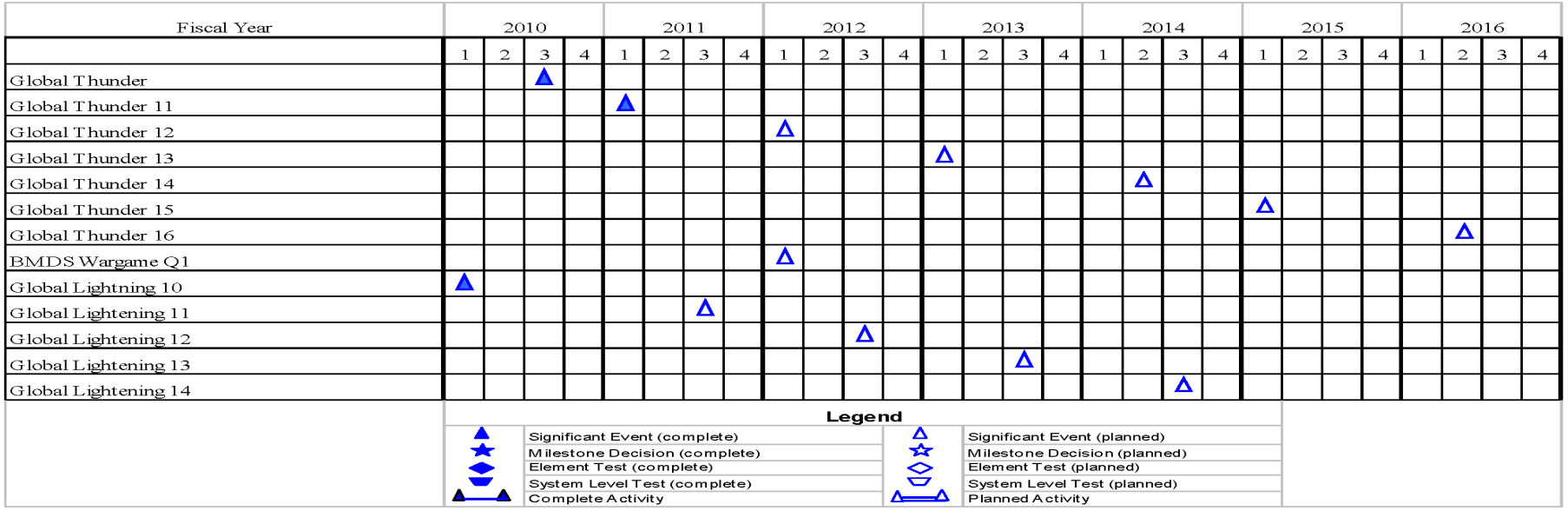

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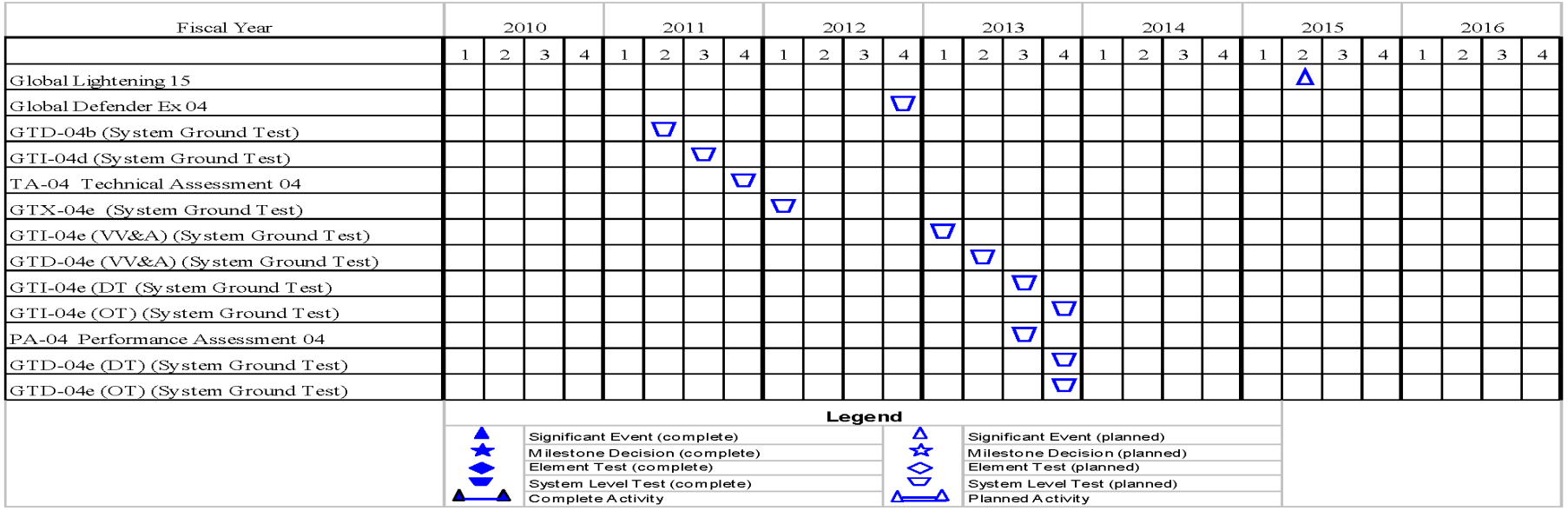

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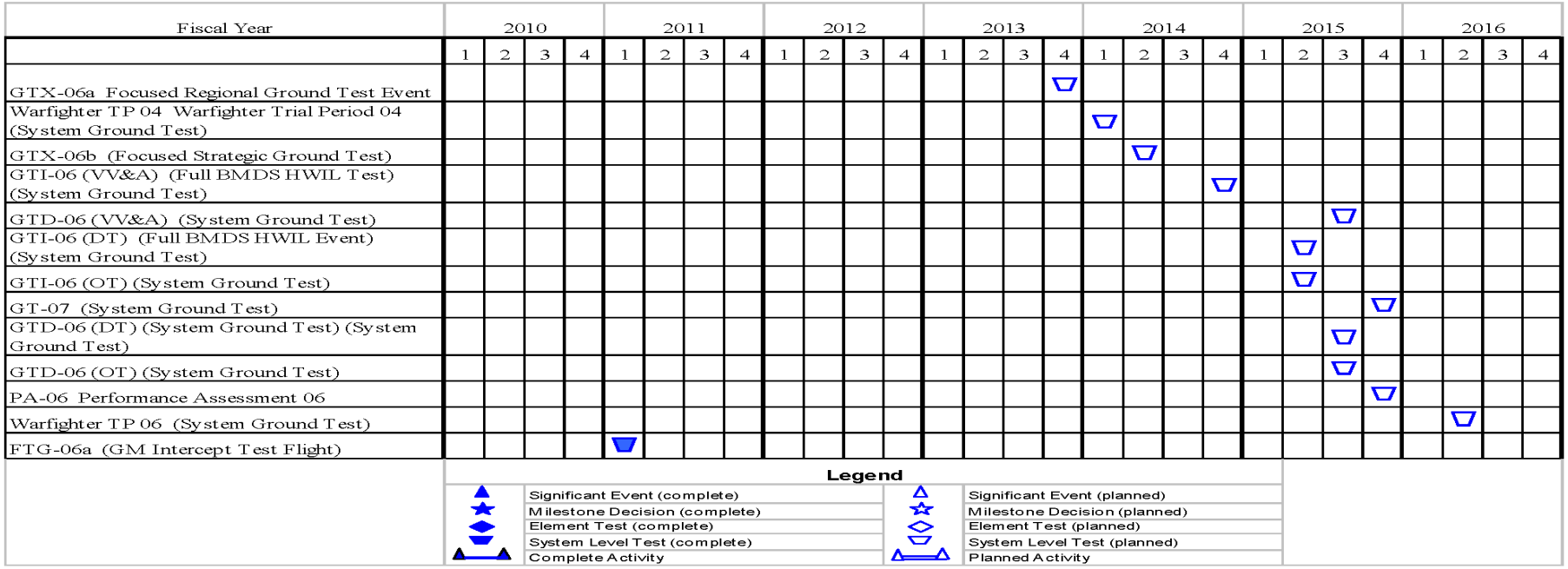

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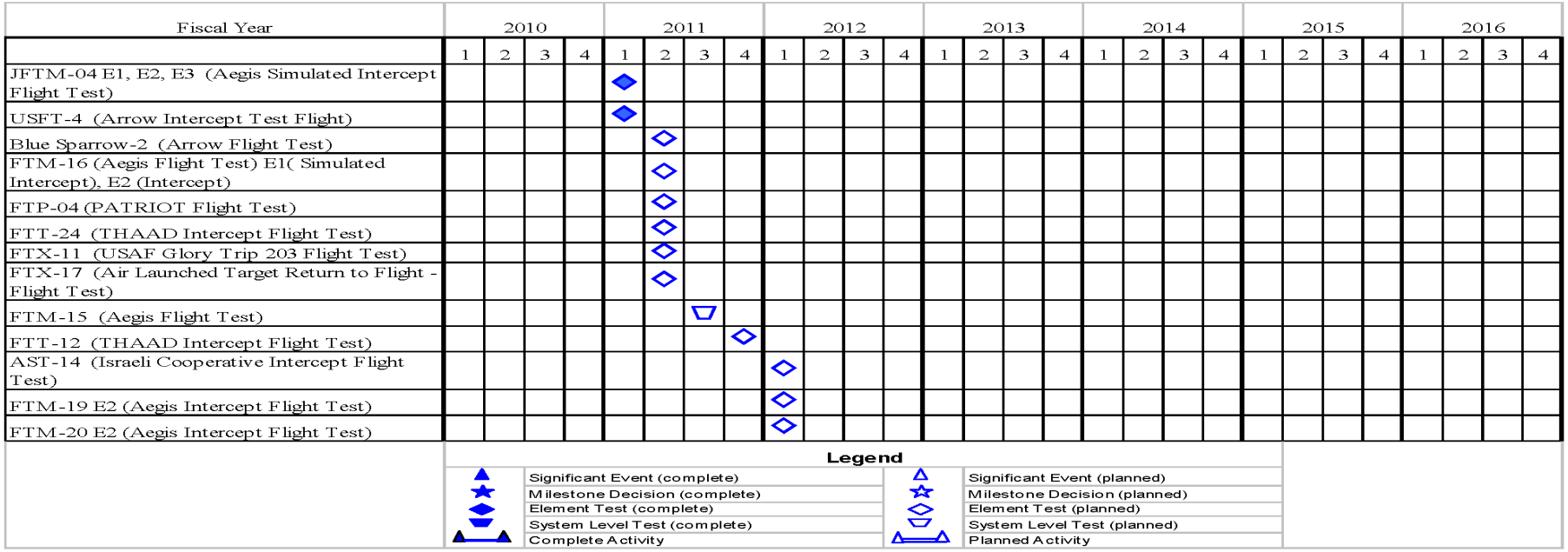

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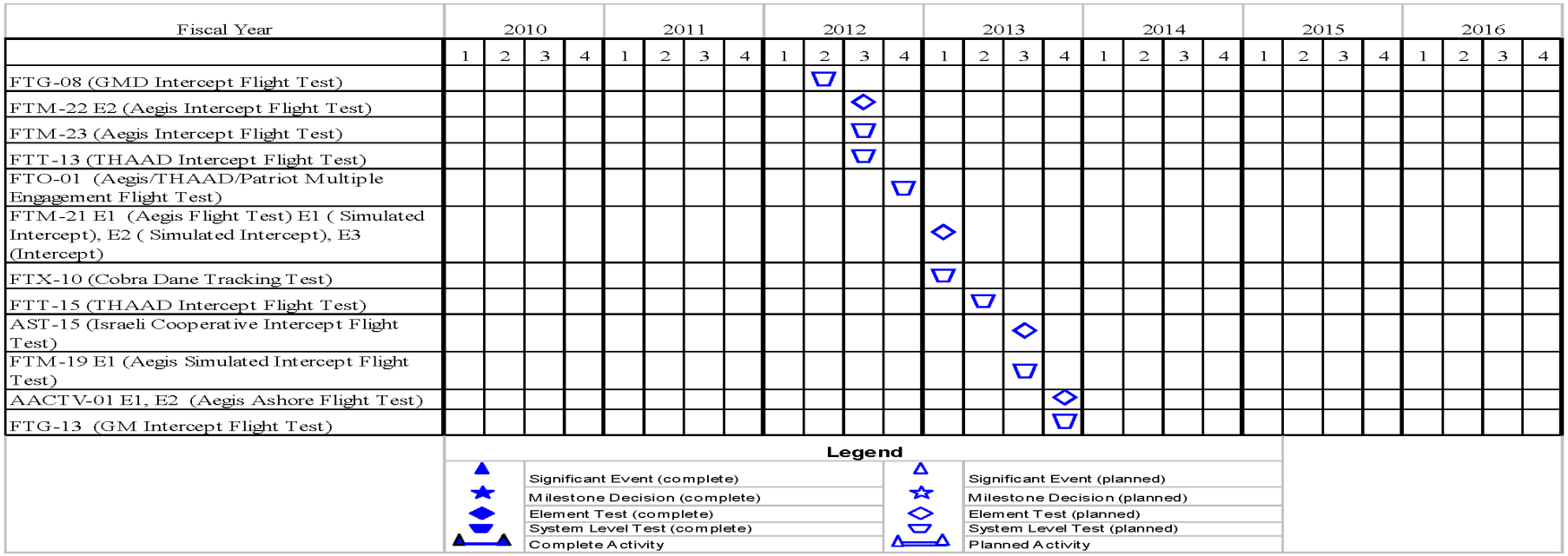

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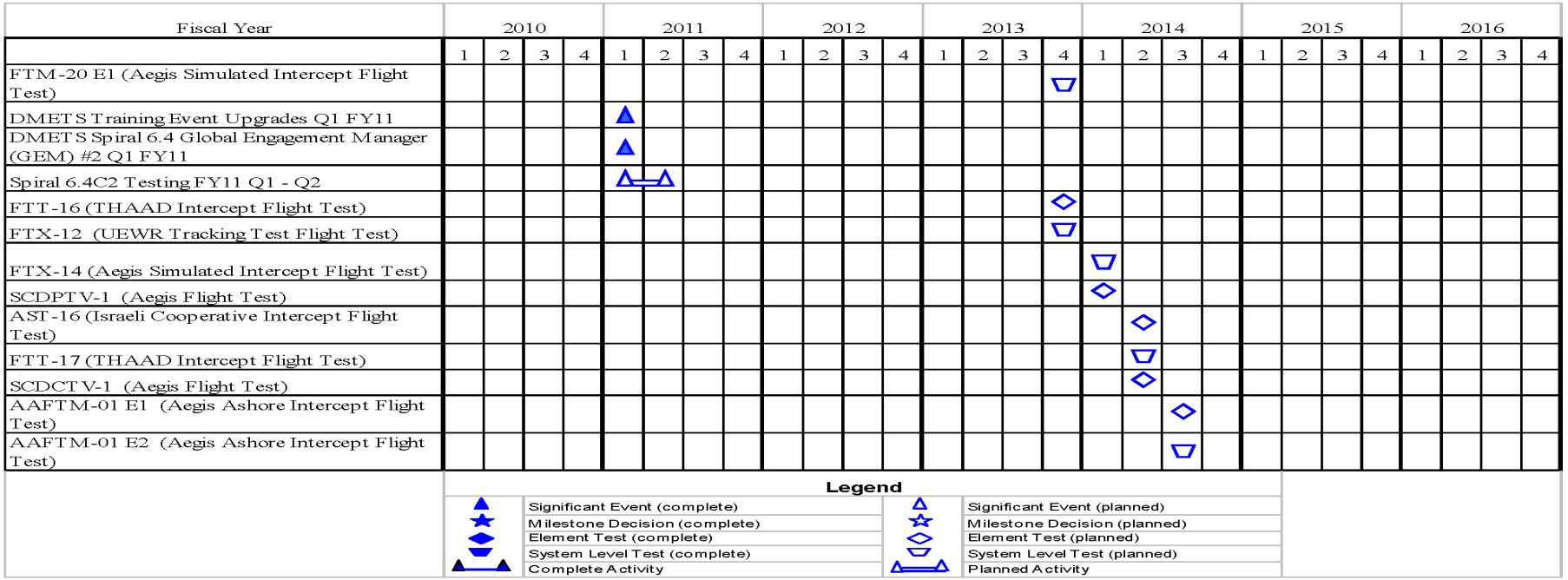

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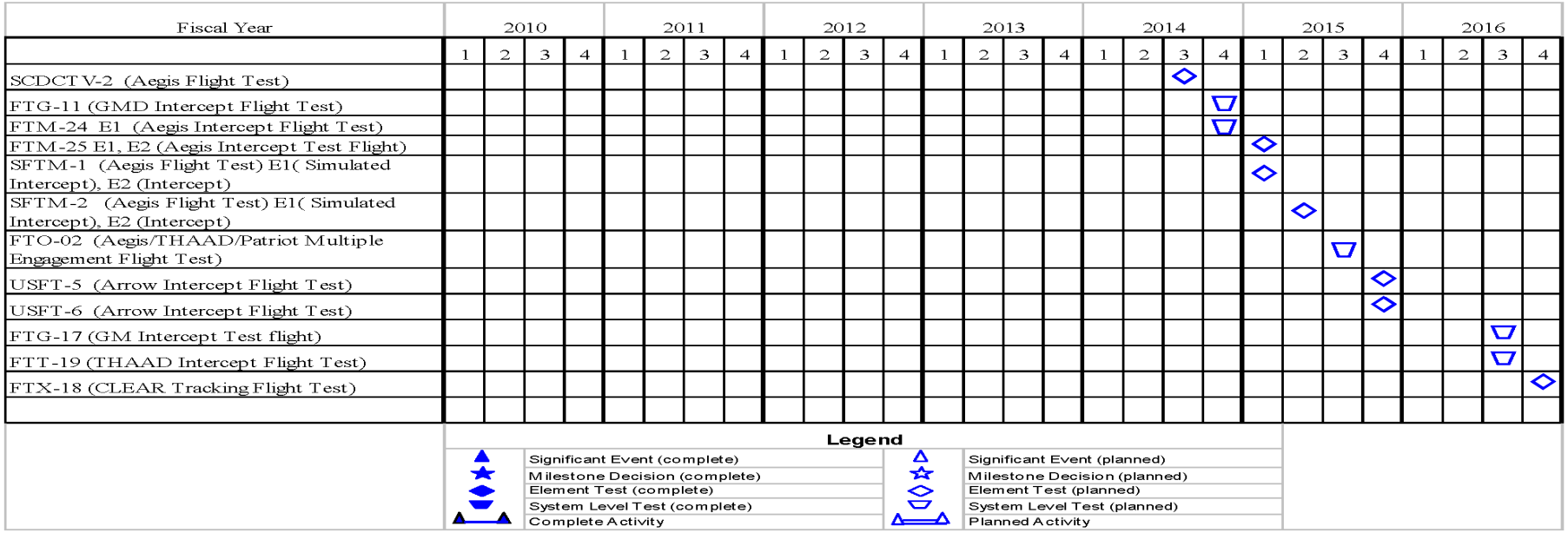

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Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
ATM-48 (Patriot Intercept Flight Test)	1	2010	1	2010
Air and Missile Defense Exercise	1	2010	1	2010
BMDS Network Operations and Security Center Build 1Q FY10	1	2010	1	2010
FCE-C Distributed (Regional Distributed Contingency Test)	1	2010	1	2010
FCE-C HWIL (Regional HWIL Contingency Test)	1	2010	1	2010
FTT-11 (THAAD Intercept Flight Test)	1	2010	1	2010
FTX-06 E2 (Aegis Simulated Intercept Flight Test)	1	2010	1	2010
FTX-06 E3 (Aegis Simulated Intercept Flight Test)	1	2010	1	2010
FTX-06 E4 (Aegis Simulated Intercept Flight Test)	1	2010	1	2010
GEM COOP FY10 Q1- Q2	1	2010	2	2010
JFTM-03 E1 (Japanese Cooperative Aegis Track Ex/US Sim Engagement)	1	2010	1	2010
JFTM-03 E2 (Japanese Cooperative Aegis Track Ex/US Sim Engagement)	1	2010	1	2010
Spiral 6.4 BMD Overhead Persistent IR March (BOA) Capability Q1-2 FY10	1	2010	2	2010
Spiral 6.4C2 Testing FY10 Q1 - Q3	1	2010	3	2010
Uninterruptible Power Supply Replacement Install-1Q2010-3Q2010	1	2010	3	2010
X-Lab Facility Modernization Q1 FY10	1	2010	1	2010
CCC Facility Upgrade 2Q FY10	2	2010	2	2010
DMETS Training Event Upgrades Q2-3 FY10	2	2010	3	2010
Foreign Exercise - 2Q2010	2	2010	2	2010
GTX-04a (Regional Focused HWIL Test)	2	2010	2	2010
IPOP Lab Build Out Q2-3 FY10	2	2010	3	2010
Joint Project Optic Windmill (JPOW)	2	2010	2	2010

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	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Test Assessment 10	2	2010	2	2010
Austere Challenge	3	2010	3	2010
BVT-01 (EC 2-Stage Booster Interceptor Flight Test)	3	2010	3	2010
Eagle Resolve	3	2010	3	2010
FTX-07 (GT-200) (Aegis Glory Trip TOO)	3	2010	3	2010
FTX-08 (GT-201)	3	2010	3	2010
GT-200 (Glory Trip)	3	2010	3	2010
Key Resolve 10	3	2010	3	2010
P2RF-39-T (BVT-01)	3	2010	3	2010
X-Lab Global Engagement Manager (GEM) Q3 FY10	3	2010	3	2010
X-Lab Global Engagement Manager (GEM) Q4 FY10	4	2010	4	2010
DMETS Spiral 6.4 COCOM Q4 FY10	4	2010	4	2010
DMETS Spiral 6.4 Global Engagement Manager (GEM) #2 Q4 FY10	4	2010	4	2010
Spiral 6.4C2 Testing FY10 Q4	4	2010	4	2010
FTX-07 (GT-202) (ABL Glory Trip TOO)	4	2010	4	2010
Recapitalization AF Tenant Space 1201 Ph 1 & 2 - 4Q2010	4	2010	4	2010
Recapitalization AF Tenant Space 1201 Ph 2 Q1	1	2011	1	2011
Electrical Power Distribution Upgrade PhII Q1,Q2	1	2011	2	2011
Recapitalization AF Tenant Space 1201 Ph 2 Q2	2	2011	2	2011
Electrical Power Distribution Upgrade PhII Q3,Q4	3	2011	4	2011
Electrical Power Distribution Upgrade PhIII Q1,Q2	1	2013	2	2013
Design, procure, and implement additional data storage capacity	2	2014	2	2014
Electrical Power Distribution Upgrade PhIII Q3,Q4	3	2014	4	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	**PROJECT** MD22: *Missile Defense Integration and Operations Center (MDIOC)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Replace Roof, Bldg 730	1	2011	1	2011
Emergency Lighting System Replacement	3	2013	3	2013
Electrical Power Distribution Upgrade PhIV Q1,Q2	1	2014	2	2014
Electrical Power Distribution Upgrade PhIV Q3,Q4	3	2015	4	2015
Install Restricted Area Access Telephone System	3	2014	3	2014
Electrical Power Distribution Upgrade PhV Q1,Q2	1	2015	2	2015
Electrical Power Distribution Upgrade PhV Q3,Q4	3	2015	4	2015
Replace Elevators	2	2015	3	2015
System Test (ST) (C2BMC Suite for Ground Test) - 1 Spiral 6.4 Upgrade Q1-Q3	1	2011	3	2011
Ground Test Spiral 6.4 BMD Overhead Persistent IR (BOA) Node Q1	1	2011	1	2011
Vigilant Shield	1	2010	1	2010
Vigilant Shield 11	1	2011	1	2011
Vigilant Shield 12	1	2012	1	2012
Vigilant Shield 13	1	2013	1	2013
Vigilant Shield 14	1	2014	1	2014
Vigilant Shield 15	1	2015	1	2015
Global Defender Ex06	3	2015	3	2015
Keen Edge 10 -1Q 2010	1	2010	1	2010
Keen Edge 10 - 2Q 2010	2	2010	2	2010
Keen Edge Q1	1	2012	1	2012
Nimble Titan 10	3	2010	3	2010
Nimble Titan	2	2011	2	2011
Nimble Titan Q3	3	2011	3	2011

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	**PROJECT** MD22: *Missile Defense Integration and Operations Center (MDIOC)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Terminal Fury	3	2010	3	2010
Terminal Fury 11	2	2011	2	2011
Terminal Fury 12	3	2012	3	2012
Terminal Fury 13	3	2013	3	2013
Terminal Fury 14	3	2014	3	2014
Terminal Fury 15	3	2015	3	2015
Eagle Resolve 12	2	2012	2	2012
Assured Response 04X Q1 FY11	1	2011	1	2011
Assured Response 04d	2	2011	2	2011
Assured Response 06a	2	2015	2	2015
Global Thunder	3	2010	3	2010
Global Thunder 11	1	2011	1	2011
Global Thunder 12	1	2012	1	2012
Global Thunder 13	1	2013	1	2013
Global Thunder 14	2	2014	2	2014
Global Thunder 15	1	2015	1	2015
Global Thunder 16	2	2016	2	2016
BMDS Wargame Q1	1	2012	1	2012
Global Lightning 10	1	2010	1	2010
Global Lightening 11	3	2011	3	2011
Global Lightening 12	3	2012	3	2012
Global Lightening 13	3	2013	3	2013
Global Lightening 14	3	2014	3	2014

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	**PROJECT** MD22: *Missile Defense Integration and Operations Center (MDIOC)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Global Lightening 15	2	2015	2	2015
Global Defender Ex 04	4	2012	4	2012
GTD-04b (System Ground Test)	2	2011	2	2011
GTI-04d (System Ground Test)	3	2011	3	2011
TA-04 Technical Assessment 04	4	2011	4	2011
GTX-04e (System Ground Test)	1	2012	1	2012
GTI-04e (VV&A) (System Ground Test)	1	2013	1	2013
GTD-04e (VV&A) (System Ground Test)	2	2013	2	2013
GTI-04e (DT (System Ground Test)	3	2013	3	2013
GTI-04e (OT) (System Ground Test)	4	2013	4	2013
PA-04 Performance Assessment 04	3	2013	3	2013
GTD-04e (DT) (System Ground Test)	4	2013	4	2013
GTD-04e (OT) (System Ground Test)	4	2013	4	2013
GTX-06a Focused Regional Ground Test Event	4	2013	4	2013
Warfighter TP 04 Warfighter Trial Period 04 (System Ground Test)	1	2014	1	2014
GTX-06b (Focused Strategic Ground Test)	2	2014	2	2014
GTI-06 (VV&A) (Full BMDS HWIL Test) (System Ground Test)	4	2014	4	2014
GTD-06 (VV&A) (System Ground Test)	3	2015	3	2015
GTI-06 (DT) (Full BMDS HWIL Event) (System Ground Test)	2	2015	2	2015
GTI-06 (OT) (System Ground Test)	2	2015	2	2015
GT-07 (System Ground Test)	4	2015	4	2015
GTD-06 (DT) (System Ground Test) (System Ground Test)	3	2015	3	2015
GTD-06 (OT) (System Ground Test)	3	2015	3	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	**PROJECT** MD22: *Missile Defense Integration and Operations Center (MDIOC)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
PA-06 Performance Assessment 06	4	2015	4	2015
Warfighter TP 06 (System Ground Test)	2	2016	2	2016
FTG-06a (GM Intercept Test Flight)	1	2011	1	2011
JFTM-04 E1, E2, E3 (Aegis Simulated Intercept Flight Test)	1	2011	1	2011
USFT-4 (Arrow Intercept Test Flight)	1	2011	1	2011
Blue Sparrow-2 (Arrow Flight Test)	2	2011	2	2011
FTM-16 (Aegis Flight Test) E1(Simulated Intercept), E2 (Intercept)	2	2011	2	2011
FTP-04 (PATRIOT Flight Test)	2	2011	2	2011
FTT-24 (THAAD Intercept Flight Test)	2	2011	2	2011
FTX-11 (USAF Glory Trip 203 Flight Test)	2	2011	2	2011
FTX-17 (Air Launched Target Return to Flight - Flight Test)	2	2011	2	2011
FTM-15 (Aegis Flight Test)	3	2011	3	2011
FTT-12 (THAAD Intercept Flight Test)	4	2011	4	2011
AST-14 (Israeli Cooperative Intercept Flight Test)	1	2012	1	2012
FTM-19 E2 (Aegis Intercept Flight Test)	1	2012	1	2012
FTM-20 E2 (Aegis Intercept Flight Test)	1	2012	1	2012
FTG-08 (GMD Intercept Flight Test)	2	2012	2	2012
FTM-22 E2 (Aegis Intercept Flight Test)	3	2012	3	2012
FTM-23 (Aegis Intercept Flight Test)	3	2012	3	2012
FTT-13 (THAAD Intercept Flight Test)	3	2012	3	2012
FTO-01 (Aegis/THAAD/Patriot Multiple Engagement Flight Test)	4	2012	4	2012
FTM-21 E1 (Aegis Flight Test) E1 (Simulated Intercept), E2 (Simulated Intercept), E3 (Intercept)	1	2013	1	2013
FTX-10 (Cobra Dane Tracking Test)	1	2013	1	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	**PROJECT** MD22: *Missile Defense Integration and Operations Center (MDIOC)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
FTT-15 (THAAD Intercept Flight Test)	2	2013	2	2013
AST-15 (Israeli Cooperative Intercept Flight Test)	3	2013	3	2013
FTM-19 E1 (Aegis Simulated Intercept Flight Test)	3	2013	3	2013
AACTV-01 E1, E2 (Aegis Ashore Flight Test)	4	2013	4	2013
FTG-13 (GM Intercept Flight Test)	4	2013	4	2013
FTM-20 E1 (Aegis Simulated Intercept Flight Test)	4	2013	4	2013
DMETS Training Event Upgrades Q1 FY11	1	2011	1	2011
DMETS Spiral 6.4 Global Engagement Manager (GEM) #2 Q1 FY11	1	2011	1	2011
Spiral 6.4C2 Testing FY11 Q1 - Q2	1	2011	2	2011
FTT-16 (THAAD Intercept Flight Test)	4	2013	4	2013
FTX-12 (UEWR Tracking Test Flight Test)	4	2013	4	2013
FTX-14 (Aegis Simulated Intercept Flight Test)	1	2014	1	2014
SCDPTV-1 (Aegis Flight Test)	1	2014	1	2014
AST-16 (Israeli Cooperative Intercept Flight Test)	2	2014	2	2014
FTT-17 (THAAD Intercept Flight Test)	2	2014	2	2014
SCDCTV-1 (Aegis Flight Test)	2	2014	2	2014
AAFTM-01 E1 (Aegis Ashore Intercept Flight Test)	3	2014	3	2014
AAFTM-01 E2 (Aegis Ashore Intercept Flight Test)	3	2014	3	2014
SCDCTV-2 (Aegis Flight Test)	3	2014	3	2014
FTG-11 (GMD Intercept Flight Test)	4	2014	4	2014
FTM-24 E1 (Aegis Intercept Flight Test)	4	2014	4	2014
FTM-25 E1, E2 (Aegis Intercept Test Flight)	1	2015	1	2015
SFTM-1 (Aegis Flight Test) E1(Simulated Intercept), E2 (Intercept)	1	2015	1	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	**PROJECT** MD22: *Missile Defense Integration and Operations Center (MDIOC)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
SFTM-2 (Aegis Flight Test) E1(Simulated Intercept), E2 (Intercept)	2	2015	2	2015
FTO-02 (Aegis/THAAD/Patriot Multiple Engagement Flight Test)	3	2015	3	2015
USFT-5 (Arrow Intercept Flight Test)	4	2015	4	2015
USFT-6 (Arrow Intercept Flight Test)	4	2015	4	2015
FTG-17 (GM Intercept Test flight)	3	2016	3	2016
FTT-19 (THAAD Intercept Flight Test)	3	2016	3	2016
FTX-18 (CLEAR Tracking Flight Test)	4	2016	4	2016

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	PROJECT ZX40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
ZX40: *Program-Wide Support*	2.462	-	-	-	-	-	-	-	-	0.000	2.462
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Program-Wide Support provides funding for common non-headquarters support functions across the entire program. Includes costs for both government civilians performing these functions, as well as outside services and support contractors that augment government staff in these areas. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2), 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 fluctuations on a limited number of foreign contracts.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	2.462	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	2.462	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	PROJECT MD40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	2.900	2.841	-	2.841	2.702	2.504	2.428	2.328	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Project ZX40 is now captured in Project MD40 beginning in FY11.

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). Includes Government Civilians, Advisory and Assistance Services, and Federally Funded Research and Development Contracts (FFRDC) providing integrity and oversight of the BMDS as well as supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2 after FY 2011), such as physical and technical security, legal services, travel and agency training, office and equipment leases, rents and utilities, data and unified communications support, supplies and maintenance, and similar operating expenses. Also includes legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.
In keeping with congressional intent, PWS is allocated among the PEs on a pro-rata basis and therefore fluctuates by year based on the total MDA budget and the individual PE`s budget amount.

Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($2,067).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	-	2.900	2.841
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for the FY 2010 accomplishments is reported in prior year budget project ZX40 ($2,067).			
FY 2011 Plans: See paragraph A, Mission Description and Budget Item Justification			
FY 2012 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603904C: *MISSILE DEFENSE INTEGRATION & OPERATIONS CENTER (MDIOC)*	**PROJECT** MD40: *Program-Wide Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
See paragraph A, Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	2.900	2.841

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603906C: *REGARDING TRENCH*

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	5.785	7.529	15.797	-	15.797	9.092	6.997	5.493	2.064	Continuing	Continuing
WX35: *Regarding Trench*	5.785	-	-	-	-	-	-	-	-	0.000	5.785
MD35: *Regarding Trench*	-	7.529	15.797	-	15.797	9.092	6.997	5.493	2.064	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	6.130	7.529	8.295	-	8.295
Current President's Budget	5.785	7.529	15.797	-	15.797
Total Adjustments	-0.345	-	7.502	-	7.502
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-0.209	-			
• SBIR/STTR Transfer	-0.127	-			
• Other Adjustment Detail	-0.009	-	7.502	-	7.502

Change Summary Explanation

This program has realized $0.447 million in efficiency savings.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603906C: *REGARDING TRENCH*	PROJECT WX35: *Regarding Trench*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
WX35: *Regarding Trench*	5.785	-	-	-	-	-	-	-	-	0.000	5.785
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Regarding Trench	5.785	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	5.785	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603906C: *REGARDING TRENCH*	PROJECT MD35: *Regarding Trench*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD35: *Regarding Trench*	-	7.529	15.797	-	15.797	9.092	6.997	5.493	2.064	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

This program is reported in accordance with Title 10, United States Code, Section 119(a)(1) in the Special Access Program Annual Report to Congress.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Regarding Trench	-	7.529	15.797
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: NA			
FY 2011 Plans: NA			
FY 2012 Plans: NA			
Accomplishments/Planned Programs Subtotals	-	7.529	15.797

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0603907C: *SEA BASED X-BAND RADAR (SBX)*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	157.739	153.056	177.058	-	177.058	172.622	162.628	185.934	173.587	Continuing	Continuing
XX46: *Sea Based X-Band Radar Sustainment*	157.739	-	-	-	-	-	-	-	-	0.000	157.739
MD46: *Sea Based X-Band Radar (SBX) Development*	-	153.056	23.002	-	23.002	13.992	14.032	14.083	13.988	0.000	232.153
MX46: *Sea Based X-Band Radar Development Support*	-	-	146.800	-	146.800	151.400	141.300	163.900	152.200	Continuing	Continuing
MD40: *Program-Wide Support*	-	-	7.256	-	7.256	7.230	7.296	7.951	7.399	Continuing	Continuing

Note

SBX participation in BMDS testing is funded in the Sensors program element (PE 0603884C). Test events for FY12-16 are depicted in the R-4/4A exhibits for that PE`s Project MD11.

A. Mission Description and Budget Item Justification

The Sea-Based X-Band Radar (SBX) is a major contributor for homeland defense. The largest X-Band radar in the world, it serves as the primary midcourse sensor in the BMDS layered network of radars. Self-propelled and semi-submersible, the SBX operates in various locations in the Pacific Ocean. It enables Combatant Commanders to engage ballistic missile threats in all three phases of flight (ascent, mid-course, and terminal). The SBX provides high resolution cued search, acquisition, tracking, target discrimination, and debris assessments. GMD relies on the SBX radar and other sensors where available, for fire control solutions. Operations and sustainment of satellite communications to the BMDS are provided by C2BMC, and enable sensor tasking/control by the Ground-Based Midcourse fire control (GFC).

The major goals of this system element are to:

- Operate and sustain the SBX and its subsystems to support BMDS flight testing and operations, as required
- Deliver advanced X-Band Radar (XBR) algorithms to address evolving threats
- Continue to enhance SBX capabilities and integration into the BMDS
- Participate in BMDS ground and flight tests and Targets of Opportunity testing (funding for testing is carried under PE 0603884C (Test and Evaluation line))
- Achieve and maintain American Bureau of Shipping (ABS) certification
- Support the transfer of SBX to the U.S. Navy
- Enhance XBR data provided to GMD high fidelity digital simulation efforts
- Execute ABS Certification of Inspection In-Port Maintenance period

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603907C: *SEA BASED X-BAND RADAR (SBX)*

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	167.153	153.056	150.104	-	150.104
Current President's Budget	157.739	153.056	177.058	-	177.058
Total Adjustments	-9.414	-	26.954	-	26.954
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-9.162	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment Detail	-0.252	-	26.954	-	26.954

Change Summary Explanation

The FY12 $26.954 million dollar increase in is the result of MDA programmatic changes.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603907C: *SEA BASED X-BAND RADAR (SBX)*	PROJECT XX46: *Sea Based X-Band Radar Sustainment*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
XX46: *Sea Based X-Band Radar Sustainment*	157.739	-	-	-	-	-	-	-	-	0.000	157.739
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project XX46 has been transferred to Project MD46.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD46 for FY 2010 Accomplishments	157.739	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: NA			
Accomplishments/Planned Programs Subtotals	157.739	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603907C: *SEA BASED X-BAND RADAR (SBX)*	PROJECT MD46: *Sea Based X-Band Radar (SBX) Development*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD46: *Sea Based X-Band Radar (SBX) Development*	-	153.056	23.002	-	23.002	13.992	14.032	14.083	13.988	0.000	232.153
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

The MD46 R4/4A depicts only test events for which SBX participation is ``mandatory``. For a full listing of BMDS Sensors test events, see the R-4/4A in the Test and Targets PE (0603888C).

A. Mission Description and Budget Item Justification

This project provides for the operations and support of the Sea-Based X-Band (SBX) Radar and its four major sub-systems: the self-propelled vessel; the X-Band Radar (XBR); the In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT); and the communications network.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Vessel Operations and Support	-	98.029	-
Articles:	0	0	0

Description: See Description Below

FY 2010 Accomplishments:

Operations and sustainment of the SBX`s X-Band radar (XBR) include: manpower for operating and maintaining the radar, spare and repair parts procurement, and hardware maintenance. The on-vessel XBR personnel perform the functions of round-the-clock radar operations, calibration of the radar and support/test equipment, and maintenance and repair of the radar associated equipment.

Funding ($89.710M) for these FY 2010 accomplishments is reported in prior year budget project XX46.

-Provided SBX crews, provisioning, spares, and motor vessel Dove lease
-Continued ongoing operations, maintenance, and logistical support of the SBX and the motor vessel Dove
-Participated in BMDS ground and flight tests to include Targets of Opportunity (TOO):

-FTG-06, conducted with a new target design, presented a more complex scene, with numbers of objects beyond any testing or analysis for the SBX XBR. This exposed failure modes in the XBR. Failure Review Board (FRB) directed multiple fixes to improve

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603907C: *SEA BASED X-BAND RADAR (SBX)*	PROJECT MD46: *Sea Based X-Band Radar (SBX) Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
throughput in heavy loading scenarios. The corrective action will occur in two phases: the first phase modified timing algorithms and the second phase, which is part of the 2011 program, will increase debris cloud discrimination capabilities. -Booster Verification Test BVT-01 -USAF Glory Trip 200 (Target of Opportunity) -USAF Glory Trip 201 (Target of Opportunity) -USAF Glory Trip 202 (Target of Opportunity) -Acquired hardware and supply items in preparation for shipyard period beginning 4th Qtr FY10 -Executed ABS Certificate of Inspection and FY 2010 In-Port Maintenance Period -Completed U.S. Navy Board of Inspection and Survey (INSURV) and assessment ***FY 2011 Plans:*** -Continue ongoing operations, maintenance, and support of the SBX, the support vessel, and support facilities -Execute in-port maintenance period for ABS certifications (thruster seals replacement), Navy Inspections and Survey (INSURV) corrections and complete items necessary for Transition and Transfer to the Navy in 2011 -Support GMD Intercept Flight Test FTG-06a as follows: -Verify and re-test fixes directed by FTG-06 FRB -Acquire target and send track reports to GMD Fire Control -Transition to non-tactical mode to collect critical engagement conditions/empirical measurement events (CEC/EME) data for verification and validation of models and simulation -Continue to support operations of the Navy Transition Office -Implement Independent Readiness Review Team (IRRT) recommendations to facilitate the following events: -Capability Acceptance (CA) designation by STRATCOM -Transition operation of SBX to the US Navy ***FY 2012 Plans:*** -For FY 2012, these efforts are described in Project MX46 below.			
Title: XBR Operations and Support ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:***	- 0	43.127 0	- 0

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603907C: *SEA BASED X-BAND RADAR (SBX)*	PROJECT MD46: *Sea Based X-Band Radar (SBX) Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Funding ($41.8M) for these FY 2010 accomplishments is reported in prior year budget project XX46. -Continued to operate and maintain the X-Band radar (XBR) and associated equipment -Maintained mission hardware -Provided and supported operations crew -Upgraded components of the XBR system during the in-port maintenance period -Supported the Navy INSURV assessment -Supported the ABS certification process ***FY 2011 Plans:*** -Continue to operate and maintain the X-Band radar and associated equipment -Maintain mission hardware -Provide and support operations crew -Complete Formal Qualification Testing (FQT) for Build 3.0 -Complete XBR upgrades during in-port maintenance period ***FY 2012 Plans:*** -For FY 2012, these efforts are described in Project MX46 below.			
Title: SBX Communications Operations and Support ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** This operations and support (O&S) effort supports the SBX Communications Suite. It includes communications suite operational spares, repair, and replacement; communications operators/maintainers; communications support costs; and sustains satellite communications (SATCOM) operations 24 hours a day 365 days a year. Funding ($1.629M) for FY 2010 accomplishments is reported in prior year budget project XX46. -Continued round-the-clock sustainment for Communications capabilities associated with SBX -Continued on-site SATCOM support aboard SBX and at earth stations for hardware and software	- 0	1.900 0	- 0

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603907C: *SEA BASED X-BAND RADAR (SBX)*	PROJECT MD46: *Sea Based X-Band Radar (SBX) Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continued sustaining engineering support and integrated logistics support -Continued Space segment lease ***FY 2011 Plans:*** -Continue round-the-clock sustainment for communications capabilities for Sea-Based X-Band radar (SBX) -Continue on-site SATCOM support of fielded sites for hardware and software -Continue sustaining engineering support and integrated logistics support for fielded hardware and software -Continue space segment lease. ***FY 2012 Plans:*** Funds and plans are described in Program Element 0603896C, Budget Project MD01			
Title: System Force Protection	-	10.000	-
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** Force protection for the Sea-Based X-Band Radar (SBX) is an ongoing effort comprising two major functions: on-board protection of the vessel, and portside security augmentation, if required, for the SBX vessel and its Off-Shore Support (OSS) vessel, while docked. On-board protection security functions include: on-board visitor control, access control to sensitive areas, inspection of incoming personnel and equipment, and protection against hostile boarding. Portside security functions include: inspection and control of supplies and equipment being readied for transport onto the SBX, access control of the docking area, and visitor control to the SBX and support vessel. Funding ($6.6M) for these FY 2010 accomplishments is reported in prior year budget project XX46. -Continued to provide on-board force protection for the SBX and portside security for the SBX and its off-shore support vessel , the motor vessel Dove ***FY 2011 Plans:*** -Continue to provide on-board and portside force protection for the SBX and its off-shore support vessel ***FY 2012 Plans:*** -For FY 2012, these efforts are described in Project MX46 below.			
Title: SBX Software Development and Maintenance	-	-	23.002

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603907C: *SEA BASED X-BAND RADAR (SBX)*	PROJECT MD46: *Sea Based X-Band Radar (SBX) Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** For FY 2010, funding ($18M) for these activities is included in prior year budget project XX46. -Continued development, integration, testing, and maintenance of XBR software, including Build 3.0, in support of BMDS Integrated Build C -Complete Formal Qualification Testing (FQT) -Verify and validate SBX analytical model -Supported development of advanced X-Band Radar (XBR) algorithms to address evolving threats ***FY 2011 Plans:*** For FY 2011, SBX software development and maintenance ($13.8M) is included in the XBR Operations and Support accomplishment above. ***FY 2012 Plans:*** -Maintain SBX Build 3.1 configuration -Fix Level 1 and 2 BMDS Test Incident Reports (BTIRs) and Weapon System Test Reports (WSTRs)			
Accomplishments/Planned Programs Subtotals	-	153.056	23.002

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The SBX will continue to follow the Missile Defense Agency`s capability-based acquisition strategy that emphasizes testing, development and evolutionary acquisition. There is no plan to acquire a second SBX.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603907C: *SEA BASED X-BAND RADAR (SBX)*	PROJECT MD46: *Sea Based X-Band Radar (SBX) Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SBX Software Development and Maintenance Software Dev & Maintenance MD46	SS/CPAF	Raytheon:MA	-	-		23.002	Dec 2011	-		23.002	56.724	79.726	79.726
		Subtotal	-	-		23.002		-		23.002	56.724	79.726	79.726

Remarks

Software Dev and Maint budgeted in FY11 in Sensors Program Element 0603884C.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Vessel Operations and Support SBX Operations and Support (Vessel) MD46	SS/CPAF	Boeing:AL/AK/AZ/CA/CO/TX/VA/HI	85.135	68.303	Oct 2010	-		-		-	0.000	153.438	144.231
Vessel Operations and Support Fuel MD46	SS/FFP	Boeing:AL/AK/AZ/CA/CO/TX/VA/HI	6.000	13.300	Oct 2010	-		-		-	0.000	19.300	19.300
Vessel Operations and Support Vessel Voyage Repairs MD46	SS/CPAF	Boeing:AL/AK/HI	8.921	7.729	Oct 2010	-		-		-	0.000	16.650	16.650
Vessel Operations and Support Navy Hybrid Program Office MD46	MIPR	US Navy:AL, NCR	7.565	8.000	Oct 2010	-		-		-	0.000	15.565	16.065
Vessel Operations and Support ABS Certification MD46	SS/CPAF	Boeing:AL	-	0.697	Oct 2010	-		-		-	0.000	0.697	0.697
Vessel Operations and Support Pearl Harbor Spt: Pilot/Tug, Facilities, Helicopter MD46	SS/FFP	COMNAVREG, NAVFAC, Bluehahel:HI, AK	0.089	-		-		-		-	0.000	0.089	0.089
XBR Operations and Support XBR Operations and Support MD46	SS/CPAF	Raytheon:AL/AK/HI	41.800	33.800	Oct 2010	-		-		-	0.000	75.600	65.247

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603907C: *SEA BASED X-BAND RADAR (SBX)*	PROJECT MD46: *Sea Based X-Band Radar (SBX) Development*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
XBR Operations and Support XBR SW upgrades/Maint. MD46	SS/CPAF	Raytheon:MA	-	9.327	Oct 2010	-		-		-	0.000	9.327	9.327
SBX Communications Operations and Support SBX Comms O&S MD46	MIPR	DISA:VA	1.379	1.900	Oct 2010	-		-		-	0.000	3.279	1.900
SBX Communications Operations and Support SBX Terminal Relocation MD46	SS/CPAF	Boeing:AL	0.250	-		-		-		-	0.000	0.250	0.250
System Force Protection System Force Protection MD46	SS/CPFF	Chenega:On Vessel/AK	6.600	10.000	Oct 2010	-		-		-	0.000	16.600	14.403
		Subtotal	157.739	153.056		-		-		-	0.000	310.795	288.159

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	157.739	153.056		23.002		-		23.002	56.724	390.521	367.885

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603907C: *SEA BASED X-BAND RADAR (SBX)*	**PROJECT** MD46: *Sea Based X-Band Radar (SBX) Development*

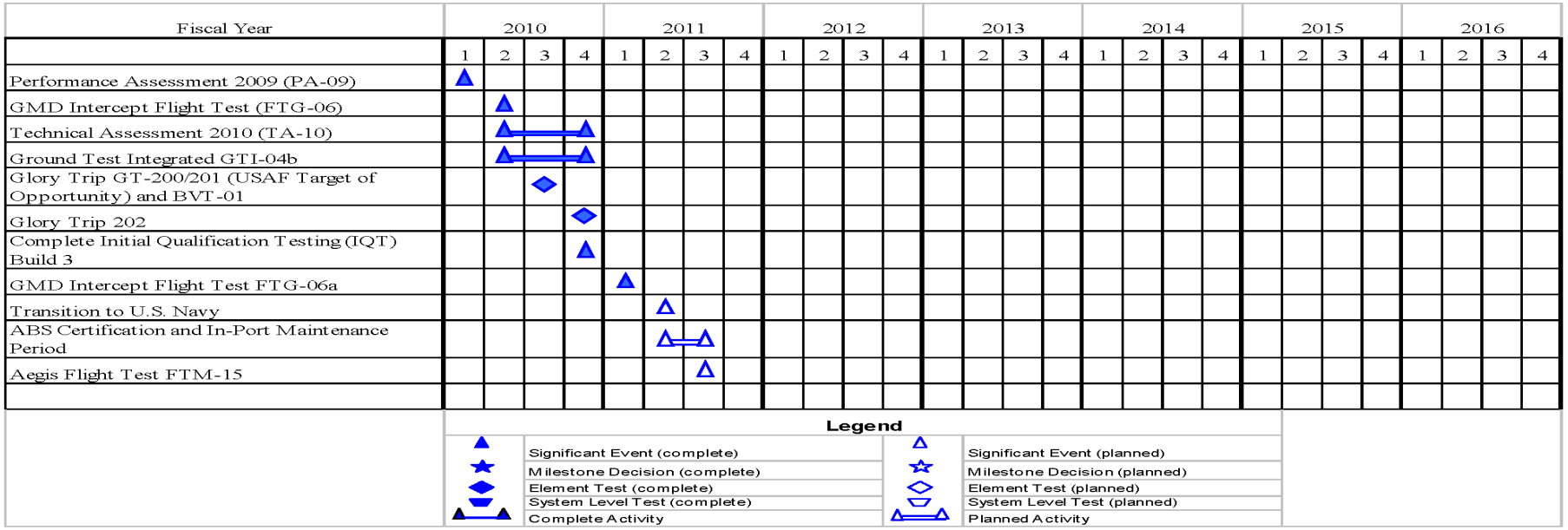

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603907C: *SEA BASED X-BAND RADAR (SBX)*	**PROJECT** MD46: *Sea Based X-Band Radar (SBX) Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Performance Assessment 2009 (PA-09)	1	2010	1	2010
GMD Intercept Flight Test (FTG-06)	2	2010	2	2010
Technical Assessment 2010 (TA-10)	2	2010	4	2010
Ground Test Integrated GTI-04b	2	2010	4	2010
Glory Trip GT-200/201 (USAF Target of Opportunity) and BVT-01	3	2010	3	2010
Glory Trip 202	4	2010	4	2010
Complete Initial Qualification Testing (IQT) Build 3	4	2010	4	2010
GMD Intercept Flight Test FTG-06a	1	2011	1	2011
Transition to U.S. Navy	2	2011	2	2011
ABS Certification and In-Port Maintenance Period	2	2011	3	2011
Aegis Flight Test FTM-15	3	2011	3	2011

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603907C: *SEA BASED X-BAND RADAR (SBX)*	PROJECT MX46: *Sea Based X-Band Radar Development Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MX46: *Sea Based X-Band Radar Development Support*	-	-	146.800	-	146.800	151.400	141.300	163.900	152.200	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

This project provides for the operations and support of the Sea-Based X-Band (SBX) Radar and its four major sub-systems: the self-propelled vessel; the X-Band Radar (XBR); the In-Flight Interceptor Communications System (IFICS) Data Terminal (IDT); and the communications network.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Vessel Operations and Support	-	-	109.884
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** FY10 accomplishments are described in Project MD46. ***FY 2011 Plans:*** FY11 plans are described in Project MD46. ***FY 2012 Plans:*** -Continue ongoing operations, maintenance, and support of the SBX, the support vessel, and support facilities -Continue to support operations of the Navy Transition Office			
Title: XBR Operations and Support	-	-	32.174
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** FY10 accomplishments are described in Project MD46. ***FY 2011 Plans:*** FY11 plans are described in Project MD46. ***FY 2012 Plans:*** -Continue to operate and maintain the X-Band radar and associated equipment			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603907C: *SEA BASED X-BAND RADAR (SBX)*	PROJECT MX46: *Sea Based X-Band Radar Development Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Maintain mission hardware -Provide and support operations crew			
Title: System Force Protection	-	-	4.742
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** FY10 accomplishments are described in Project MD46. ***FY 2011 Plans:*** FY11 plans are described in Project MD46. ***FY 2012 Plans:*** -Continue to provide on-board and portside force protection for the SBX and its off-shore support vessel			
Accomplishments/Planned Programs Subtotals	-	-	146.800

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

The SBX will continue to follow the Missile Defense Agency`s capability-based acquisition strategy that emphasizes testing, development and evolutionary acquisition. There is no plan to acquire a second SBX.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603907C: *SEA BASED X-BAND RADAR (SBX)*	PROJECT MX46: *Sea Based X-Band Radar Development Support*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Vessel Operations and Support SBX Operations & Support (Vessel) MX46	SS/CPAF	Boeing:AL/AK/AZ/CA/CO/TX/VA/HI	-	-		81.464	Nov 2011	-		81.464	Continuing	Continuing	Continuing
Vessel Operations and Support Fuel MX46	SS/FFP	Boeing:AL/AK/AZ/CA/CO/TX/VA/HI	-	-		18.968	Nov 2011	-		18.968	Continuing	Continuing	Continuing
Vessel Operations and Support Vessel Voyage Repairs MX46	SS/CPAF	Boeing:AL/AK/HI	-	-		4.028	Nov 2011	-		4.028	Continuing	Continuing	Continuing
Vessel Operations and Support Navy Hybrid Program Office MX46	MIPR	US Navy:AL	-	-		5.424	Nov 2011	-		5.424	Continuing	Continuing	Continuing
XBR Operations and Support XBR Operations & Support MX46	SS/CPAF	Raytheon:AL/AK/HI	-	-		32.174	Nov 2011	-		32.174	Continuing	Continuing	Continuing
System Force Protection Force Protection MX46	SS/CPFF	Chenega:On Vessel/AK	-	-		4.742	Nov 2011	-		4.742	Continuing	Continuing	Continuing
		Subtotal	-	-		146.800		-		146.800			

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603907C: *SEA BASED X-BAND RADAR (SBX)*	PROJECT MX46: *Sea Based X-Band Radar Development Support*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	-		146.800		-		146.800			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		**DATE:** February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603907C: *SEA BASED X-BAND RADAR (SBX)*	**PROJECT** MX46: *Sea Based X-Band Radar Development Support*

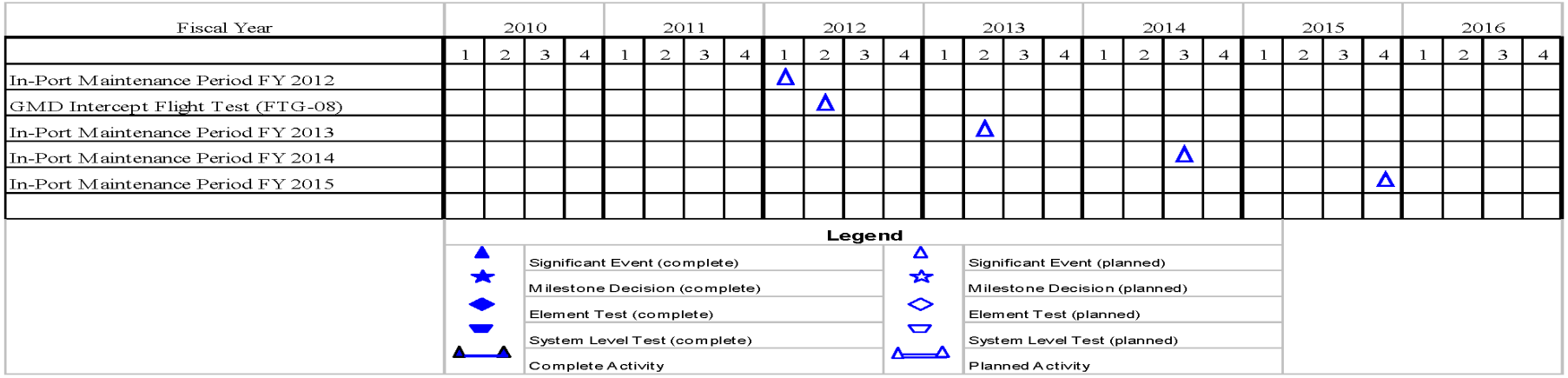

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603907C: *SEA BASED X-BAND RADAR (SBX)*	**PROJECT** MX46: *Sea Based X-Band Radar Development Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
In-Port Maintenance Period FY 2012	1	2012	1	2012
GMD Intercept Flight Test (FTG-08)	2	2012	2	2012
In-Port Maintenance Period FY 2013	2	2013	2	2013
In-Port Maintenance Period FY 2014	3	2014	3	2014
In-Port Maintenance Period FY 2015	4	2015	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603907C: *SEA BASED X-BAND RADAR (SBX)*	PROJECT MD40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	-	7.256	-	7.256	7.230	7.296	7.951	7.399	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). Includes Government Civilians, Advisory and Assistance Services, and Federally Funded Research and Development Contracts (FFRDC) providing integrity and oversight of the BMDS as well as supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2 after FY 2011), such as physical and technical security, legal services, travel and agency training, office and equipment leases, rents and utilities, data and unified communications support, supplies and maintenance, and similar operating expenses. Also includes legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.
In keeping with congressional intent, PWS is allocated among the PEs on a pro-rata basis and therefore fluctuates by year based on the total MDA budget and the individual PE`s budget amount.

The budget project did not exist in program wide support in FY2010.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	-	-	7.256
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: The budget project did not exist in program wide support in FY2010.			
FY 2011 Plans: See paragraph A, Mission Description and Budget Item Justification			
FY 2012 Plans: See paragraph A, Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	-	7.256

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603907C: *SEA BASED X-BAND RADAR (SBX)*	**PROJECT** MD40: *Program-Wide Support*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603911C: *BMD EUROPEAN CAPABILITY*

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	47.342	-	-	-	-	-	-	-	-	0.000	47.342
DX48: *European Capability Block 4*	47.342	-	-	-	-	-	-	-	-	0.000	47.342

A. Mission Description and Budget Item Justification

The European Component (EC) of the layered Ballistic Missile Defense System (BMDS) was planned to expand our BMDS capability to defend the Homeland, Allies and deployed forces in Europe from limited Iranian long-range threats by establishing both an Interceptor Site and a Midcourse Radar site in Europe. The European Interceptor Site (EIS) was planned as a United States (U.S.) facility on foreign soil, supported by a European Sensor Sites (ESS), also planned as a United States (US) facility in Europe. Both the EIS and ESS would interface with US command and control nodes in Europe and CONUS through upgrades to US communications at Ramstein Air Base (AB), Germany. The Command and Control communications interface upgrades planned for Europe were known as the European Communications Interface (ECI). The EC also was to include sustainment for fielded assets. On September 17, 2009 the President of the United States announced changes which replaced the EC program architecture with the Phased Adaptive Approach (PAA).

The Phased Adaptive Approach (PAA) was developed in response to the rapid proliferation of short and medium range ballistic missiles in Iran and the threat they pose to U.S. Allies and partners, as well as to U.S. deployed personnel and their accompanying families in the Middle East and in Europe. By leveraging recent advances in sensor and interceptor technologies, the United States will aggressively counter this growing regional threat with a more powerful and agile system. The United States is pursuing a four phased approach which will provide a more effective missile defense capability for defense of NATO territories and enhance U.S. homeland defense. It will be complementary of and interoperable with those being developed by NATO, be applicable in other theaters around the world, and will be adaptable and flexible in order to counter threat advances and provide increased defended areas over time. The initial phase includes the deployment of current and proven missile defense, including the sea-based Aegis Weapons System, the SM-3 interceptor (Block IA), and sensors such as the forward-based Army Navy/Transportable Radar Surveillance system (AN/TPY-2). Subsequent phases will be implemented based on technical maturity, appropriate testing, and threat driven requirements.

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603911C: *BMD EUROPEAN CAPABILITY*

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	50.226	-	-	-	-
Current President's Budget	47.342	-	-	-	-
Total Adjustments	-2.884	-	-	-	-
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-1.308	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment Detail	-1.576	-	-	-	-

Change Summary Explanation

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603911C: *BMD EUROPEAN CAPABILITY*	PROJECT DX48: *European Capability Block 4*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
DX48: *European Capability Block 4*	47.342	-	-	-	-	-	-	-	-	0.000	47.342
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

The European Component (EC) of the layered Ballistic Missile Defense System (BMDS) was replaced by the Phased Adaptive Approach (PAA).

FY 2010 funding was used for expansion of the BMDS capability via execution of two stage missile testing and to begin the PAA.
The BVT-01 flight test was conducted using energy management and pitch over maneuvers. The flight test also gathered pertinent data on the performance of the Exoatmospheric Kill Vehicle (EKV).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Two Stage Test	47.342	-	-
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: -Successfully conducted Booster Verification Test-01 (For reference: event partially executed under Program Element 0603882C) -First time event for flying a 2-stage Ground Based Interceptor, performing Exoatmospheric Kill Vehicle separation from a 2-stage booster and delivering an Exoatmospheric Kill Vehicle to its insertion point -Conducted feasibility assessments in support of site selection for Aegis Ashore. -Began assessments in support of System Concept Review and System Readiness Review for Aegis Ashore.			
FY 2011 Plans: No European Component work in PE 0603911(BMD European Capability) is planned for FY 2011.			
FY 2012 Plans: No European Component work in PE 0603911(BMD European Capability) is planned for FY 2012.			
Accomplishments/Planned Programs Subtotals	47.342	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603911C: *BMD EUROPEAN CAPABILITY*	**PROJECT** DX48: *European Capability Block 4*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

No further acquisitions are planned for the BMD European Component.

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603911C: *BMD EUROPEAN CAPABILITY*	PROJECT DX48: *European Capability Block 4*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Two Stage Test C/CPAF DX48	MIPR	CSS, Boeing:HSV	45.226	-		-		-		-	0.000	45.226	45.226
Two Stage Test EC Internal Office Budget DX48	C/CPAF	MDA:HSV	5.000	-		-		-		-	0.000	5.000	5.000
		Subtotal	50.226	-		-		-		-	0.000	50.226	50.226

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	50.226	-		-		-		-	0.000	50.226	50.226

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603911C: *BMD EUROPEAN CAPABILITY*	**PROJECT** DX48: *European Capability Block 4*

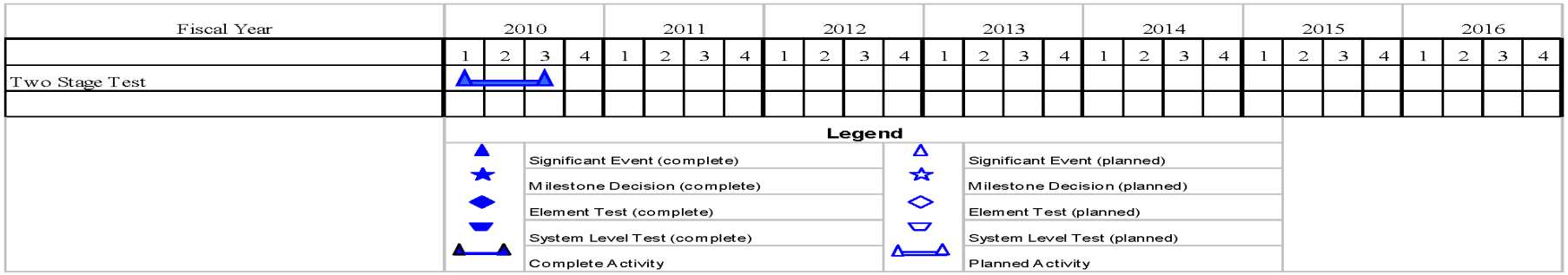

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603911C: *BMD EUROPEAN CAPABILITY*	**PROJECT** DX48: *European Capability Block 4*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Two Stage Test	1	2010	3	2010

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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0603913C: *ISRAELI COOPERATIVE*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	195.652	121.735	106.100	-	106.100	99.873	95.819	96.840	103.977	Continuing	Continuing
MD20: *Israeli Upper Tier*	-	50.766	53.220	-	53.220	50.892	52.607	54.368	55.660	Continuing	Continuing
WX26: *Israeli ARROW Program*	123.877	-	-	-	-	-	-	-	-	0.000	123.877
MD26: *Israeli ARROW Program*	-	24.247	11.755	-	11.755	10.665	10.663	10.701	11.142	Continuing	Continuing
WX34: *Short Range Ballistic Missile Defense*	71.775	-	-	-	-	-	-	-	-	0.000	71.775
MD34: *Short Range Ballistic Missile Defense (SRBMD)*	-	46.722	41.125	-	41.125	38.316	32.549	31.771	37.175	Continuing	Continuing

Note

Prior to FY 2010 the MDA`s U.S. Israeli Cooperative programs were listed under the Ballistic Missile Defense Terminal Defense Segment (0603881C).

In accordance with the Missile Defense Agency revised budget structure, the content previously planned in Projects WX26, and WX34 for FY 2010 are now captured in Projects MD20, MD26, and MD34.

A. Mission Description and Budget Item Justification

Since 1986, the United States and the State of Israel have cooperated on missile defense. MDA has three significant initiatives with Israel to develop and improve their indigenous capability to defend against short and medium range ballistic missiles. These include the Arrow Weapon System (AWS), the David`s Sling Weapon System (DSWS) for Short Range Ballistic Missile Defense (SRBMD) and a new Arrow-3 Interceptor. MDA is also developing, testing and exercising interoperability between U.S. BMDS systems and the Israeli Missile Defense Architecture to ensure Israeli systems can be integrated into the global BMDS.

Note:

Planned programs assume matching contributions from Israel per international agreements.

System Element Description:

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603913C: *ISRAELI COOPERATIVE*

U.S.-Israel Cooperative Programs consist of the following major efforts:

Arrow System Improvement Program:
The Arrow System Improvement Program (ASIP) enhances baseline Arrow Weapon System capabilities against more stressing evolving regional threats by increasing the total defended area by approximately 50 percent. ASIP development will be implemented in a block upgrade program that includes ground and flight testing. The program also includes the development of Arrow co-manufacturing capability, co-production of the interceptor and the continued development of Arrow`s interoperability with U.S. Ballistic Missile Defense Systems (BMDS) via Joint Tactical Information Data System (JTIDS) /Link-16 common communication architecture. Related activities include the Israeli Test Bed (ITB), and the Israeli Systems Architecture and Integration (ISA&I) study that assesses requirements and growth paths for the 2020 Israel missile defense architecture. The ASIP Agreement concludes in 2016.

Upper Tier Project:
Beginning in FY 2008, the U.S. and Israel began jointly assessing solutions for an upper-tier component for Israel`s Missile Defense Architecture. By adding an upper-tier capability to their current BMD architecture, Israel will increase the system`s capability against advanced threats by providing approximately four times the current Arrow-2 battlespace. The technology and schedule for Arrow-3 have been assessed by MDA as high risk. Therefore, MDA has developed detailed Knowledge Points to assess Israel`s development progress for Arrow-3. In addition, MDA and the Israeli Ministry of Defense continue to implement practices that allow for the more effective use of program management tools to ensure risk is adequately managed.

David`s Sling Project:
The David`s Sling Weapon System is designed to counter short range rockets and missiles and serve as a lower-tier to the Arrow Weapon System. The first fielded block capability will perform the short range rocket and missile defense mission. Subsequent blocks will address a cruise missile defense capability per 2010 Congressional direction.

System Element Budget Justification and Contribution to the Ballistic Missile Defense System (BMDS): U.S. Israeli cooperative programs such as the Upper Tier project and the David`s Sling Weapon System are not part of the BMDS. MDA is working to ensure interoperability between U.S. BMDS assets and the Israeli Missile Defense Architecture.

Major System Element Goals:

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603913C: *ISRAELI COOPERATIVE*

These programs continue U.S. strategic cooperation with the State of Israel in Missile Defense.

Israel`s primary goal is the development of a layered Anti-Ballistic Missile System for defending Israel and its civilian population.

U.S. goals are to assist in providing regional stability, ensure interoperability between Israeli systems and the U.S. BMDS, and to derive U.S. benefits from technologies developed under the cooperative programs.

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	201.323	121.735	111.100	-	111.100
Current President's Budget	195.652	121.735	106.100	-	106.100
Total Adjustments	-5.671	-	-5.000	-	-5.000
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-3.038	-			
• SBIR/STTR Transfer	-2.454	-			
• Other Adjustment Detail	-0.179	-	-5.000	-	-5.000

Change Summary Explanation

The FY 2012 $5.000 million dollar decrease in this program element is the result of efficiency savings.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603913C: *ISRAELI COOPERATIVE*	PROJECT MD20: *Israeli Upper Tier*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD20: *Israeli Upper Tier*	-	50.766	53.220	-	53.220	50.892	52.607	54.368	55.660	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

This project code encompasses MDA`s U.S.-Israeli cooperative programs for the Israeli Upper Tier program. It has been separated out from the WX26 project code found in FY 2010, and exhibits are established under the MD20 project code.

A. Mission Description and Budget Item Justification

This project provides funding for the Upper Tier component of the Arrow Weapon System (AWS) development. The Upper Tier Interceptor will provide Israel an indigenous capability to defend against medium and long range ballistic missiles. This Upper Tier capability will be provided through the Block 5 AWS. In addition to the geo-strategic goals of the Upper Tier cooperative effort, the United States derives technical benefit from its participation in these projects and gains knowledge and experience of the Israeli Defense Forces operation of a multi-layered defense architecture. U.S. participation in the Upper Tier Project development effort also ensures interoperability of the Arrow-3 and the Israeli Missile Defense System with deployed U.S. missile defense assets.

The Upper-Tier Interceptor Project Agreement was signed in 2010. This agreement states that the project will be jointly managed by the U.S. Missile Defense Agency and the Israeli Missile Defense Organization. The agreement also documents the U.S.-Israeli cost share, in which the development costs will be equitable between the U.S. and Israel, with Israel providing matching contributions. However a portion of the Israeli cost share is from non-financial contributions such as background information and facilities.

NOTE: Planned Program assumes matching Israeli financial and non-financial contributions per our international agreements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Upper Tier	-	50.766	53.220
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY2010 accomplishments are reported in prior year budget project WX26 of ($52,085). -Conducted hardware Critical Design Review for the Arrow-3 interceptor enabling production of the first fly-out test interceptor. -Conducted 5 Element Level Knowledge Point demonstrations of hardware components in optical seeker and propulsion systems.			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603913C: *ISRAELI COOPERATIVE*	PROJECT MD20: *Israeli Upper Tier*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Conducted initial Arrow 3 performance analysis studies which enabled assessment of capabilities to meet performance requirements. -Conducted initial Arrow 3 component testing to validate critical component designs. -Completed negotiations on the Upper-Tier Interceptor project agreement. ***FY 2011 Plans:*** -Conduct first interceptor fly-out test of the Arrow-3 Interceptor. -Conduct 5 Element Level Knowledge Point demonstrations to provide critical data to assess viability of component design. -Focus on propulsion, seeker hardware and avionics demonstrations. -Develop preliminary design for Arrow-3 integration into the Block 5 Arrow Weapon System. -Deliver prototype Arrow-3 canister and launcher ***FY 2012 Plans:*** -Conduct 3 Element Level Knowledge Point demonstrations to provide critical data to assess viability of component design. -Focus on demonstration of seeker functional capability and system performance. -Conduct second interceptor fly-out test of the Arrow-3 Interceptor. -Conduct software Critical Design Review to finalize tactical system software. -Conduct Production Readiness Review. -Conduct target fly-out test.			
Accomplishments/Planned Programs Subtotals	-	50.766	53.220

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

As a bi-lateral cooperative program with the State of Israel, the Upper Tier Project does not follow standard DoD Acquisition Practices. The Upper-Tier Interceptor Project Agreement under the RDT&E Framework agreement between the U.S. and Israel creates a joint program office to manage this program. This agreement allows Israel to contract on behalf of the United States. The DoD U.S. Israeli Cooperative Program Office jointly manages the Upper Tier program with IMoD to ensure that all systems are delivered on time, on budget and meet the needs of the warfighter. Program funding is equitable between the U.S. and Israel with Israel providing matching contributions. A portion of the Israeli cost share comes from non-financial contributions such as background information generated prior to joint program initiation. With the Upper Tier Interceptor, Israel Ministry of Defense (IMoD) will contract to Israel Aerospace Industries (IAI). IAI subcontracts to Israeli and U.S. companies such as Boeing.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603913C: *ISRAELI COOPERATIVE*	**PROJECT** MD20: *Israeli Upper Tier*

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603913C: *ISRAELI COOPERATIVE*	PROJECT MD20: *Israeli Upper Tier*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Upper Tier Upper Tier MD20	C/CPFF	Israel Aerospace Industries (IAI):Israel	52.085	50.766	Jul 2011	53.220	Jul 2012	-		53.220	0.000	156.071	103.986
		Subtotal	52.085	50.766		53.220		-		53.220	0.000	156.071	103.986

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	52.085	50.766		53.220		-		53.220	0.000	156.071	103.986

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603913C: *ISRAELI COOPERATIVE*	**PROJECT** MD20: *Israeli Upper Tier*

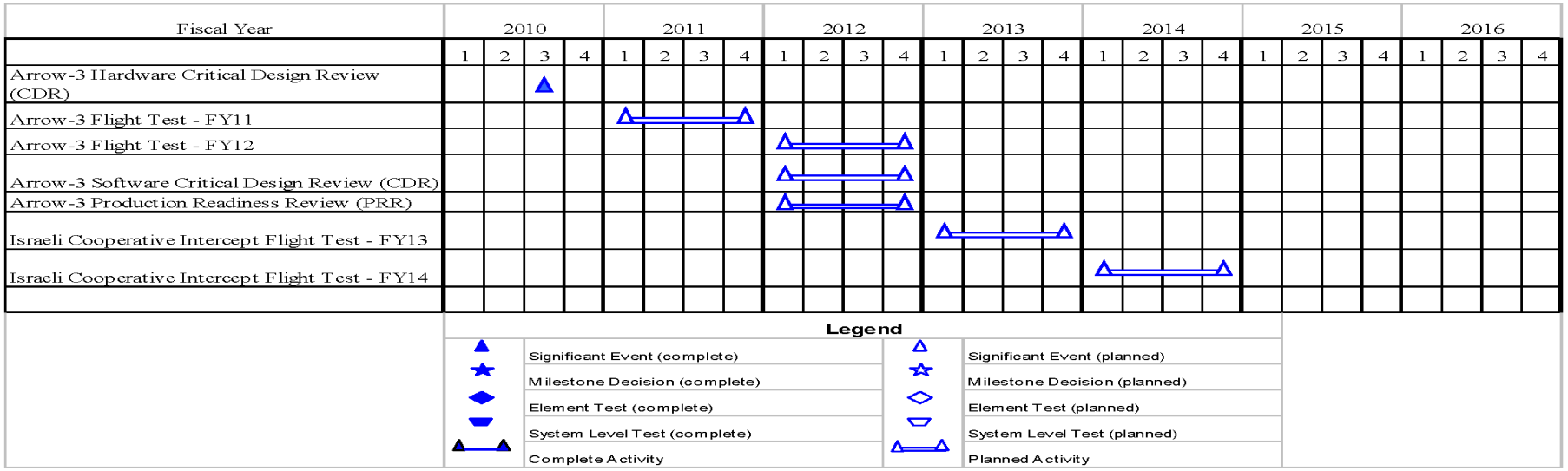

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603913C: *ISRAELI COOPERATIVE*	**PROJECT** MD20: *Israeli Upper Tier*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Arrow-3 Hardware Critical Design Review (CDR)	3	2010	3	2010
Arrow-3 Flight Test - FY11	1	2011	4	2011
Arrow-3 Flight Test - FY12	1	2012	4	2012
Arrow-3 Software Critical Design Review (CDR)	1	2012	4	2012
Arrow-3 Production Readiness Review (PRR)	1	2012	4	2012
Israeli Cooperative Intercept Flight Test - FY13	1	2013	4	2013
Israeli Cooperative Intercept Flight Test - FY14	1	2014	4	2014

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603913C: *ISRAELI COOPERATIVE*	PROJECT WX26: *Israeli ARROW Program*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
WX26: *Israeli ARROW Program*	123.877	-	-	-	-	-	-	-	-	0.000	123.877
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Prior to FY 2010, this program was listed under the Ballistic Missile Defense Terminal Defense Segment (0603881C) with the project code of WX26. For FY 2011 and beyond the program is split into MD20 for Israeli Upper Tier, and MD26 for ASIP.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Israeli ARROW Program	123.877	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments: See FY 2010 Accomplishments for Israeli Upper Tier in project MD20 and FY 2010 Accomplishments for Arrow System Improvement Program in project MD26 in this Program Element.			
Accomplishments/Planned Programs Subtotals	123.877	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603913C: *ISRAELI COOPERATIVE*	PROJECT MD26: *Israeli ARROW Program*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD26: *Israeli ARROW Program*	-	24.247	11.755	-	11.755	10.665	10.663	10.701	11.142	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

This Program Element encompasses MDA`s U.S.-Israeli cooperative programs. Prior to FY 2010, these programs were listed under the Ballistic Missile Defense Terminal Defense Segment (0603881C).

In FY 2010 these programs were budgeted under this Program Element with a project code of WX26.

A. Mission Description and Budget Item Justification

This project provides funding for Arrow Weapon System (AWS) development, to include the Arrow System Improvement Program (ASIP), the Arrow Missile Production Program (AMPP) for the co-production of Arrow Interceptors, the Israeli Test Bed (ITB) experiments to evaluate Human-In-The-Loop (HIL) battle management, and the Israeli Systems Architecture and Integration (ISA&I) studies to assess Israel`s future 2020 Missile Defense Architecture. The AWS provides Israel an indigenous capability to defend against short and medium range ballistic missiles. The ASIP effort will enhance the performance of the AWS to defeat longer-range and more robust ballistic missile threats expected to be introduced in the Middle East in the near future. Testing of the enhanced AWS in the U.S. against U.S. targets is planned to verify Arrow`s improved performance and capability. The ASIP also ensures AWS interoperability with the U.S. BMDS elements such as Terminal High Altitude Area Defense(THAAD), AEGIS, Command, Control, Battle Management and Communications (C2BMC), AN/TPY-2, and PATRIOT through ground tests, flight tests, and operational exercises. Co-production will continue increased production capacity of the Arrow II interceptor. The ITB and ISA&I efforts will continue to support AWS development as well as to define future missile defense architectures and growth paths.

NOTE: Planned Program assumes matching Israeli financial and non-financial contributions per our international agreements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Arrow System Improvement Program	-	5.912	5.393
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY2010 accomplishments are reported in prior year budget project WX26 ($41,000). The Arrow System Improvement Program (ASIP) is the fourth phase of the cooperative effort which began in 1988 to provide Israel with an indigenous missile defense and ensure the Arrow Weapon System(AWS) retains system effectiveness against			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603913C: *ISRAELI COOPERATIVE*	PROJECT MD26: *Israeli ARROW Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
evolving longer-range, more robust regional Ballistic Missile threats. This initiative commenced on March 13, 2001 under the ASIP International Agreement between the United States and the State of Israel and runs through 2016. AWS Block 4.0 development is near completion. AWS Block 5.0 will add an upper tier component to the AWS. The AWS is interoperable with U.S. BMDS elements through the Link-16 network. Interoperability is tested through ground test, flight test, and operational exercises incrementally as system upgrades are delivered and fielded. Interdependency: BMDS elements Terminal High Altitude Area Defense(THAAD), AEGIS, Command, Control, Battle Management and Communications (C2BMC), AN/TPY-2, and PATRIOT participate in ground testing and exercises with the AWS. -Conducted Joint Interoperability Exercise Juniper Cobra with Israel and U.S. forces to validate coalition architecture and joint concept of operations. ***FY 2011 Plans:*** -Conduct AWS Block 5.0 System Requirements Review (SRR) to finalize system requirements. -Conduct AWS Block 5.0 Preliminary Design Review to establish initial design. -Conduct AWS Block 4.0 flight test in the U.S. -Conduct target fly-out flight test in Israel. ***FY 2012 Plans:*** -Conduct AWS Block 5.0 Critical Design Review to finalize design. -Conduct AWS Block 4.0 flight test in Israel. -Expand AWS-BMDS integration (with AN/TPY-2, C2BMC, and Aegis) and demonstrate performance in U.S. BMDS ground test, GTI-04 (ISR).			
Title: Arrow Missile Production Program (AMPP) ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** Funding for these FY2010 accomplishments are reported in prior year budget project WX26 of ($24,486). The co-manufacturing project further enhances the Arrow Weapon System (AWS) by establishing a capability in the United States and the State of Israel to co-produce Arrow components and interceptors. The goal of the co-production effort is to accelerate	- 0	12.000 0	- 0

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603913C: *ISRAELI COOPERATIVE*	PROJECT MD26: *Israeli ARROW Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
production of Arrow interceptors to meet Israel`s defense requirements. The current production plan will be completed in 2012 and meet Israel`s Defense Forces (IDF) current inventory requirement. -Continue delivery of Arrow II interceptors. ***FY 2011 Plans:*** -Continue delivery of Arrow II interceptors. ***FY 2012 Plans:*** -Complete delivery of Arrow II interceptors using Israeli funding.			
Title: Israeli Test Bed (ITB) ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** Funding for these FY2010 accomplishments are reported in prior year budget project WX26 of ($3,535). The Israeli Test Bed (ITB) is a cooperative effort conducted under the March 30,1989 Theater Ballistic Missile Defense Test Bed Memorandum of Agreement between the U.S. and Israel. The ITB is a large scale Human-in the Loop(HIL) modeling and simulation facility for the purpose of developing, analyzing, and evaluating candidate architectures, battle management concepts, and engagement algorithms. Typically four experiments or exercises are conducted each year. Many of the exercises accomplished on the ITB include participation of U.S. and Israeli warfighters. The principal ITB facility resides at Holon, Israel. A second ITB capability is operational at the Missile Defense Agency`s Advanced Research Center in Huntsville, Alabama. -Completed two experiments refining HIL tools for Command and Control, developing regional defense architectures, and impacts to tactics, techniques and procedures (TTPs) of the combined U.S.-Israeli Multi-tier Missile Defense Architecture. -Completed two exercises with U.S./Israeli warfighters to further refine (TTPs) and Concept of Operations (CONOPS). -Completed one ground test with U.S. BMDS elements (GTI-04b). ***FY 2011 Plans:*** -Conduct HIL experiment on regional defense concepts. -Conduct HIL experiment on integrated air and missile defense including integration of external sensors and battle management evaluation. -Conduct experiment on potential future architecture enhancements.	- 0	3.535 0	3.535 0

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603913C: *ISRAELI COOPERATIVE*	PROJECT MD26: *Israeli ARROW Program*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Conduct exercise with warfighters to further refine TTPs and CONOPs. ***FY 2012 Plans:*** -Conduct HIL experiment on regional defense concepts. -Conduct HIL experiment on affect of new mission capabilities on integrated air and missile defense. -Conduct experiment on potential future architecture enhancements. -Conduct exercise with warfighters to further refine TTPs and CONOPs.			
Title: Israeli Systems Architecture and Integration (ISA&I) ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** Funding for these FY2010 accomplishments are reported in prior year budget project WX26 of ($2,771). The Israeli Systems Architecture and Integration (ISA&I) Study provides analysis of the future 2020 Israeli Missile Defense Architecture, growth paths for future development and interoperability with U.S. BMDS assets. Program objectives are to assess the ballistic missile threats, provide analysis and architecture options, assess missile defense system robustness and issues, and assess Israeli and U.S. missile defense interoperability issues. The ISA&I effort is contracted by MDA to an Israeli consulting firm. -Continued studies on emerging regional ballistic missile threats, growth path options for the Israeli Missile Defense Architecture and evaluate interoperability between U.S. and Israeli missile defense systems. ***FY 2011 Plans:*** -Development and assessment activities for regional defense, missile systems performance issues, and interoperability, special studies related to epoch up to 2020. ***FY 2012 Plans:*** -U.S.- Israeli operational exercise design and assessment, and interoperability special studies on regional threats and growth path options.	- 0	2.800 0	2.827 0
Accomplishments/Planned Programs Subtotals	-	24.247	11.755

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603913C: *ISRAELI COOPERATIVE*	PROJECT MD26: *Israeli ARROW Program*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

As a bi-lateral cooperative program with the State of Israel, the Arrow Program does not follow standard DoD Acquisition Practices. The DoD U.S. Israeli Cooperative Program Office jointly manages the Arrow Program with IMoD to ensure that all systems are delivered with quality on time, on budget and meet the needs of the warfighter. Program funding is equitable between the U.S. and Israel with Israel providing matching contributions. However, a portion of the Israeli cost share comes from non-financial contributions such as background information generated prior to joint program initiation. With ASIP, Israel Ministry of Defense (IMoD) contracts on behalf of U.S. government to Israel Aerospace Industries (IAI). IAI subcontracts to Israeli and U.S. companies such as Boeing. MDA Targets Office contracts for production and instrumentation of targets for flight testing conducted in the U.S. Additionally with Arrow Missile Production, IMoD contracts on behalf of U.S. government to IAI, who subcontracts to Boeing for manufacture of components in the U.S. IAI manufactures Israeli components and performs final assembly. For the Israeli Test Bed, MDA contracts directly with Tadiran while IMoD provides an equitable share of the funding to U.S. Finally, MDA contracts directly with WALES, Ltd for the Israeli System Architecture and Integration program.

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603913C: *ISRAELI COOPERATIVE*	PROJECT MD26: *Israeli ARROW Program*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Arrow System Improvement Program Arrow System Improvement Program (ASIP) MD26	C/CPFF	Israel Aerospace Industries (IAI):Israel	41.000	5.912	Jul 2011	5.393	Jul 2012	-		5.393	0.000	52.305	11.305
Arrow Missile Production Program (AMPP) Arrow Missile Production MD26	C/FFP	Israel Aerospace Industries (IAI) & Boeing:Israel & Alabama	24.486	12.000	Oct 2010	-		-		-	0.000	36.486	12.000
Israeli Test Bed (ITB) Israeli Test Bed MD26	C/FFP	Israel Aerospace Industries (IAI) & Boeing:Israel & Alabama	3.535	3.535	Oct 2010	3.535	Oct 2011	-		3.535	0.000	10.605	7.070
Israeli Systems Architecture and Integration (ISA&I) ISA&I MD26	C/FFP	Wales LTD:Israel	2.771	2.800	Oct 2010	2.827	Oct 2011	-		2.827	0.000	8.398	5.627
		Subtotal	71.792	24.247		11.755		-		11.755	0.000	107.794	36.002

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603913C: *ISRAELI COOPERATIVE*	PROJECT MD26: *Israeli ARROW Program*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	71.792	24.247		11.755		-		11.755	0.000	107.794	36.002

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603913C: *ISRAELI COOPERATIVE*	**PROJECT** MD26: *Israeli ARROW Program*

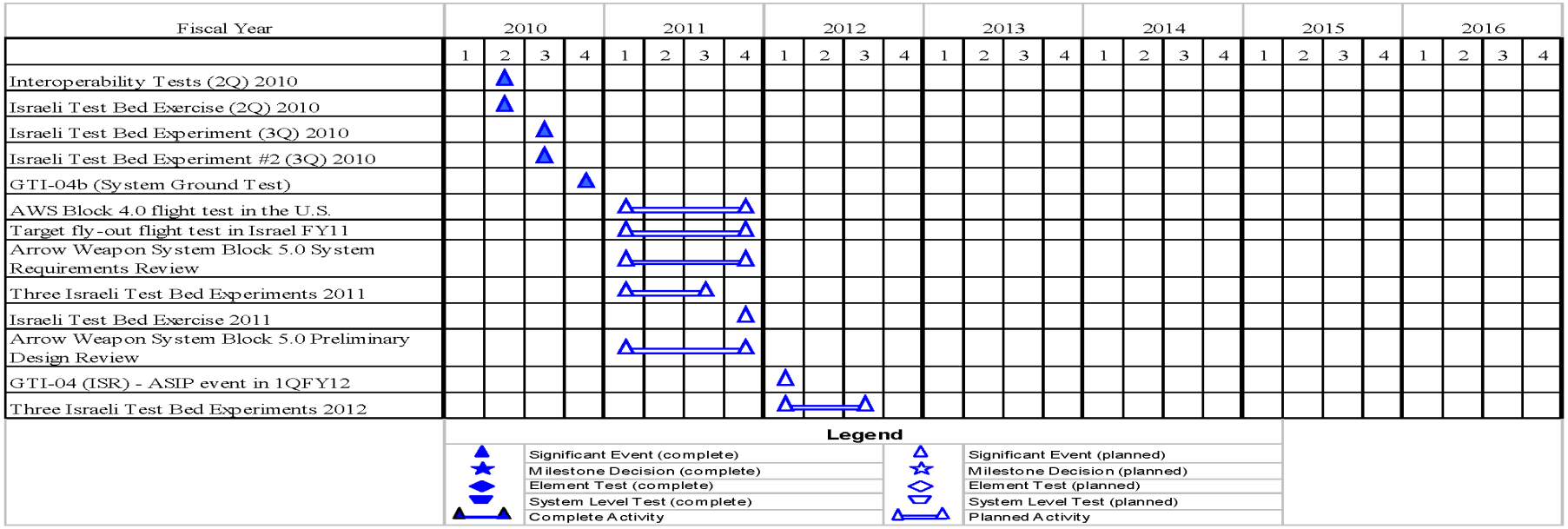

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603913C: *ISRAELI COOPERATIVE*	**PROJECT** MD26: *Israeli ARROW Program*

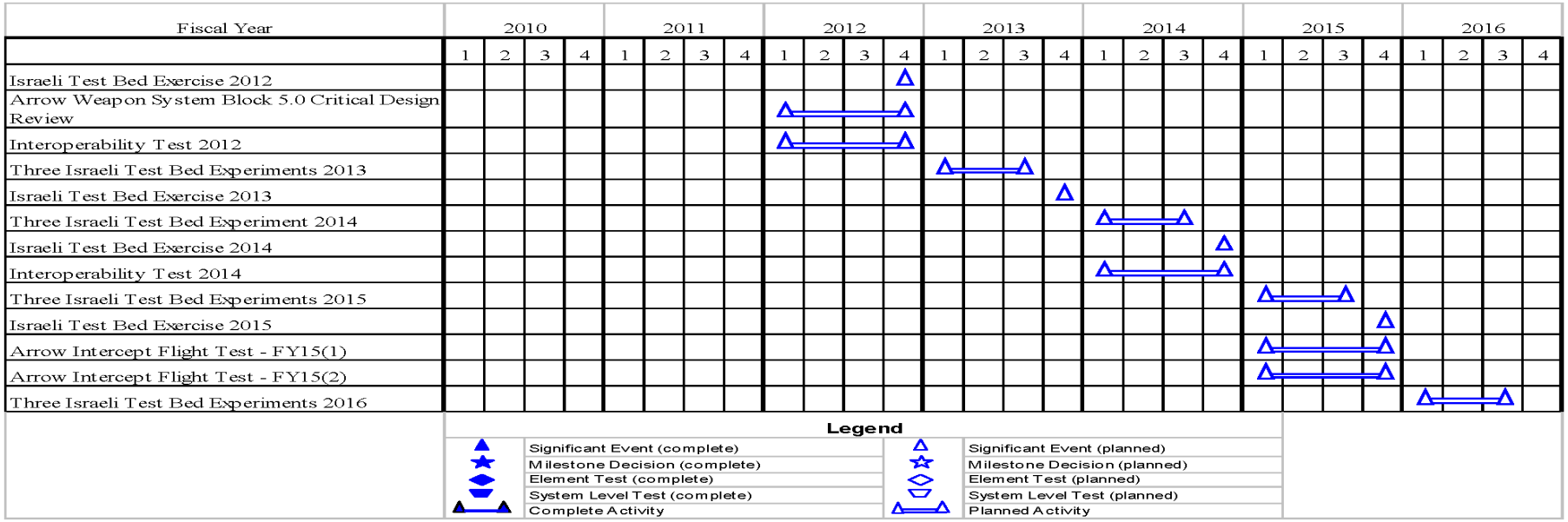

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603913C: *ISRAELI COOPERATIVE*	**PROJECT** MD26: *Israeli ARROW Program*

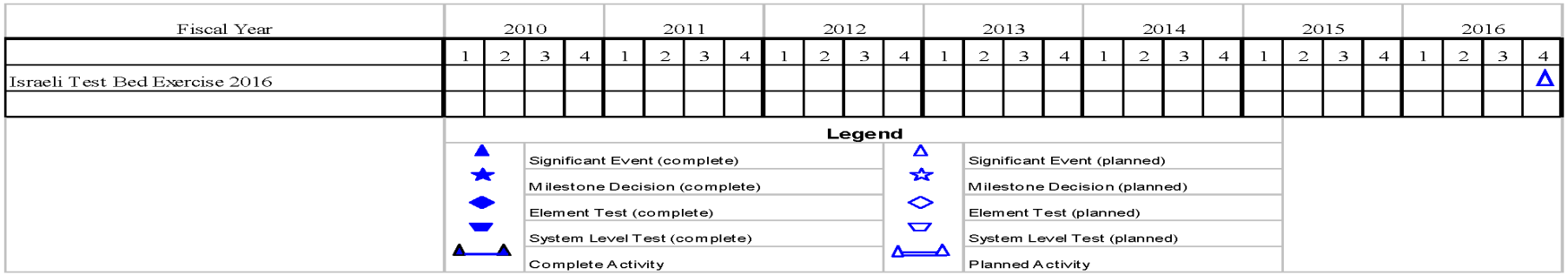

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603913C: *ISRAELI COOPERATIVE*	**PROJECT** MD26: *Israeli ARROW Program*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Interoperability Tests (2Q) 2010	2	2010	2	2010
Israeli Test Bed Exercise (2Q) 2010	2	2010	2	2010
Israeli Test Bed Experiment (3Q) 2010	3	2010	3	2010
Israeli Test Bed Experiment #2 (3Q) 2010	3	2010	3	2010
GTI-04b (System Ground Test)	4	2010	4	2010
AWS Block 4.0 flight test in the U.S.	1	2011	4	2011
Target fly-out flight test in Israel FY11	1	2011	4	2011
Arrow Weapon System Block 5.0 System Requirements Review	1	2011	4	2011
Three Israeli Test Bed Experiments 2011	1	2011	3	2011
Israeli Test Bed Exercise 2011	4	2011	4	2011
Arrow Weapon System Block 5.0 Preliminary Design Review	1	2011	4	2011
GTI-04 (ISR) - ASIP event in 1QFY12	1	2012	1	2012
Three Israeli Test Bed Experiments 2012	1	2012	3	2012
Israeli Test Bed Exercise 2012	4	2012	4	2012
Arrow Weapon System Block 5.0 Critical Design Review	1	2012	4	2012
Interoperability Test 2012	1	2012	4	2012
Three Israeli Test Bed Experiments 2013	1	2013	3	2013
Israeli Test Bed Exercise 2013	4	2013	4	2013
Three Israeli Test Bed Experiment 2014	1	2014	3	2014
Israeli Test Bed Exercise 2014	4	2014	4	2014
Interoperability Test 2014	1	2014	4	2014
Three Israeli Test Bed Experiments 2015	1	2015	3	2015

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603913C: *ISRAELI COOPERATIVE*	**PROJECT** MD26: *Israeli ARROW Program*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Israeli Test Bed Exercise 2015	4	2015	4	2015
Arrow Intercept Flight Test - FY15(1)	1	2015	4	2015
Arrow Intercept Flight Test - FY15(2)	1	2015	4	2015
Three Israeli Test Bed Experiments 2016	1	2016	3	2016
Israeli Test Bed Exercise 2016	4	2016	4	2016

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603913C: *ISRAELI COOPERATIVE*	PROJECT WX34: *Short Range Ballistic Missile Defense*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
WX34: *Short Range Ballistic Missile Defense*	71.775	-	-	-	-	-	-	-	-	0.000	71.775
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

This project transferred to project MD34 in FY 2011.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See MD34 for FY10 Accomplishments	71.775	-	-
Articles:	0		
Description: See Description Below			
FY 2010 Accomplishments:			
Accomplishments/Planned Programs Subtotals	71.775	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603913C: *ISRAELI COOPERATIVE*	PROJECT MD34: *Short Range Ballistic Missile Defense (SRBMD)*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD34: *Short Range Ballistic Missile Defense (SRBMD)*	-	46.722	41.125	-	41.125	38.316	32.549	31.771	37.175	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

This Program Element encompasses MDA`s U.S.-Israeli cooperative programs. Prior to FY 2010, this program was listed under the Ballistic Missile Defense Terminal Defense Segment (0603881C) with the project code of WX34. For FY 2010 this program was budgeted under this Program Element with a project code of WX34.

A. Mission Description and Budget Item Justification

The 2006 summer conflict between Israel and Hezbollah underscored the strategic effect of short-range, inexpensive ballistic missiles attacks on civilian populations. The current Israeli Missile Defense Architecture (comprised of Patriot and Arrow) has capability against some of these short-range missile threats, but does not provide a cost-effective defense. The goal of the Israeli Short Range Ballistic Missile Defense (SRBMD) program is to provide an affordable defense capability. In March 2005, the U.S. and Israel initiated a joint 18-month feasibility study of a low-cost SRBMD capability as a complement to the Arrow Weapon System. This was followed in May 2006 by Israeli`s down-selection to the David`s Sling Weapon System (DSWS) for their SRBMD solution. The system is to be developed in blocks with the initial block providing a baseline capability against large caliber rockets and short range ballistic missiles.

Under the U.S.-Israeli Project Agreement signed in September 2008, the project is jointly managed by the U.S. Missile Defense Agency and the Israeli Missile Defense Organization. The agreement documents the U.S.-Israeli cost share, in which the development costs are equitable between the U.S. and Israel with Israel providing matching contributions. However a portion of the Israeli cost share is from non-financial contributions such as background information and facilities per our international agreements.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: SRBMD Program	-	46.722	41.125
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY2010 accomplishments are reported in prior year budget project WX26 of ($71,775). -Conducted one interceptor controlled navigation fly-out test to verify aerodynamic performance and control capability. -Conducted Critical Design Review #1 for Block 1.0. -Conducted initial performance analysis studies for Block 1 to assess capability to meet performance requirements.			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603913C: *ISRAELI COOPERATIVE*	PROJECT MD34: *Short Range Ballistic Missile Defense (SRBMD)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Conducted Block 1 component hardware testing to verify critical component design. -Completed negotiations on the David`s Sling Weapon System project agreement. ***FY 2011 Plans:*** -Conduct Radar Field Test #1 to assess initial radar acquisition and track capability. -Conduct final Block 1 Critical Design Review. -Complete Block 1 performance analysis studies to finalize assessment of capability to meet performance requirements. -Conduct Block 2 Preliminary Design Review. -Conduct Block 2 Critical Design Review. -Conduct Block 3 Preliminary Design Review. -Conduct two interceptor controlled navigation fly-out flight tests to further verify aerodynamic performance and control capability. -Complete 9 Knowledge Point demonstrations to provide critical data to assess viability of component design. -6 interceptor component. -1 battle management and radar integration. -2 system performance. -Conduct Radar Field Test #2 to assess radar acquisition and track capability. -Conduct two interceptor flight tests to verify interceptor capability. -Conduct Production Readiness Review. ***FY 2012 Plans:*** -Conduct two system interception tests -Complete 4 Knowledge Points to provide critical data to assess viability of subsystem and system design and interception cost. -3 system performance. -1 interceptor unit cost. -Conduct Radar Field Test #3 to assess radar acquisition and track capability.			
Accomplishments/Planned Programs Subtotals	-	46.722	41.125

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603913C: *ISRAELI COOPERATIVE*	PROJECT MD34: *Short Range Ballistic Missile Defense (SRBMD)*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

As a bi-lateral cooperative program with the State of Israel, the SRBMD program does not follow standard DoD Acquisition Practices. The DoD U.S. Israeli Cooperative Program Office jointly manages the SRBMD program with IMoD to ensure that all systems are delivered with on time, on budget and meet the needs of the warfighter. The SRBMD Project Agreement allows Israel to contract on behalf of the United States. For the Stunner Interceptor, Rafael, an Israeli company, subcontracts to Raytheon Missile Systems for certain interceptor components.

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603913C: *ISRAELI COOPERATIVE*	PROJECT MD34: *Short Range Ballistic Missile Defense (SRBMD)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SRBMD Program SRBMD Program MD34	C/CPFF	Rafael:Israel	71.775	46.722	Jan 2011	41.125	Jan 2012	-		41.125	0.000	159.622	87.847
		Subtotal	71.775	46.722		41.125		-		41.125	0.000	159.622	87.847

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	71.775	46.722		41.125		-		41.125	0.000	159.622	87.847

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603913C: *ISRAELI COOPERATIVE*	**PROJECT** MD34: *Short Range Ballistic Missile Defense (SRBMD)*

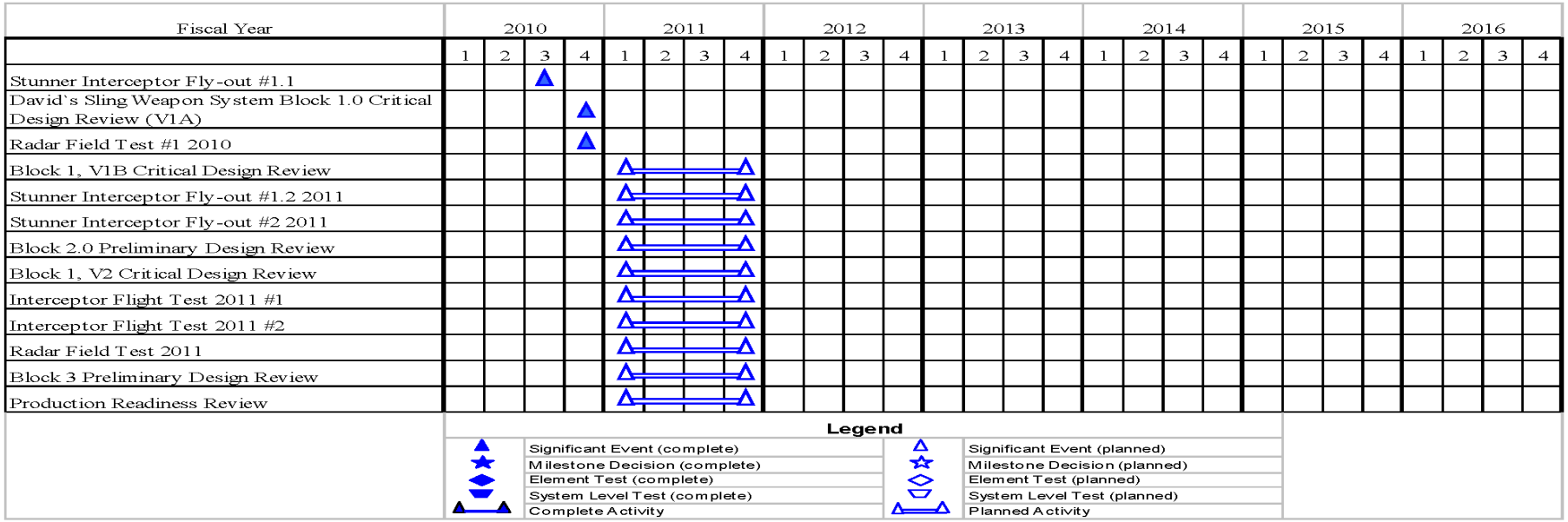

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603913C: *ISRAELI COOPERATIVE*	**PROJECT** MD34: *Short Range Ballistic Missile Defense (SRBMD)*

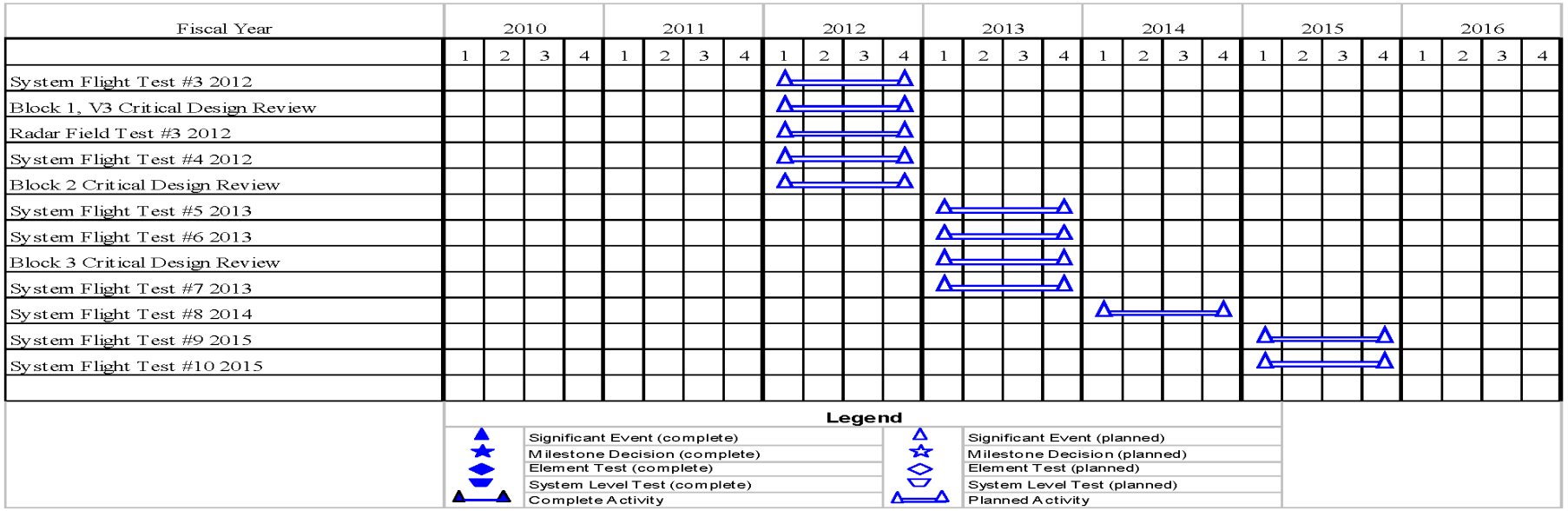

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0603913C: *ISRAELI COOPERATIVE*	PROJECT MD34: *Short Range Ballistic Missile Defense (SRBMD)*

Schedule Details

	Start		End	
Events	Quarter	Year	Quarter	Year
Stunner Interceptor Fly-out #1.1	3	2010	3	2010
David`s Sling Weapon System Block 1.0 Critical Design Review (V1A)	4	2010	4	2010
Radar Field Test #1 2010	4	2010	4	2010
Block 1, V1B Critical Design Review	1	2011	4	2011
Stunner Interceptor Fly-out #1.2 2011	1	2011	4	2011
Stunner Interceptor Fly-out #2 2011	1	2011	4	2011
Block 2.0 Preliminary Design Review	1	2011	4	2011
Block 1, V2 Critical Design Review	1	2011	4	2011
Interceptor Flight Test 2011 #1	1	2011	4	2011
Interceptor Fly-out Test 2Q2011	2	2011	2	2011
Interceptor Flight Test 2011 #2	1	2011	4	2011
Radar Field Test 2011	1	2011	4	2011
Block 3 Preliminary Design Review	1	2011	4	2011
Production Readiness Review	1	2011	4	2011
System Flight Test #3 2012	1	2012	4	2012
Block 1, V3 Critical Design Review	1	2012	4	2012
Radar Field Test #3 2012	1	2012	4	2012
System Flight Test #4 2012	1	2012	4	2012
Block 2 Critical Design Review	1	2012	4	2012
System Flight Test #5 2013	1	2013	4	2013
System Flight Test #6 2013	1	2013	4	2013
Block 3 Critical Design Review	1	2013	4	2013

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0603913C: *ISRAELI COOPERATIVE*	**PROJECT** MD34: *Short Range Ballistic Missile Defense (SRBMD)*

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
System Flight Test #7 2013	1	2013	4	2013
System Flight Test #8 2014	1	2014	4	2014
System Flight Test #9 2015	1	2015	4	2015
System Flight Test #10 2015	1	2015	4	2015

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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0604880C: *LAND-BASED SM-3*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	-	281.378	306.595	-	306.595	149.320	60.628	41.417	154.842	Continuing	Continuing
MD68: *AEGIS Ashore*	-	281.378	295.511	-	295.511	143.066	57.908	39.647	148.242	Continuing	Continuing
MD40: *Program-Wide Support*	-	-	11.084	-	11.084	6.254	2.720	1.770	6.600	Continuing	Continuing

Note

In accordance with the Missile Defense Agency`s revised budget structure, content previously planned in PE 0603911C BMD European Capability for FY 2010 and is now captured in PE 0604880C, Land Based SM-3, project MD68, in FY 2011.

A. Mission Description and Budget Item Justification

The Phased Adaptive Approach (PAA) was developed in response to the increased development and proliferation of short and medium range ballistic missiles in Iran and around the world. The initial capability still addresses the threat posed to U.S. Allies and partners, as well as to U.S. deployed personnel and their accompanying families in the Middle East and in Europe. By leveraging recent advances in sensor and missile technologies, the United States will aggressively counter this growing regional threat with a more flexible and agile systems approach. Starting in Europe, the United States is pursuing a four phased approach which will provide a more effective missile defense capability for defense of NATO territories and enhance U.S. homeland defense. It will be complementary of and interoperable with those being developed by NATO, be applicable in other theaters around the world, and will be more adaptable and flexible to counter threat advances and provide increased defended areas over time. The initial phase includes the deployment of current and proven missile defense, including the sea-based Aegis Weapons System, the SM-3 missile (Block IA and IB), and sensors such as the forward-based Army Navy/Transportable Radar Surveillance Model 2 (AN/TPY-2). Subsequent phases will be implemented based on technical maturity, appropriate testing, and threat driven requirements. Aegis Ashore will be included in PAA Phase II and will provide proven Aegis Missile Defense capability against short and medium range ballistic missiles in an ashore configuration. It will be identical to Aegis At-Sea capability to facilitate training and logistical support by Navy. It also provides sophisticated engagement strategies including use of additional off board sensors like Airborne Infrared Radar (ABIR) and Space Tracking and Surveillance System (STSS). Test to demonstrate the use of off board sensor information executed in the at sea portion of the program and reduce vulnerability to countermeasures, forcing an enemy to alter or abandon tactics to penetrate the defensive system.

Aegis Ashore can adapt to the threat and be deployed/redeployed to areas needed to provide persistent coverage for the Geographic Combatant Commander.

Aegis Ashore will build a test complex at the Pacific Missile Range Facility (PMRF) on Kauai, Hawaii in 2012/2013. The test complex is critical to the development of the Aegis Ashore capability and will be essential for verifying requirements and validating design capability prior to deployment.

MDA approved the acquisition strategy in FY 2010.

FY12 budget request recognizes that historical execution rates will result in FY11 funds available for support in FY12. The accomplishments reflect the use of the FY11 funding in addition to the FY12 request.

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604880C: *LAND-BASED SM-3*

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	-	281.378	345.937	-	345.937
Current President's Budget	-	281.378	306.595	-	306.595
Total Adjustments	-	-	-39.342	-	-39.342
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment Detail	-	-	-39.342	-	-39.342

Change Summary Explanation

The FY 2012 $39.342 million dollar decrease in this program element is the result of MDA programmatic changes and $1.040 million in efficiency savings.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604880C: *LAND-BASED SM-3*	PROJECT MD68: *AEGIS Ashore*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD68: *AEGIS Ashore*	-	281.378	295.511	-	295.511	143.066	57.908	39.647	148.242	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

In 2012/2013, the Aegis Ashore program office will install the Aegis Ashore Missile Defense Test Complex (AAMDTC) at Pacific Missile Range Facility (PMRF) on Kauai, Hawaii to provide proof of concept, system verification and validation of the first shore-based operation, support deployment decisions and upgrades of future incremental capabilities. The AAMDS will use Advanced Capability Build (ACB) 12/Aegis BMD 5.0 and SM-3 Block IB being developed by the USN and MDA to be certified in 2013 and will provide the critical feedback required for refinement of the shore-based system architecture such that Initial Operational Capability (IOC) is achieved by 2015 in accordance with the MDA schedule for Aegis Ashore, and in accordance with Capability Delivery (CD)-06. This site will be able to be modified to support future computer program and missile variants.

Aegis Ashore will leverage the proven Aegis BMD capability and deploy a second system at the Host Nation 1 site, Romania, in 2015. Host Nation 1 will employ ACB 12/Aegis BMD 5.0 and SM-3 Block 1B and will be upgraded to ACB16/Aegis BMD 5.1, SM-3 Block 1B and SM-3 Block IIA when Host Nation 2 (Poland) comes on line in 2018. This will provide an Aegis Ashore exoatmospheric defense against short to medium and some intermediate range ballistic missile threats in the later stages of flight.

If threat dictates, additional systems could be procured and deployed globally to support Geographic Combatant Commanders.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: AWS Development	-	253.039	260.789
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: This task provides funding for the development of an Aegis Ashore capability using an SM-3 variant missile. -Conducted and completed Deckhouse concept studies -Conducted security assessment for an Aegis Ashore option -Conducted System Safety design trade studies -Awarded Aegis Ashore Engineering Agent (AAEA) letter contract -Procured long lead material Funding for these FY 2010 accomplishments are in prior year budget project WX09 in PE 060392C. ($45,915)			
FY 2011 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604880C: *LAND-BASED SM-3*	PROJECT MD68: *AEGIS Ashore*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Completed System Requirements Review -Complete AAMDS Design -Award Deckhouse Fabrication Contract -Conduct System Design Review -Conduct Preliminary Design Review -Procure long lead material for PMRF/removable enclosures/deckhouse -Conduct development trades to support deployment decisions -Start construction at PMRF -Start construction in New Jersey -Conduct Critical Design Review -Start Integration and Test in New Jersey -Procure Spares -Modification of test missiles to meet PMRF testing requirements ***FY 2012 Plans:*** -Finish Integration and Test in New Jersey -Deliver Multi-Mission Signal Processor (MMSP) #1 -Deliver equipment to Pacific Missile Range Facility (PMRF) -Procure long lead material for Host Nation (HN) 1 -Conduct Aegis Light-Off of completely integrated system -Ship Deckhouse and Aegis Weapon System components to Hawaii			
Title: Global Deployment Operations	-	18.898	23.299
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** N/A ***FY 2011 Plans:*** This effort provides operations support across all MDA Global Deployments. It provides for civilian salaries and travel. In addition, it provides other technical and business operations support services, technical oversight, and performance analysis provided by Federally Funded Research and Development Centers (FFRDCs) and Advisory & Assistance Services. ***FY 2012 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
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B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
This effort will continue to provide operations support as described for FY 2011. FFRDC analysis will ramp up to support integration, testing, and check-out for the Hawaii site.			
Title: Site Activation	-	9.441	11.423
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: N/A			
FY 2011 Plans: -Continue feasibility assessments in support of site selection Aegis Ashore. -Begin Site Activation for Aegis Ashore Missile Defense Test Complex at PMRF.			
FY 2012 Plans: -Continue Site Activation for Aegis Ashore site.			
Accomplishments/Planned Programs Subtotals	-	281.378	295.511

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603884C: *Ballistic Missile Defense Sensors*	544.352	454.859	222.374		222.374	357.271	336.514	318.321	348.944	Continuing	Continuing
• 0603890C: *Ballistic Missile Defense Enabling Programs*	355.870	402.769	373.563		373.563	331.203	314.193	336.749	346.560	Continuing	Continuing
• 0603896C: *BMD C2BMC*	327.074	342.625	364.103		364.103	330.337	353.081	338.835	304.217	Continuing	Continuing

D. Acquisition Strategy

Aegis Ashore awarded a contract for an Aegis Ashore Engineering Agent (AAEA). Broadly stated, the AAEA is responsible for the design, development, integration and test of the Aegis Weapons System capability into a removable deckhouse. Furthermore, the AAEA will support deployment to PMRF and host Nations.

Aegis Ashore intends to utilize existing Navy hardware procurement contracts to the maximum extent possible. Competition will be used for procurement of any products or services by FY 2015.

Aegis Ashore will award one contract using both RDT&E and MILCON appropriations for the fabrication and installation of the AA Deckhouse, Launch Facility, and Deckhouse Support Facility. This will be a competitive award.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604880C: *LAND-BASED SM-3*	PROJECT MD68: *AEGIS Ashore*

Competition is the intended Acquisition Strategy for Phase III and IV.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604880C: *LAND-BASED SM-3*	PROJECT MD68: *AEGIS Ashore*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
AWS Development AWS Development MD68	SS/CPAF	Lockheed Martin:Moorestown, NJ	28.942	199.432	Jan 2011	198.313	Jan 2012	-		198.313	Continuing	Continuing	Continuing
AWS Development AWS Development - 200912143066533 MD68	MIPR	JHU/APL:Columbia, MD	3.500	3.600	Nov 2010	4.291	Nov 2011	-		4.291	Continuing	Continuing	Continuing
AWS Development AWS Development - 200912143066536 MD68	MIPR	NSWC PHD:Port Huneme, CA	2.500	2.500	Nov 2010	3.208	Nov 2011	-		3.208	Continuing	Continuing	Continuing
AWS Development AWS Development - 200912143066541 MD68	MIPR	NSWC Dahlgren:Dahlgren, VA	7.000	8.007	Nov 2010	12.310	Nov 2011	-		12.310	Continuing	Continuing	Continuing
AWS Development VLS Development - 200912143066545 MD68	MIPR	LM/BAE:Baltimore	-	5.100	Dec 2010	11.592	Dec 2011	-		11.592	Continuing	Continuing	Continuing
AWS Development AWS Development - 200912143066552 MD68	MIPR	Various:VA, MD, CA, NJ, AV, HI	-	1.000	Dec 2010	22.715	Dec 2011	-		22.715	Continuing	Continuing	Continuing
AWS Development Flight Safety Support MD68	SS/CPAF	Raytheon:Tuscon, AZ	3.000	5.800	Dec 2010	8.360	Dec 2011	-		8.360	Continuing	Continuing	Continuing
AWS Development C4I (SW, T&E, Spares, SEPM, ILS) MD68	MIPR	SPAWAR:San Diego, CA	-	6.100	Dec 2010	-		-		-	Continuing	Continuing	Continuing
AWS Development Deckhouse Development MD68	SS/CPAF	Various:VA, MD CA, NJ	4.000	21.500	May 2011	-		-		-	Continuing	Continuing	Continuing
Global Deployment Operations Global Deployment Operations MD68	C/CPIF	Various:Various	-	18.898	Oct 2010	23.299	Oct 2011	-		23.299	Continuing	Continuing	Continuing
Site Activation Site Activation MD68	C/CPIF	Various:Various	-	9.441	Oct 2010	11.423	Nov 2011	-		11.423	Continuing	Continuing	Continuing
		Subtotal	48.942	281.378		295.511		-		295.511			

Remarks

FY12 increase attributable to Non-Tactical Hardware and Technical Design Agent requirements.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604880C: *LAND-BASED SM-3*	PROJECT MD68: *AEGIS Ashore*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-	0.000	0.000	0.000

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-	0.000	0.000	0.000

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	48.942	281.378		295.511		-		295.511			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604880C: *LAND-BASED SM-3*	**PROJECT** MD68: *AEGIS Ashore*

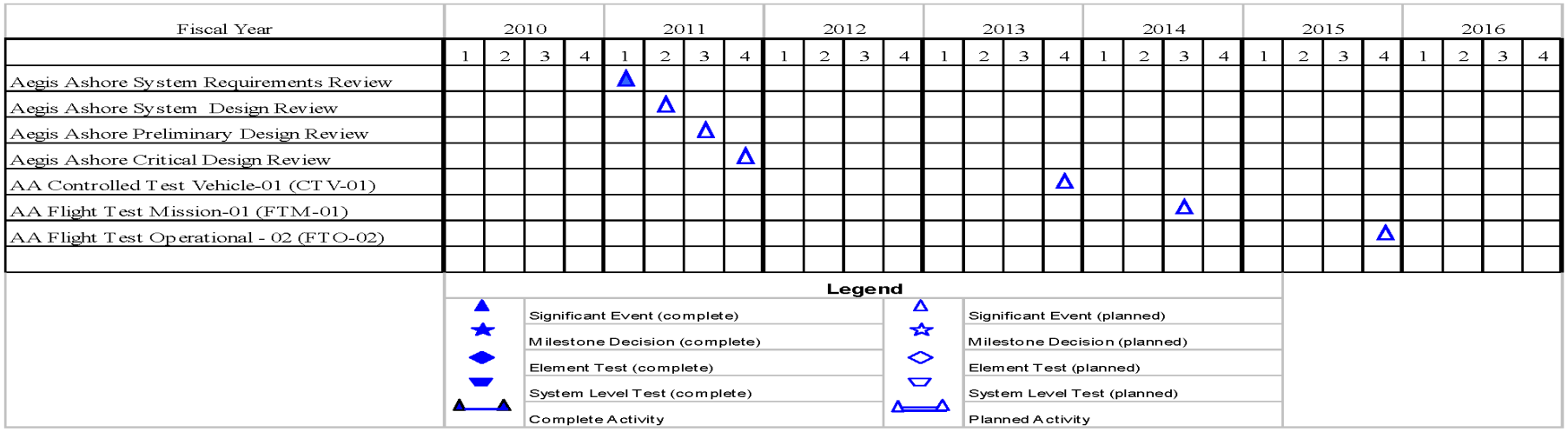

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604880C: *LAND-BASED SM-3*	**PROJECT** MD68: *AEGIS Ashore*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Aegis Ashore System Requirements Review	1	2011	1	2011
Aegis Ashore System Design Review	2	2011	2	2011
Aegis Ashore Preliminary Design Review	3	2011	3	2011
Aegis Ashore Critical Design Review	4	2011	4	2011
AA Controlled Test Vehicle-01 (CTV-01)	4	2013	4	2013
AA Flight Test Mission-01 (FTM-01)	3	2014	3	2014
AA Flight Test Operational - 02 (FTO-02)	4	2015	4	2015

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604880C: *LAND-BASED SM-3*	PROJECT MD40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	-	11.084	-	11.084	6.254	2.720	1.770	6.600	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). Includes Government Civilians, Advisory and Assistance Services, and Federally Funded Research and Development Contracts (FFRDC) providing integrity and oversight of the BMDS as well as supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2 after FY 2011), such as physical and technical security, legal services, travel and agency training, office and equipment leases, rents and utilities, data and unified communications support, supplies and maintenance, and similar operating expenses. Also includes legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.
In keeping with congressional intent, PWS is allocated among the PEs on a pro-rata basis and therefore fluctuates by year based on the total MDA budget and the individual PE`s budget amount.

The budget project did not exist in program wide support in FY2010.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	-	-	11.084
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: The budget project did not exist in program wide support in FY2010.			
FY 2011 Plans: See paragraph A, Mission Description and Budget Item Justification			
FY 2012 Plans: See paragraph A, Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	-	11.084

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604880C: *LAND-BASED SM-3*	**PROJECT** MD40: *Program-Wide Support*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *SM-3 BLOCK IIA CO-DEVELOPMENT*

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	247.825	318.800	424.454	-	424.454	357.194	279.444	203.553	25.165	Continuing	Continuing
MD09: *SM-3 Block IIA Co-Development*	247.825	318.800	407.500	-	407.500	343.495	268.447	196.344	25.156	Continuing	Continuing
MD40: *Program-Wide Support*	-	-	16.954	-	16.954	13.699	10.997	7.209	0.009	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 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. 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 Missiles (SRBM), Medium-Range Ballistic Missiles (MRBM), and Intermediate-Range Ballistic Missiles (IRBM) in the midcourse phase of flight. Upgrades to both the Aegis BMD Weapon System and the SM-3 configurations evolve Aegis BMD to provide effective, supportable defensive capability against more difficult threats.

Beginning in 2006, Aegis BMD and the Japan Ministry of Defense (JMOD) have undertaken an SM-3 Cooperative Development (SCD) program, which consists of an 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.

Key technology improvements planned for the SM-3 Blk IIA missile include an increase in velocity and an increase in range provided by a 21-inch diameter rocket motor propulsion stack, more than doubled seeker sensitivity and more than three times divert capability incorporated in an advanced kinetic warhead. Key component technologies to be developed 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.

BMD Systems Engineering:

BMD Systems Engineering provides System Description Document 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, as well as the requirements traceability and Element certification efforts that lead to approved, configuration controlled element capability specifications.

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 invoked by the BMD system Description Document and BMD System Specification. Aegis BMD system engineers adapt this data to input into validated and accredited 6-Degrees of Freedom (DOF) system models.

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.

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604881C: *SM-3 BLOCK IIA CO-DEVELOPMENT*

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	255.987	318.800	405.500	-	405.500
Current President's Budget	247.825	318.800	424.454	-	424.454
Total Adjustments	-8.162	-	18.954	-	18.954
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-2.862	-			
• SBIR/STTR Transfer	-5.300	-			
• Other Adjustment Detail	-	-	18.954	-	18.954

Change Summary Explanation

As part of the Department of Defense reform agenda, implements a zero-based review of the organization to align resources to the most critical priorities and eliminate lower priority functions. The FY12 $18,954 thousand dollar increase in this program element is the resultant of efficiency savings efforts to keep costs down.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD09: *SM-3 Block IIA Co-Development*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD09: *SM-3 Block IIA Co-Development*	247.825	318.800	407.500	-	407.500	343.495	268.447	196.344	25.156	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

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 U.S. and Japan will equitable share both work and cost.

Key technology improvements planned for the SM-3 Blk IIA missile include an increase in velocity and an increase in range provided by a 21-inch diameter rocket motor propulsion stack, and more than doubled seeker sensitivity and more than three times 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 Scope of Work of the SCD project can be defined in three phases:

Phase I takes the program through System Design Review (SDR) completion. Aegis BMD will execute risk reduction efforts for the propulsion, nosecone, seeker and Divert Attitude Control System (DACS) development efforts and test plans, and conduct requirements definition for the SM-3 Blk IIA missile configuration.

Phase II will refine the scope of work from SDR through Critical Design Review (CDR) completion. 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. Both parties will design, fabricate, test, and evaluate the SM-3 Block IIA missile sections per the agreed work-share.

Phase III will 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):

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD09: *SM-3 Block IIA Co-Development*

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

-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 testing using a modified Aegis BMD 4.0.1 system

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)		FY 2010	FY 2011	FY 2012
Title: SM-3 Blk IIA Development (SCD)		247.825	318.800	407.500
	Articles:	0	0	0
Description: See Description Below				
FY 2010 Accomplishments: -Completed Requirements Finalization Review for the SM-3 Blk IIA missile. -Continued risk reduction efforts for SM-3 Blk IIA components: -Advanced kinetic warhead -Large Diameter DACS -Continued development of SM-3 Blk IIA including the following components: -21-inch diameter missile, including new 2nd and 3rd stage sections -21-inch diameter nosecone -Advanced kinetic warhead -Advanced Seeker -Large Diameter DACS -Lightweight Composite Canister -Completed missile major-section-level Preliminary Design Reviews -2nd stage rocket motor				

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD09: *SM-3 Block IIA Co-Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-3rd stage rocket motor (motor only) -3rd stage Thrust Vector Control (TVC) -MK 72 Forward Dome -Booster Separation Assembly -Steering Control Section -Guidance Section (GS) Preliminary Design Review (PDR), Kinetic Warhead (KW) Ejector, GS/KW software. -Developed Prime Item Development Specifications (PIDS), Critical Item Development Specifications (CIDs) and Interface Control Documents (ICDs) -Continued lightweight canister and vertical launch system modifications integration. ***FY 2011 Plans:*** -SM-3 Blk IIA Missile Development: -Complete Incremental Missile Section Level PDRs. -Complete SCD Preliminary Design Review (PDR). -Conduct missile section-level Critical Design Reviews (CDRs). -Commence missile integration and test demo. -Conduct 2nd and 3rd stage motor structural and shock tests. -Complete 2nd and 3rd stage rocket motor static firing test. -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 by CDR in FY 2012. -BMD 4.0.1 Engineering Release (ENG REL) Development: -Complete SCD In Process Review -Conduct Aegis BMD 4.0.1 (ENG REL) SDR -Initiate BMD 4.0.1 (ENG REL) PDR preparation, to include model analysis support -Complete AWS/SM-3 BLK IIA interface development in support of SCD PDR in FY 2011 -Completion of Technology Maturation Efforts for Canister Composite Shell Structure in support of Level 6 by SCD CDR in FY 2012 -Conduct MK 29 MOD 0 Canister PDR -Complete Class I ECP (Engineering Change Proposal) detailing Vertical Launch System (VLS) integration changes -T&E:			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD09: *SM-3 Block IIA Co-Development*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Continue requirements definition, Material Purchase and Fabrication of VLS Tilt Fixture and Enclosures for PTV-1, CTV-1 and CTV-2 Ground Based Tests -Continue Test Document Preparation ***FY 2012 Plans:*** -SM-3 Blk IIA Missile Development: -Complete missile section-level CDRs. -Conduct SM-3 Blk IIA Critical Design Review (CDR). -Obtain Weapons System Engineering Safety Review Board approval of missile safety design. -Complete integrated system demonstration. -Complete system component hardware demonstration. -Complete planning for retrained firing test. -BMD 4.0.1 Engineering Release Development: -Conduct Aegis BMD 4.0.1 (ENG REL) PDR. -Conduct analysis and design in preparation for BMD 4.0.1 (ENG REL) CDR in FY 2013. -Provide SCD CDR analysis support (BMD 4.0.1 (ENG REL) models). -T&E: -Complete shock, vibration, temperature/humidity, and hydrostatic pressure testing of SM-3 Blk IIA Mark 29 Missile Canister. -Conduct analysis and planning for restrained firing test in FY 2013. -Conduct requirements development, traceability, and certification of compliance with BMD System specification requirements for BMD 5.1.			
Accomplishments/Planned Programs Subtotals	247.825	318.800	407.500

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603890C: *Ballistic Missile Defense Enabling Programs*	355.870	402.769	373.563		373.563	331.203	314.193	336.749	346.560	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD09: *SM-3 Block IIA Co-Development*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• Line Number 34: *AEGIS BMD*	225.625	94.080	565.393		565.393	675.126	737.440	807.883	1,025.521	Continuing	Continuing

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 Propulsion Test Vehicle and Control 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.

The production preparation phase agreements are anticipated to be signed in FY 2011.

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

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD09: *SM-3 Block IIA Co-Development*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SM-3 Blk IIA Development (SCD) SM-3 Blk IIA Development MD09	SS/CPAF	RAYTHEON:AZ	356.927	234.287	Nov 2010	308.145	Nov 2011	-		308.145	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 Blk IIA Development - 2010714770752 MD09	MIPR	NSWC/DD/VA:VA	10.010	3.110	Nov 2010	4.090	Nov 2011	-		4.090	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 Blk IIA Development MD09	MIPR	JHU/APL:MD	15.126	12.793	Nov 2010	16.826	Nov 2011	-		16.826	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 Blk IIA Development - 20107147707531 MD09	MIPR	MIT/LL:MA	3.442	1.061	Nov 2010	1.395	Nov 2011	-		1.395	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 Blk IIA Development - 20107147707534 MD09	MIPR	NSWC/PHD:CA	6.491	0.324	Nov 2010	0.426	Nov 2011	-		0.426	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 Blk IIA Development - 20107147707539 MD09	MIPR	NSWC IH:MD	5.209	0.344	Nov 2010	0.452	Nov 2011	-		0.452	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 Blk IIA Development - 20107147707544 MD09	MIPR	VARIOUS:VARIOUS	7.163	5.753	Nov 2010	7.567	Nov 2011	-		7.567	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) BMD 4.0.1 Eng Rel MD09	SS/CPAF	LOCKHEED MARTIN:NJ	12.500	14.111	Dec 2010	16.412	Dec 2011	-		16.412	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) BMD 4.0.1 Eng Rel - 2010896767305 MD09	MIPR	SEG:CA	2.300	0.450	Dec 2010	0.523	Dec 2011	-		0.523	Continuing	Continuing	Continuing
	MIPR	VARIOUS:VA, MD, NJ, CA	-	1.234	Dec 2010	1.435	Dec 2011	-		1.435	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD09: *SM-3 Block IIA Co-Development*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
SM-3 Blk IIA Development (SCD) BMD 4.0.1 Eng Rel - 2010896767309 MD09													
SM-3 Blk IIA Development (SCD) BMD 4.0.1 Eng Rel - 2010896767314 MD09	MIPR	NSWC/DD/ VA:Dahlgren, VA	-	0.780	Dec 2010	0.907	Dec 2011	-		0.907	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) BMD 4.0.1 Eng Rel - 2010896767319 MD09	MIPR	JHU/APL:MD	-	2.731	Dec 2010	3.176	Dec 2011	-		3.176	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) Testing & Evaluation MD09	MIPR	VARIOUS:MD, VA, CA, HI	-	1.500	Nov 2010	3.600	Nov 2011	-		3.600	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 Blk IIA Canister MD09	C/CPIF	Lockheed Martin:Baltimore, MD	-	19.826	Dec 2010	16.200	Dec 2011	-		16.200	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SM-3 Blk IIA VLS MD09	MIPR	BAE:MD	-	0.968	Dec 2010	1.416	Dec 2011	-		1.416	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) Mission Assurance MD09	MIPR	Various:VA, MD, NJ, CA	-	0.400	Dec 2010	0.600	Dec 2011	-		0.600	Continuing	Continuing	Continuing
SM-3 Blk IIA Development (SCD) SCD MD09	MIPR	MDA Various:VA, MD	-	19.128	Dec 2010	24.330	Dec 2011	-		24.330	Continuing	Continuing	Continuing
		Subtotal	419.168	318.800		407.500		-		407.500			

Remarks

Increase in FY 2012 cost are due to completing the SCD Preliminary Design Review and conducting the missile section-level Critical Design Reviews.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD09: *SM-3 Block IIA Co-Development*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-	0.000	0.000	0.000

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Subtotal			-	-		-		-		-	0.000	0.000	0.000

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	419.168	318.800		407.500		-		407.500			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD09: *SM-3 Block IIA Co-Development*

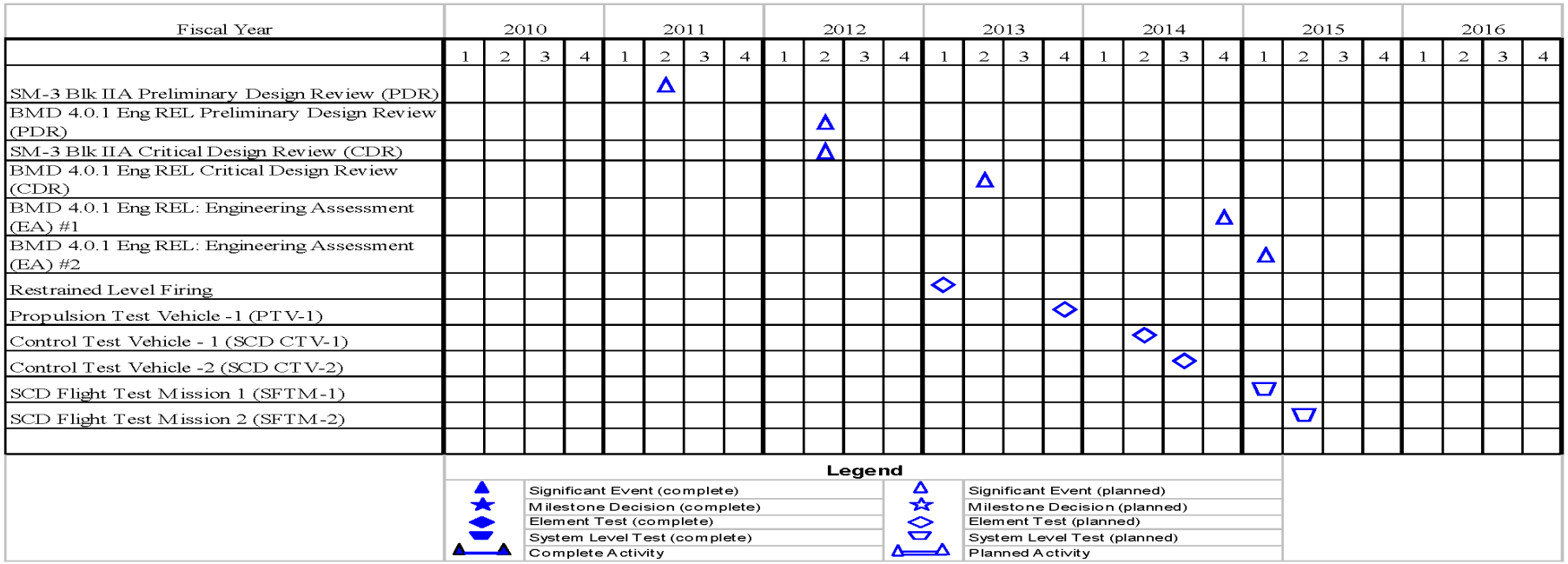

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604881C: *SM-3 BLOCK IIA CO-DEVELOPMENT*	**PROJECT** MD09: *SM-3 Block IIA Co-Development*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
SM-3 Blk IIA Preliminary Design Review (PDR)	2	2011	2	2011
BMD 4.0.1 Eng REL Preliminary Design Review (PDR)	2	2012	2	2012
SM-3 Blk IIA Critical Design Review (CDR)	2	2012	2	2012
BMD 4.0.1 Eng REL Critical Design Review (CDR)	2	2013	2	2013
BMD 4.0.1 Eng REL: Engineering Assessment (EA) #1	4	2014	4	2014
BMD 4.0.1 Eng REL: Engineering Assessment (EA) #2	1	2015	1	2015
Restrained Level Firing	1	2013	1	2013
Propulsion Test Vehicle -1 (PTV-1)	4	2013	4	2013
Control Test Vehicle - 1 (SCD CTV-1)	2	2014	2	2014
Control Test Vehicle -2 (SCD CTV-2)	3	2014	3	2014
SCD Flight Test Mission 1 (SFTM-1)	1	2015	1	2015
SCD Flight Test Mission 2 (SFTM-2)	2	2015	2	2015

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	-	16.954	-	16.954	13.699	10.997	7.209	0.009	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). Includes Government Civilians, Advisory and Assistance Services, and Federally Funded Research and Development Contracts (FFRDC) providing integrity and oversight of the BMDS as well as supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2 after FY 2011), such as physical and technical security, legal services, travel and agency training, office and equipment leases, rents and utilities, data and unified communications support, supplies and maintenance, and similar operating expenses. Also includes legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.
In keeping with congressional intent, PWS is allocated among the PEs on a pro-rata basis and therefore fluctuates by year based on the total MDA budget and the individual PE`s budget amount.

The budget project did not exist in program wide support in FY2010.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	-	-	16.954
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: The budget project did not exist in program wide support in FY2010.			
FY 2011 Plans: The budget project did not exist in program wide support in FY2011.			
FY 2012 Plans: See paragraph A, Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	-	16.954

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604881C: *SM-3 BLOCK IIA CO-DEVELOPMENT*	PROJECT MD40: *Program-Wide Support*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0604883C: *PRECISION TRACKING SPACE SYSTEM*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	-	66.969	160.818	-	160.818	272.881	302.344	273.623	331.205	Continuing	Continuing
MD10: *Precision Tracking Space System (PTSS)*	-	64.716	154.227	-	154.227	261.452	288.779	261.922	317.087	Continuing	Continuing
MD40: *Program-Wide Support*	-	2.253	6.591	-	6.591	11.429	13.565	11.701	14.118	Continuing	Continuing

A. Mission Description and Budget Item Justification

Space-based sensors offer on-demand, geographically independent, persistent coverage of areas of specific concern for ballistic missiles with no need for indications and warning, enabling earlier intercept opportunities. With the successful launch of two Space Tracking & Surveillance System (STSS) demonstration spacecraft in 2009, the agency has assets on-orbit to inform the design and operation of the Precision Tracking Space System (PTSS).

In FY 2010, the Missile Defense Agency (MDA) Engineering Directorate and Advanced Technology Directorate conducted system architecture studies and system engineering studies that defined the space-borne system capability needs. That effort provided the system engineering foundation for the Precision Tracking Space System FY 2011 new start.

The Precision Tracking Space System is a space and ground segment system that will provide persistent sensor coverage of enemy ballistic missiles in areas of specific concern. The Precision Tracking Space System is designed from the ground up to be an integrated part of the BMDS: one that receives inputs from acquisition sensors and provides outputs to the BMDS battle manager & missile systems. The program mitigates cost, schedule and performance risk by: 1) simplifying the design by focusing on the BMDS mission, 2) incorporating components and subsystems with high technology readiness levels and on-orbit pedigrees and 3) involving industry and the military services up front & early to inform the design for producibility, operations and sustainment.

Precision Tracking Space System supports the combatant commands` priority capability needs:

- Increase surveillance during entire threat flight spectrum.
- Provide cross-Area of Responsibility (AOR) surveillance with global coverage of missile threats to homeland.

Precision Tracking Space System contributions to combatant commanders Achievable Capabilities List include:

- Capability to engage and re-engage medium-range / intermediate-range / long-range ballistic missile threats.

- Unambiguous tracks of air and missile threats and contacts of interest continuously.
- Capability to discriminate and characterize detected objects.
- Capability to deploy mobile sensors with existing systems in response to emergent threats.
- Capability to collect and report aerospace event surveillance data.
- Capability to estimate and to confirm effects of Integrated Air and Missile Defense (IAMD) action against adversary Air and Missile Defense (AMD) systems.
- A system that maintains operational availability through natural and induced environments.

Goals and objectives for the Precision Tracking Space System are:

- Develop an operational missile tracking capability from space, which will close the BMDS fire control loop, specifically starting with the Aegis Ballistic Missile Defense weapon system. Reduce operational, fire control risk by co-locating the national lab design teams for Precision Tracking Space System and Aegis Ballistic Missile Defense, and by embedding US Navy and US Air Force operations and sustainment experts in the Precision Tracking Space System hybrid program office
- Focus on tracking raids of regional Medium-Range Ballistic Missiles, Intermediate-Range Ballistic Missiles and potential Intercontinental Ballistic Missiles from today`s regional threats
- Develop and test the first spacecraft articles and the integrated ground system with the BMDS
- Ensure early industry involvement by awarding contracts to join the Integrated Systems Engineering Team (ISET) during the first spacecraft article development

- Industry partners (up to five) contribute to the national lab development effort to improve the Precision Tracking Space System design for manufacturability and reduce the production risk
- Use data from the two on-orbit Space Tracking & Surveillance System demonstration spacecraft testing events

- Benchmark models and simulations
- Allocate requirements, interface controls, and evaluate operations concepts
- Leverage experience gained from Space Tracking & Surveillance System test events to demonstrate capability and insight into Command, Control, Communication, Computers, Intelligence, Surveillance, and Reconnaissance linkages and hand off to the Aegis Ballistic Missile Defense fire control system

The Precision Tracking Space System is an element of the President`s Phased Adaptive Approach.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604883C: *PRECISION TRACKING SPACE SYSTEM*

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	-	66.969	123.851	-	123.851
Current President's Budget	-	66.969	160.818	-	160.818
Total Adjustments	-	-	36.967	-	36.967
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment Detail	-	-	36.967	-	36.967

Change Summary Explanation

The FY 2012 $36.967 million dollar increase in this program element corrects a prior shortfall in preliminary planning for the technical design and testbeds for the spacecraft, optical payload, and communication payload of the first article satellites. This amount is offset by $6.928 million in efficiency savings.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604883C: *PRECISION TRACKING SPACE SYSTEM*	PROJECT MD10: *Precision Tracking Space System (PTSS)*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD10: *Precision Tracking Space System (PTSS)*	-	64.716	154.227	-	154.227	261.452	288.779	261.922	317.087	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

Note

Preliminary Precision Tracking Space System analyses and trade studies were conducted in the BMDS Technology Program Element 0603175C in FY2010 ($21M).

A. Mission Description and Budget Item Justification

This Program Element funds the development of a space-borne sensor constellation and ground system that closes the fire control loop with the BMDS, specifically starting with the Aegis Ballistic Missile Defense weapon system. The Precision Tracking Space System also focuses on tracking raids of regional Medium-Range Ballistic Missiles, Intermediate-Range Ballistic Missiles and potential Intercontinental Ballistic Missiles from today`s regional threats. As threats expand and mature the need for continuously available sensors and faster interceptors supports continued investment in a Precision Tracking Space System development in FY 2012. Lessons learned from the two Space Tracking & Surveillance System demonstration spacecraft currently on orbit will guide our decisions on the development of a fiscally sustainable, continuously available, operational precision track space sensor constellation and ground system.

The Precision Tracking Space System provides the effectiveness of a highly available early missile tracking capability from space by developing, launching and operating a set of first spacecraft articles using an integrated ground control system in FY 2016. The Precision Tracking Space System first spacecraft articles will demonstrate early, precise, real-time tracking of ballistic missiles in order to close the BMDS fire control loop from space. This capability significantly improves BMDS performance.

The Precision Tracking Space System avoids some of the challenges of terrestrial and airborne sensors.

-Provides reliable and constantly available ballistic missile tracking capability in the areas of the world of most concern.
-Eliminates the need for host nation agreements.
-Does not require transport to theater or limit our operational flexibility.
-Mitigates the impacts of weather effects (clouds, crosswinds and icing for airborne, and rain for radar).
-Deals with threats arising from unexpected locations or adversaries.
-Greatly lowers operation and maintenance costs.
-Observes and tracks launches beyond the range of airborne and terrestrial sensors.

Precision Tracking Space System supports essential BMDS functions by:

-Continuously observing the regional and rogue ballistic missile threat in post-boost.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604883C: *PRECISION TRACKING SPACE SYSTEM*	**PROJECT** MD10: *Precision Tracking Space System (PTSS)*

-Sending fire-control quality tracks to the BMDS, specifically the Aegis Ballistic Missile Defense weapon system by way of the BMDS battle manager.
-Tracking large raids of nearly simultaneously launched missiles.
-Providing radiometric data supporting challenging post-boost detection requirements, object classification, and hit/kill assessments.
-Adding infrared-based tracking to the existing radio frequency sensors in the architecture for dual phenomenology.
-Providing coverage of the geographic regions and latitudes of concern.
-Contributing modeling and simulation (M&S) emulation models to the BMDS-level M&S environment. The Precision Tracking Space System models, when added to M&S products from other BMDS elements and advanced technology projects like Airborne Infrared, will facilitate trade studies and analyses for SM3-IIB development.

The Precision Tracking Space System team capitalizes on expertise from external organizations to aid the design process:

-US Air Force. The USAF, as presumed lead service for the Precision Tracking Space System, provides operations and sustainment strategies and concepts to ensure the ground and space segments can be easily transferred to a service. The USAF has embedded its personnel in the Precision Tracking Space System hybrid program office to facilitate this function.
-US Navy. The USN, as operator of the Aegis Ballistic Missile Defense weapon system, is providing assured communications and weapon system expertise so that the Precision Tracking Space System can effectively close the fire control loop from space. To the same end, the USN will embed its personnel in the Precision Tracking Space System hybrid program office.
-Johns Hopkins University Applied Physics Laboratory (JHU/APL). As both the lead performer on the Precision Tracking Space System and the design expert for the Aegis Ballistic Missile Defense weapon system, JHU/APL shortens the communications chain by leveraging the collocation of its two design teams.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Precision Tracking Space System	-	64.716	154.227
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: Preliminary Precision Tracking Space System analyses and trade studies were conducted in the BMDS Technology Program Element 0603175C in FY2010 ($21M). -Conducted preliminary PTSS analyses and trade studies. -Defined functional allocation to integrate Precision Tracking Space System (PTSS) into the BMDS. -Reached Service agreement and identified the initial cadre of an Air Force Service Cell in the Precision Tracking Space System hybrid program office. -Conducted a BMDS-Level Review of the PTSS System Concept.			
FY 2011 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604883C: *PRECISION TRACKING SPACE SYSTEM*	PROJECT MD10: *Precision Tracking Space System (PTSS)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Complete trades, alternatives analysis, technology readiness assessment, and concept review for Precision Tracking Space System. -Conduct systems engineering efforts to allocate performance between the space segment and ground segment. -Determine location of Precision Tracking Space System ground entry points and interfaces to the BMDS. -Define and document internal and external interfaces including track quality and timeliness requirements for successful Command and Control, Battle Management and Communications and sensor integration. -Allocate functions among major components (satellite, ground station, and command and control). -Define feasible system implementation to meet requirements including establishing technical trades. -Conduct integrated fire-control risk reduction activity with software-in-the-loop testing initially, but moving towards more complicated hardware-in-the-loop testing. -Conduct System Requirements Review / System Design Review. -Select up to five contractors to join the Integrated Systems Engineering Team (ISET) during first spacecraft article development for manufacturability and producibility analyses. ***FY 2012 Plans:*** -Obtain measurements from the breadboards models of the optical tracking and communications payloads. -Complete preliminary designs for subsystems in the spacecraft bus, optical payload and communications payload. -Complete preliminary design for the ground entry point; begin procurement and equipment installation to support 2014 segment test. -Complete designs engineering models for spacecraft bus, optical payload and communications payload. -Complete initial test bed design for the space segment (bus, optical payload and communications payload). -Complete mission & system final design. -Complete preliminary architect-engineer (A-E) design and begin construction of the PTSS ground segment components neccessary to support first article testing.			
Title: FY 2010 Accomplishments ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** NA	- 0	-	-
Accomplishments/Planned Programs Subtotals	-	64.716	154.227

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604883C: *PRECISION TRACKING SPACE SYSTEM*	PROJECT MD10: *Precision Tracking Space System (PTSS)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603175C: *Ballistic Missile Defense Technology*	164.670	132.220	75.003		75.003	103.844	111.712	164.378	170.851	Continuing	Continuing
• 0603888C: *Ballistic Missile Defense Test and Targets*	737.863	1,113.425	1,071.039		1,071.039	898.680	790.906	787.113	878.215	Continuing	Continuing
• 0603890C: *Ballistic Missile Defense Enabling Programs*	355.870	402.769	373.563		373.563	331.203	314.193	336.749	346.560	Continuing	Continuing
• 0603892C: *BMD AEGIS*	1,418.992	1,467.278	960.267		960.267	957.992	1,001.510	970.607	1,033.710	Continuing	Continuing
• 0603893C: *SPACE TRACKING & SURVEILLANCE SYSTEM*	148.506	112.678	96.353		96.353	53.577	47.592	32.289	34.308	Continuing	Continuing

D. Acquisition Strategy

MDA`s FY 2012 budget submission reflects the continued emphasis on early intercept research and development, including - in the case of the Precision Tracking Space System (PTSS) - expanded sensor coverage. The acquisition strategy to conduct this technology effort consists of:

-Precision Tracking Space System leveraging the technical expertise of Federally Funded Research and Development Centers, University Affiliated Research Centers, National and DoD Laboratories.
-A national lab team will develop the PTSS first spacecraft articles and ground segment. That team is comprised of Johns Hopkins University Applied Physics Laboratory, Sandia National Laboratories, Space Dynamics Laboratory, Massachusetts Institute of Technology Lincoln Laboratory and the Naval Research Laboratory. The first article effort will define the system performance of the production system.
-PTSS awarded contracts to incorporate industry early in the laboratory-led phase via the PTSS Integrated System Engineering Team. Industry examined candidate system, subsystem and component designs for manufacturing and producibility and provided feedback to inform the overall design.
-For production of the constellation, we will competitively award a contract with industry in FY 2014. It is projected that industry participants on the Integrated System Engineering Team will be among the bidders in the production competition in an acquisition strategy that will mitigate the transition risk to industry.

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604883C: *PRECISION TRACKING SPACE SYSTEM*	PROJECT MD10: *Precision Tracking Space System (PTSS)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Precision Tracking Space System PTSS Space and Ground Segment MD10	Various	Various:Various	-	60.646	Jan 2011	147.002	Jan 2012	-		147.002	Continuing	Continuing	Continuing
		Subtotal	-	60.646		147.002		-		147.002			

Remarks

FY 2011 PTSS Space and Ground Segment Development and Integration costs were listed under the Test and Evaluation section in the FY 2011 exhibits.

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
		Subtotal	-	-		-		-		-	0.000	0.000	0.000

Remarks

None.

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Precision Tracking Space System Demonstrations Testing MD10	Various	Various:Various	-	1.500	Jan 2011	1.400	Jan 2012	-		1.400	Continuing	Continuing	Continuing
		Subtotal	-	1.500		1.400		-		1.400			

Remarks

Most of the FY 2011 Test and Evaluation costs listed in the FY 2011 exhibits are now listed under the Product Development section (above).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604883C: *PRECISION TRACKING SPACE SYSTEM*	PROJECT MD10: *Precision Tracking Space System (PTSS)*

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Precision Tracking Space System MDA Civilians MD10	Allot	MDA:MDA	-	0.600	Jan 2011	1.188	Jan 2012	-		1.188	Continuing	Continuing	Continuing
Precision Tracking Space System OGA Civilians MD10	MIPR	NRL:Various	-	0.360	Jan 2011	0.360	Jan 2012	-		0.360	Continuing	Continuing	Continuing
Precision Tracking Space System Travel and Transportation MD10	Allot	MDA:MDA	-	0.060	Jan 2011	0.200	Jan 2012	-		0.200	Continuing	Continuing	Continuing
Precision Tracking Space System Contractor Support Services MD10	C/CPFF	MDA:MDA	-	1.550	Jan 2011	4.077	Jan 2012	-		4.077	Continuing	Continuing	Continuing
		Subtotal	-	2.570		5.825		-		5.825			

Remarks

None.

	Total Prior Years Cost	FY 2011		FY 2012 Base		FY 2012 OCO		FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	64.716		154.227		-		154.227			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604883C: *PRECISION TRACKING SPACE SYSTEM*	**PROJECT** MD10: *Precision Tracking Space System (PTSS)*

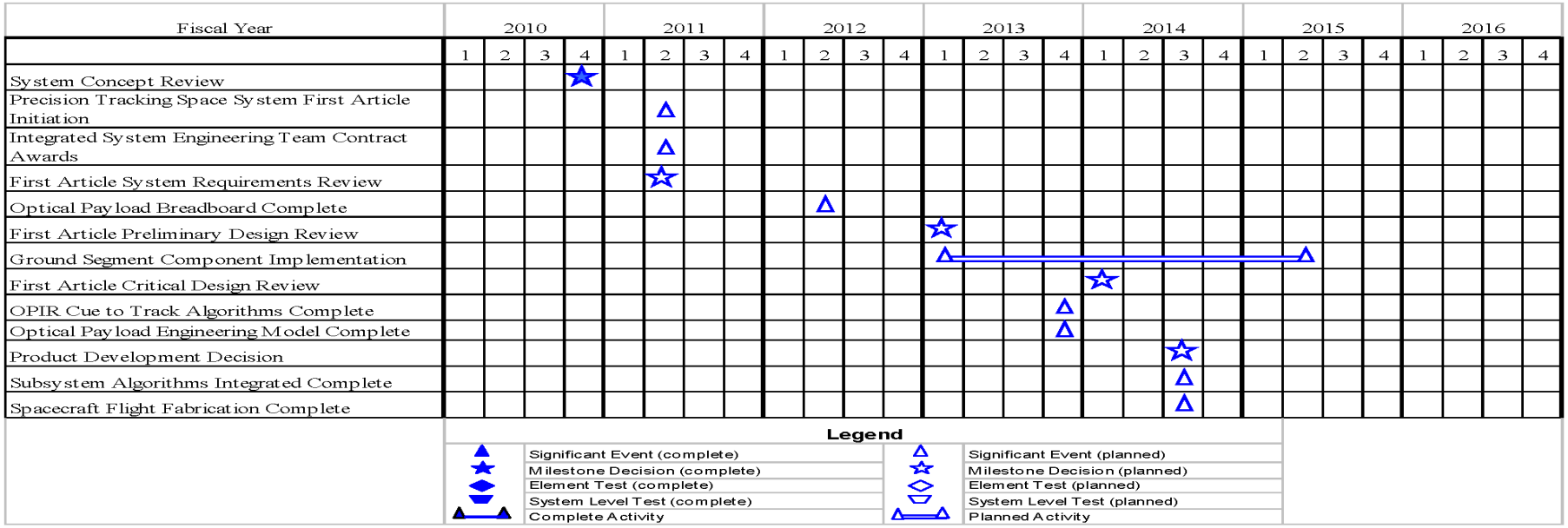

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604883C: *PRECISION TRACKING SPACE SYSTEM*	**PROJECT** MD10: *Precision Tracking Space System (PTSS)*

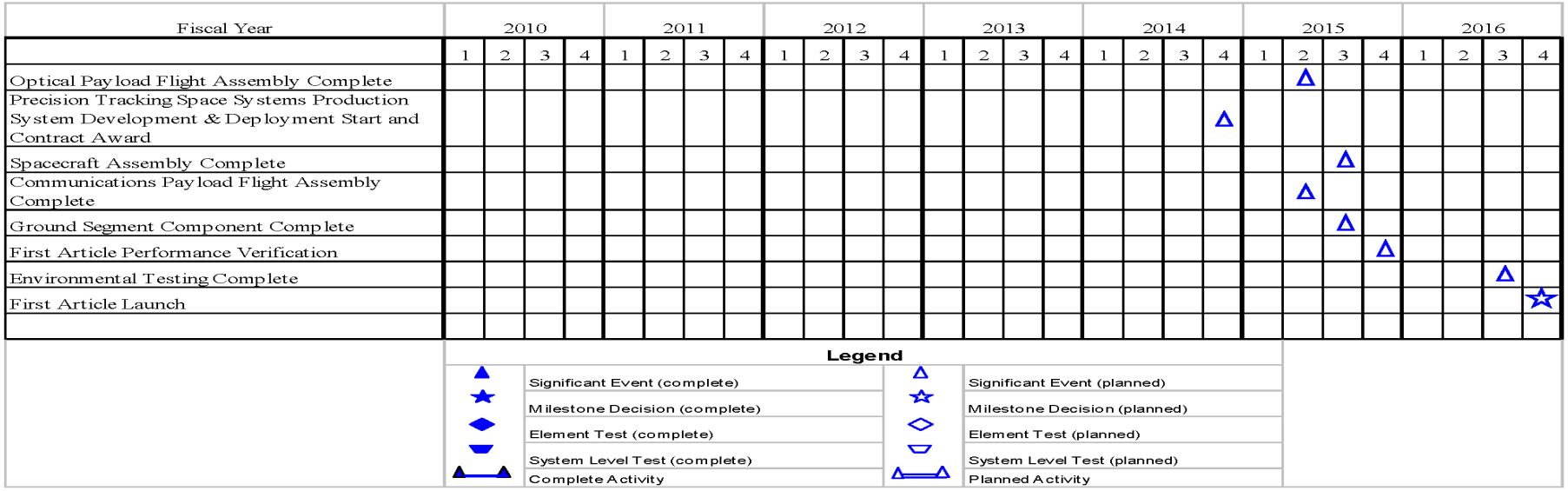

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604883C: *PRECISION TRACKING SPACE SYSTEM*	**PROJECT** MD10: *Precision Tracking Space System (PTSS)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
System Concept Review	4	2010	4	2010
Precision Tracking Space System First Article Initiation	2	2011	2	2011
Integrated System Engineering Team Contract Awards	2	2011	2	2011
First Article System Requirements Review	2	2011	2	2011
Optical Payload Breadboard Complete	2	2012	2	2012
First Article Preliminary Design Review	1	2013	1	2013
Ground Segment Component Implementation	1	2013	2	2015
First Article Critical Design Review	1	2014	1	2014
OPIR Cue to Track Algorithms Complete	4	2013	4	2013
Optical Payload Engineering Model Complete	4	2013	4	2013
Product Development Decision	3	2014	3	2014
Subsystem Algorithms Integrated Complete	3	2014	3	2014
Spacecraft Flight Fabrication Complete	3	2014	3	2014
Optical Payload Flight Assembly Complete	2	2015	2	2015
Precision Tracking Space Systems Production System Development & Deployment Start and Contract Award	4	2014	4	2014
Spacecraft Assembly Complete	3	2015	3	2015
Communications Payload Flight Assembly Complete	2	2015	2	2015
Ground Segment Component Complete	3	2015	3	2015
First Article Performance Verification	4	2015	4	2015
Environmental Testing Complete	3	2016	3	2016
First Article Launch	4	2016	4	2016

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604883C: *PRECISION TRACKING SPACE SYSTEM*	PROJECT MD40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	2.253	6.591	-	6.591	11.429	13.565	11.701	14.118	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). Includes Government Civilians, Advisory and Assistance Services, and Federally Funded Research and Development Contracts (FFRDC) providing integrity and oversight of the BMDS as well as supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2 after FY 2011), such as physical and technical security, legal services, travel and agency training, office and equipment leases, rents and utilities, data and unified communications support, supplies and maintenance, and similar operating expenses. Also includes legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.
In keeping with congressional intent, PWS is allocated among the PEs on a pro-rata basis and therefore fluctuates by year based on the total MDA budget and the individual PE`s budget amount.

The budget project did not exist in program wide support in FY2010.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	-	2.253	6.591
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: The budget project did not exist in program wide support in FY2010.			
FY 2011 Plans: See paragraph A, Mission Description and Budget Item Justification			
FY 2012 Plans: See paragraph A, Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	2.253	6.591

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604883C: *PRECISION TRACKING SPACE SYSTEM*	**PROJECT** MD40: *Program-Wide Support*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0604884C: *AIRBORNE INFRARED (ABIR)*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	-	111.671	46.877	-	46.877	49.948	49.173	33.035	34.249	Continuing	Continuing
MD67: *Airborne Infrared (ABIR)*	-	111.671	44.956	-	44.956	47.856	46.967	31.622	32.789	Continuing	Continuing
MD40: *Program-Wide Support*	-	-	1.921	-	1.921	2.092	2.206	1.413	1.460	Continuing	Continuing

A. Mission Description and Budget Item Justification

To support regional Ballistic Missile Defense, the Agency is developing ability to defeat enemy raids and early ballistic missile tracking to enable early intercepts. This will allow the Ballistic Missile Defense System (BMDS) to evaluate interceptor performance and then reengage if necessary. Since March 2009, the Airborne Sensors program office, in conjunction with the Office of the Secretary of Defense, the Air Force and the Navy demonstrated that sensors integrated on remotely piloted aircraft can provide a forward, mobile sensor for the Ballistic Missile Defense System.

System modeling has also shown that inclusion of airborne sensor increases the tracking potential of our TPY-2 radars by 100%. With airborne sensors as part of the architecture, it relieves our TPY-2 radars from their search requirement, making them much more efficient in their tracking and handling large raids. We have constructed a campaign to define the qualities the sensor will need and how to best integrate it into our Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance architectures to enable early tracking and intercepts.

We are conducting a series of ground and flight tests through FY 2013. These demonstrations incrementally prove the key functions of an airborne infrared sensor in the Ballistic Missile Defense System; acquisition of a threat based on a cue from overhead persistent infrared satellites; tracking of a threat throughout its flight; tracking threats` flight path using airborne sensors; fusing multiple tracks with sufficient accuracy and timeliness to launch an interceptor missile; and transmitting data through our prototype Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance network to the shooter. We are also pursuing technology development of an advanced sensor as a spiral development.

The Agency is working closely with the United States Air Force to maximize the potential of remotely piloted vehicles. The Agency is developing sensor and pod prototypes and the Air Force is developing the remotely piloted vehicles.

At the end of this campaign, we will have hardware, software, and knowledge for the Department to make decisions to add this mission to the existing remotely piloted vehicle force:

- Calibrated sensors with improved inertial measurement units

- Ballistic Missile Defense mission sensor software suite
- Airborne processors for sensor control
- On-board recorders
- Type 1 National Security Administration certified encryption systems (for both line of sight and beyond line of sight communications)
- Pod integrating sensors, sensor control units, communications, and encryption systems

Contributions to Combatant Commanders Achievable Capabilities List:

- Search and monitor airspace
- Cue following advisory air and missile systems launch
- Track items of interest continuously
- Classify, identify, characterize, and discriminate
- Conduct effects assessment

Goals:

- Develop and test sensor prototypes and leverage Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance network to integrate with the operational layers of the Ballistic Missile Defense to provide precise early missile track information with sufficient accuracy and timeliness
- Demonstrate the ability of airborne sensors to close the Aegis fire control loop for early intercept of regional ballistic missiles
- Demonstrate the ability of airborne sensors during raid scenarios to track ballistic missiles to augment TPY-2 radars
- Deliver knowledge to enable acquisition decisions to procure and field an operational system
- Demonstrate airborne sensor discrimination

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604884C: *AIRBORNE INFRARED (ABIR)*

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	-	111.671	103.636	-	103.636
Current President's Budget	-	111.671	46.877	-	46.877
Total Adjustments	-	-	-56.759	-	-56.759
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment Detail	-	-	-56.759	-	-56.759

Change Summary Explanation

The FY 2012 $56.759 million dollar decrease in this program element is the result of MDA programmatic changes and $1.825 million in efficiency savings.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604884C: *AIRBORNE INFRARED (ABIR)*	PROJECT MD67: *Airborne Infrared (ABIR)*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD67: *Airborne Infrared (ABIR)*	-	111.671	44.956	-	44.956	47.856	46.967	31.622	32.789	Continuing	Continuing
Quantity of RDT&E Articles	0	1	1		1	0	0	0	0		

A. Mission Description and Budget Item Justification

Tracking large enemy ballistic missile raids with airborne sensors forward in the theater gives us a tremendous ability to decrease the time between the enemy`s launch and our first track. This increases our battle space by hundreds of seconds and gives us the ability to shoot, look, and then shoot again. This improves our ability to successfully engage the enemy threat and defeat it.

Massachusetts Institute of Technology Lincoln Laboratory and the Joint Integrated Air and Missile Defense Organization released an Alternatives Assessment study that concluded airborne sensors integrated on remotely piloted vehicles are technically feasible and cost effective. In this study, we selected the Multi-spectral Targeting Sensor due to its proven performance in an operational environment. We can put the Multi-spectral Targeting Sensor in a pod without integrating into a specific platform. They will have two color, medium and long wave bands we need to single out the enemy`s threat vehicles from decoys. We are also developing advanced sensors technology. The United States Air Force conducted a platform assessment and selected the MQ-9 Reaper for our campaign.

Last year we proved promising sensitivity, pointing, and timely delivery of tracking information from great distances on several targets of opportunity that included Intercontinental Ballistic Missiles and tactical missiles. Results of these tests include the ability to: track first and second stage booster separation; track dim targets; and pass real time object sighting messages to the ground stations. The success of these tests prove forward based airborne sensors can be an effective component of the Ballistic Missile Defense System by using the tremendously promising sensitivity and precision pointing to track ballistic missiles of all ranges from great distances.

The Missile Defense Agency, with Massachusetts Institute of Technology Lincoln Laboratory and industry partners are developing an airborne processor which will control sensor pointing, sensor tasking, and formation of object sighting messages both for Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance network and our Aegis shooters. Additionally, the Combatant Commanders are developing a concept of operations for adding this mission to the Nation`s remotely piloted vehicle fleet.

We are executing a campaign that leverages previously unexploited platforms and sensors through a series of knowledge points culminating in 2013. We will achieve these knowledge points through experiments leveraging existing Ballistic Missile Defense System test events and other targets of opportunity. These knowledge points include measuring sensor performance, target auto tracking, large raid handling capacity, secure communications, accuracy and timeliness to close the fire control loop for early intercept of regional ballistic missile engagements.

Our campaign progresses from models and simulations to ground and flight tests to incrementally verify and validate functionality. Our graduation exercise will occur in 2013. We have planned three experiments for this graduation exercise. The first will demonstrate Aegis` s ability to launch on tracks from this sensor and close their fire control loop. The second will use multiple wavebands of the sensor to extract target features and transmit to command and control nodes to enhance overall ballistic

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604884C: *AIRBORNE INFRARED (ABIR)*	PROJECT MD67: *Airborne Infrared (ABIR)*

missile defense discrimination. The third will demonstrate our ability to handle a large raid of enemy missiles. In parallel, we will develop an advanced sensor as a spiral development to the infrared technology.

Near-term knowledge gained from airborne sensors requirements development and experimentation is directly applicable to air launched hit to kill operations concepts, detection, tracking, and early threat classification. Synergies result from sensor characterization, sensor control algorithms, track generation and processing, and communication paths.

We use a robust modeling and simulation process where we rapidly develop, low-fidelity models and update with high-fidelity models as our airborne sensor matures. Our models are added to a Ballistic Missile Defense System level modeling and simulation environment including other Ballistic Missile Defense System elements to develop a simulation tool suite that rapidly integrates models from diverse sensor projects. This tool suite facilitates trades studies and analyses at the system level to assess future Aegis missile engagement performance.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: ABIR	-	105.671	44.956
Articles:	0	1	1
Description: See Description Below			
FY 2010 Accomplishments: Funding for these FY 2010 accomplishments is reported in prior year budget project WX25 ($54,795). Airborne sensors activities were funded out of multiple program elements from within the Missile Defense Agency portfolio in FY10. -Completed alternatives analysis -Executed five risk reduction tests: demonstrated sensor pointing performance, real-time closed loop tracking, and post mission data fusion -Developed program plan and functional allocations -Completed systems concept review -Delivered two infrared sensors -Completed one sensor and two airborne processor software builds; two modeling and simulation builds			
FY 2011 Plans: -Modify sensors -Deliver software for software and hardware in the loop experiments -Deliver software modifications for sensor control -Deliver system engineering modeling and simulation drops			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604884C: *AIRBORNE INFRARED (ABIR)*	PROJECT MD67: *Airborne Infrared (ABIR)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
-Test with Reaper ground control station and platform -Demonstrate sensor field of regard -Demonstrate sensor performance -Demonstrate target auto tracking functionality -Demonstrate 3-dimensional tracking performance -Demonstrate multiple target tracking functionality -Demonstrate software functionality in hardware in the loop testing -Demonstrate airborne sensors risk reduction abilities for Ballistic Missile Defense System and targets of opportunity flight testing -Simulate launch on remote with Aegis weapon system ***FY 2012 Plans:*** -Demonstrate external cue to the remotely piloted aircraft -Demonstrate sensor performance on remotely piloted aircraft -Demonstrate off-board field of view sensor management -Demonstrate timely and accurate track deliveries -Demonstrate multi-band discrimination capabilities -Complete measure of sensor performance and aircraft integration knowledge point -Complete air launched hit to kill analysis of alternatives -Deliver and test in our integrated modeling and simulation environment -Demonstrate advanced sensor component technology			
Title: ABIR Fielding	-	6.000	-
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** Not Applicable ***FY 2011 Plans:*** Site planning and associated designs. ***FY 2012 Plans:*** Not Applicable			
Accomplishments/Planned Programs Subtotals	-	111.671	44.956

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604884C: *AIRBORNE INFRARED (ABIR)*	PROJECT MD67: *Airborne Infrared (ABIR)*

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
• 0603175C: *Ballistic Missile Defense Technology*	164.670	132.220	75.003		75.003	103.844	111.712	164.378	170.851	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	544.352	454.859	222.374		222.374	357.271	336.514	318.321	348.944	Continuing	Continuing

D. Acquisition Strategy

The Agency is developing and integrating sensor performance. The Air Force is developing and managing the remotely piloted vehicles onto which this system will be integrated.

The acquisition strategy consists of three focus areas. First, leverage the technical expertise of Federally Funded Research and Development Centers and University Applied Research Centers. Second, continue to leverage relevant Office of the Secretary of Defense, Navy, Air Force and Agency contracts within the limits of Competition and Contracting Act taking into account contractor past performance, scope, ceiling and period of performance. Third, seek industry solutions via the Advanced Technology Broad Agency Announcement.

E. Performance Metrics

NA

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604884C: *AIRBORNE INFRARED (ABIR)*	PROJECT MD67: *Airborne Infrared (ABIR)*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ABIR Airborne Infrared Sensors MD67	SS/BOA	Raytheon:McKinney, TX	-	57.800	Oct 2010	-		-		-	0.000	57.800	57.800
ABIR Air Vehicle MD67	C/CPFF	General Atomics:Poway, CA	-	-		9.761	Oct 2011	-		9.761	Continuing	Continuing	Continuing
ABIR Sensor Development MD67	C/CPFF	Raytheon:McKinney, TX	-	-		6.000	Oct 2011	-		6.000	Continuing	Continuing	Continuing
ABIR Algorithms and software builds; processor hardware; advanced sensor MD67	FFRDC	Massachusetts Institute of Technology Lincoln Lab:Lexington, MA	-	-		9.573	Oct 2011	-		9.573	Continuing	Continuing	Continuing
ABIR Software builds; requirements and processor hardware MD67	C/CPFF	Raytheon:McKinney, TX	-	-		3.000	Oct 2011	-		3.000	Continuing	Continuing	Continuing
ABIR Sensor Characterization MD67	C/CPFF	Arnold Engineering Development Center:Arnold Air Force Base, TN	-	-		1.250	Oct 2011	-		1.250	Continuing	Continuing	Continuing
ABIR Sensor Characterization - 20111175175798 MD67	C/CPFF	Space Dynamic Lab:Logan, UT	-	-		1.750	Oct 2011	-		1.750	Continuing	Continuing	Continuing
		Subtotal	-	57.800		31.334		-		31.334			

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ABIR Research MD67	MIPR	Massachusetts Institute of Technology Lincoln Lab:Lexington, MA	-	20.971	Oct 2010	-		-		-	0.000	20.971	20.971
ABIR Fielding Planning & Design MD67	C/CPFF	Wyle:El Segundo, CA	-	6.000		-		-		-	0.000	6.000	6.000
		Subtotal	-	26.971		-		-		-	0.000	26.971	26.971

Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604884C: *AIRBORNE INFRARED (ABIR)*	PROJECT MD67: *Airborne Infrared (ABIR)*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ABIR Testing MD67	SS/BOA	Raytheon:General Atomics	-	21.200	Oct 2010	-		-		-	32.100	53.300	53.300
ABIR System Test and Evaluation MD67	C/CPFF	Raytheon:General Atomics	-	-		7.922	Oct 2011	-		7.922	Continuing	Continuing	Continuing
		Subtotal	-	21.200		7.922		-		7.922			

Remarks

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
ABIR Program Management MD67	Allot	Missile Defense Agency Civilians:Missile Defense Agency	-	5.700	Oct 2010	-		-		-	0.000	5.700	5.700
ABIR Program Management - 20111175280134 MD67	Allot	Missile Defense Agency:Air Force/ Other Government Agency`s	-	-		5.700	Oct 2011	-		5.700	Continuing	Continuing	Continuing
		Subtotal	-	5.700		5.700		-		5.700			

	Total Prior Years Cost	FY 2011 Cost	FY 2011 Award Date	FY 2012 Base Cost	FY 2012 Base Award Date	FY 2012 OCO Cost	FY 2012 OCO Award Date	FY 2012 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	111.671		44.956		-		44.956			

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604884C: *AIRBORNE INFRARED (ABIR)*	**PROJECT** MD67: *Airborne Infrared (ABIR)*

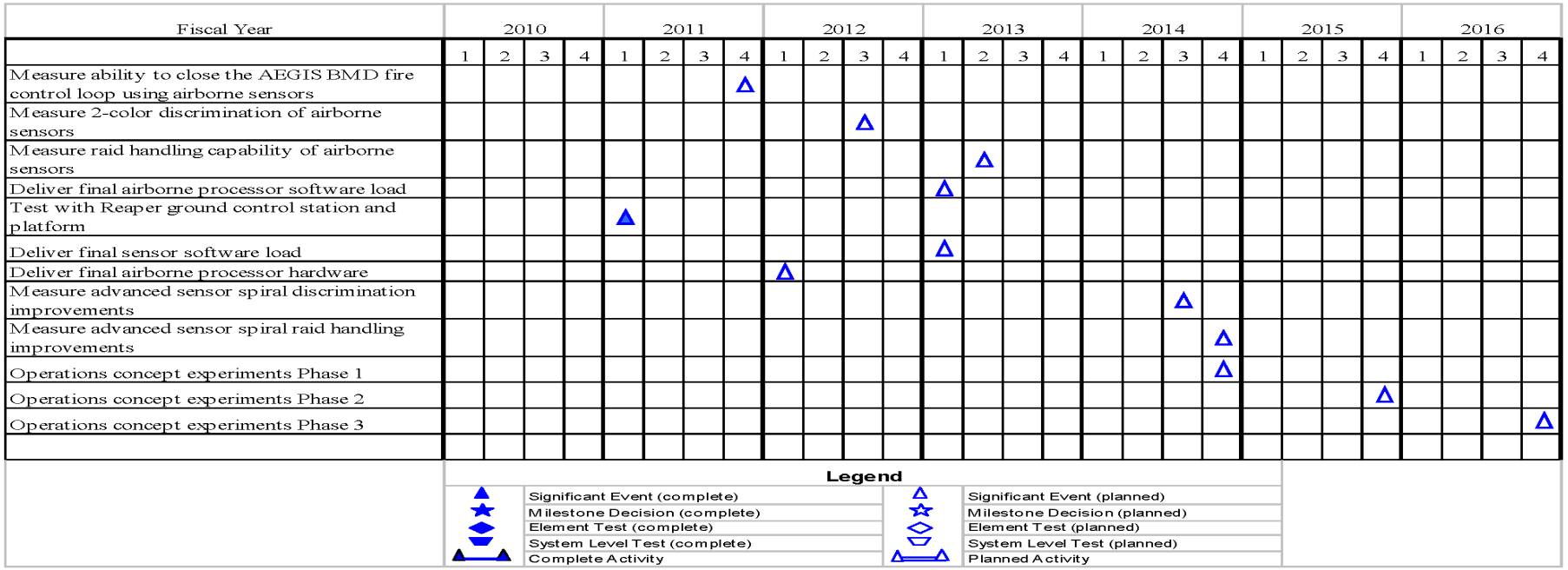

Exhibit R-4A, RDT&E Schedule Details: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604884C: *AIRBORNE INFRARED (ABIR)*	**PROJECT** MD67: *Airborne Infrared (ABIR)*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Measure ability to close the AEGIS BMD fire control loop using airborne sensors	4	2011	4	2011
Measure 2-color discrimination of airborne sensors	3	2012	3	2012
Measure raid handling capability of airborne sensors	2	2013	2	2013
Deliver final airborne processor software load	1	2013	1	2013
Test with Reaper ground control station and platform	1	2011	1	2011
Deliver final sensor software load	1	2013	1	2013
Deliver final airborne processor hardware	1	2012	1	2012
Measure advanced sensor spiral discrimination improvements	3	2014	3	2014
Measure advanced sensor spiral raid handling improvements	4	2014	4	2014
Operations concept experiments Phase 1	4	2014	4	2014
Operations concept experiments Phase 2	4	2015	4	2015
Operations concept experiments Phase 3	4	2016	4	2016

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604884C: *AIRBORNE INFRARED (ABIR)*	PROJECT MD40: *Program-Wide Support*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD40: *Program-Wide Support*	-	-	1.921	-	1.921	2.092	2.206	1.413	1.460	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Program-Wide Support (PWS) contains non-headquarters management costs in support of MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). Includes Government Civilians, Advisory and Assistance Services, and Federally Funded Research and Development Contracts (FFRDC) providing integrity and oversight of the BMDS as well as supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2 after FY 2011), such as physical and technical security, legal services, travel and agency training, office and equipment leases, rents and utilities, data and unified communications support, supplies and maintenance, and similar operating expenses. Also includes legal settlements, and foreign currency fluctuations on a limited number of foreign contracts.
In keeping with congressional intent, PWS is allocated among the PEs on a pro-rata basis and therefore fluctuates by year based on the total MDA budget and the individual PE`s budget amount.

The budget project did not exist in program wide support in FY2010.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries and Support	-	-	1.921
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments: The budget project did not exist in program wide support in FY2010.			
FY 2011 Plans: The budget project did not exist in program wide support in FY2010.			
FY 2012 Plans: See paragraph A, Mission Description and Budget Item Justification			
Accomplishments/Planned Programs Subtotals	-	-	1.921

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604884C: *AIRBORNE INFRARED (ABIR)*	**PROJECT** MD40: *Program-Wide Support*

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605502C: *Small Business Innovative Research BMDO*

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
Total Program Element	101.230	-	-	-	-	-	-	-	-	0.000	101.230
ZX45: *Small Business Innovative Research (SBIR)*	101.230	-	-	-	-	-	-	-	-	0.000	101.230

Note

NA

A. Mission Description and Budget Item Justification

This project explores innovative concepts pursuant to Public Law 106-554 (Small Business Reauthorization Act of 2000) and Public Law 107-50 (Small Business Technology Transfer Program Reauthorization Act of 2001), which mandates a two-phase competition for small businesses with innovative technologies that can also be commercialized. The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs will develop new dual-use technologies for possible future MDA BMDS needs. Dual-use means that the technologies will also be judged on their potential for future private sector investment both as a vehicle for reducing development time and cost, unit costs of new MDA BMDS technologies, and as a route to national economic growth through new commercial products. MDA will conduct the competition and will award and manage the contracts with assistance from our executing agents.

The Missile Defense Agency`s SBIR/STTR investments are divided into eight Research Areas:

Interceptors: advanced focal plane arrays and seeker components, axial and divert/attitude control systems technology, guidance & control, on-board discrimination, and improved lightweight structures for BMD systems.

Space: large format focal plane arrays and imaging components, photovoltaics and lightweight reserve batteries, radiation hard electronics and electro-optics, and lightweight space-environment structures and components.

Directed Energy: solid-state laser systems and components, thermal management, scene generation technology for HWIL testing, directed energy electro-optics, and laser materials.

Modeling and Simulation: software tools to enhance BMDS M&S capability, improved physics/chemistry- based phenomenology for improved models.

Manufacturing, Producibility and Field Sustainment: technologies for improved system affordability, producibility and reliability covering all aspects of BMDS hardware.

Radar: improved systems and components for BMD radar systems including transmit/receive modules, wide-band gap semiconductors, thermal management, array technologies, and improved algorithms and signal processing tools.

C2BMC: tools and techniques for enhancing battle management, end-to-end communications, sensor registration and multi-sensor/multi-shooter engagement scenarios.

Innovative Concepts and Special Focus Area: emerging game changing approaches to missile defense and special emphasis technologies such as strained layer super-lattice materials.

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	**R-1 ITEM NOMENCLATURE** PE 0605502C: *Small Business Innovative Research BMDO*

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	-	-	-	-	-
Current President's Budget	101.230	-	-	-	-
Total Adjustments	101.230	-	-	-	-
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	101.230	-			
• Other Adjustment Detail	-	-	-	-	-

Change Summary Explanation

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605502C: *Small Business Innovative Research BMDO*	PROJECT ZX45: *Small Business Innovative Research (SBIR)*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
ZX45: *Small Business Innovative Research (SBIR)*	101.230	-	-	-	-	-	-	-	-	0.000	101.230
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

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Space: large format focal plane arrays and imaging components, photovoltaics and lightweight reserve batteries, radiation hard electronics and electro-optics, and lightweight space-environment structures and components.

Directed Energy: solid-state laser systems and components, thermal management, scene generation technology for HWIL testing, directed energy electro-optics, and laser materials.

Modeling and Simulation: software tools to enhance BMDS M&S capability, improved physics/chemistry- based phenomenology for improved models.

Manufacturing, Producibility and Field Sustainment: technologies for improved system affordability, producibility and reliability covering all aspects of BMDS hardware.

Radar: improved systems and components for BMD radar systems including transmit/receive modules, wide-band gap semiconductors, thermal management, array technologies, and improved algorithms and signal processing tools.

C2BMC: tools and techniques for enhancing battle management, end-to-end communications, sensor registration and multi-sensor/multi-shooter engagement scenarios.

Innovative Concepts and Special Focus Area: emerging game changing approaches to missile defense and special emphasis technologies such as strained layer super-lattice materials.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: FY10 Accomplishments/Planned Program	101.230	-	-
Articles:	0		
Description: See Description Below			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0605502C: *Small Business Innovative Research BMDO*	PROJECT ZX45: *Small Business Innovative Research (SBIR)*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
FY 2010 Accomplishments: Awarded 151 Phase Is (~$100K each) and 92 Phase IIs (including mods to existing Phase IIs) (average award ~$860K). Phase I Selections were in the following 9 research areas: C2BMC, Directed Energy, Insensitive Munitions/Safety, Information Assurance, Interceptor Technology, Manufacturing and Producibility, Modeling Simulation and Phenomenology, Radar Technology and Space Technology. Phase II Selections were in the following 10 research areas: Airborne Component Technology, Discrimination, Information Assurance, Integration (C2BMC), Interceptor Technology, Manufacturing Process, Modeling & Simulation, Radar Systems Technology, Safety/Insensitive Munitions and Space Technology.			
Accomplishments/Planned Programs Subtotals	101.230	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*				R-1 ITEM NOMENCLATURE PE 0901585C: *Pentagon Reservation*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	19.679	20.482	-	-	-	-	-	-	-	0.000	40.161
ZX42: *Pentagon Reservation Maintenance Reserve Fund (PRMRF)*	19.679	-	-	-	-	-	-	-	-	0.000	19.679
MD42: *Pentagon Reservation Maintenance Reserve Fund (PRMRF)*	-	20.482	-	-	-	-	-	-	-	0.000	20.482

Note

NA

A. Mission Description and Budget Item Justification

This DoD directed Program Element started in FY01 to separately identify costs for the Pentagon Reservation Maintenance Reserve Fund (PRMRF). The PRMRF finances the following: real property operation and maintenance costs of the Pentagon and Federal Office Building Two, Pentagon reservation security, and associated parking areas.

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	19.709	20.482	-	-	-
Current President's Budget	19.679	20.482	-	-	-
Total Adjustments	-0.030	-	-	-	-
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment Detail	-0.030	-	-	-	-

Change Summary Explanation

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0901585C: *Pentagon Reservation*	PROJECT ZX42: *Pentagon Reservation Maintenance Reserve Fund (PRMRF)*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
ZX42: *Pentagon Reservation Maintenance Reserve Fund (PRMRF)*	19.679	-	-	-	-	-	-	-	-	0.000	19.679
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project ZX42 has been transferred to project MD42.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD42 for FY 2010 accomplishments. ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** NA	19.679 0	-	-
Accomplishments/Planned Programs Subtotals	19.679	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0901585C: *Pentagon Reservation*	PROJECT MD42: *Pentagon Reservation Maintenance Reserve Fund (PRMRF)*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD42: *Pentagon Reservation Maintenance Reserve Fund (PRMRF)*	-	20.482	-	-	-	-	-	-	-	0.000	20.482
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

This DoD directed Program Element started in FY01 to separately identify costs for the Pentagon Reservation Maintenance Reserve Fund (PRMRF). The PRMRF funds the Pentagon Reservation Security/Force Protection. It also funds the activities of Washington Headquarters Services in providing space and a full range of building services for DoD Components, including the Military Departments and other activities housed within the Pentagon Reservation. In addition, PRMRF funds in part, real property operation and maintenance costs of the Pentagon and Federal Office Building Two (FOB-2), and associated parking areas.

Funding for the FY 2010 accomplishments is reported in prior year budget project ZX42 ($19,709).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Unknown	-	20.482	-
Articles:	0	0	
Description: See Description Below			
FY 2010 Accomplishments: Funding for the FY 2010 accomplishments is reported in prior year budget project ZX42 ($19,709).			
FY 2011 Plans: See Paragraph A. Mission Description and Budget Item Justification.			
Accomplishments/Planned Programs Subtotals	-	20.482	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

N/A

E. Performance Metrics

NA

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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency										DATE: February 2011	
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*				R-1 ITEM NOMENCLATURE PE 0901598C: *Management Headquarters-MDA*							
COST ($ in Millions)	**FY 2010**	**FY 2011**	**FY 2012 Base**	**FY 2012 OCO**	**FY 2012 Total**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**Cost To Complete**	**Total Cost**
Total Program Element	62.294	29.754	28.908	-	28.908	29.112	27.728	27.827	29.949	Continuing	Continuing
ZX38: *Management Headquarters*	62.294	-	-	-	-	-	-	-	-	0.000	62.294
MD38: *Management Headquarters*	-	29.754	28.908	-	28.908	29.112	27.728	27.827	29.949	Continuing	Continuing

Note

In concert with the ongoing efforts to reduce Agency infrastructure and with the mandate of the Base Re-Alignment and Closure Commission, the funding amounts within this PE for FY10 and out are based on MDA reducing its presence in the National Capital region in preparation for the move to a consolidated campus on Redstone Arsenal in Huntsville, Alabama, with costs decreasing to reflect anticipated savings as a result of the consolidation.

A. Mission Description and Budget Item Justification

As prescribed by DoD Directive 5100.73, Major Headquarters Activities, signed by the Deputy Secretary of Defense on 13 May 1999, this Program Element funds costs associated with the operation of the headquarters and headquarters activities of the Missile Defense Agency. This project funds the following basic areas: Salaries and benefits for government civilian personnel assigned to the Agency headquarters, training, professional development, and travel for Agency personnel, rents, supplies and services for Agency facilities, facility support functions, and specialized headquarters contract support.

This PE also funds personnel that implement the initiatives and processes that have been introduced in the Weapon Systems Acquisition Reform Act of 2009. This Act notes the key to successful acquisition programs is getting things right from the start with sound systems engineering, cost-estimating, and developmental testing early in the program cycle.

Personnel funded from the PE will successfully implement these Acquisition Reform initiatives and processes that will minimize future cost overruns, schedule delays, and performance problems in MDA acquisition programs by focusing acquisition and procurement program management on emphasizing systems engineering; more effective upfront planning and management of technology risk, make trade-offs between cost, schedule and performance early in the program cycle.

Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Missile Defense Agency	DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	**R-1 ITEM NOMENCLATURE** PE 0901598C: *Management Headquarters-MDA*

B. Program Change Summary ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total
Previous President's Budget	52.403	29.754	29.421	-	29.421
Current President's Budget	62.294	29.754	28.908	-	28.908
Total Adjustments	9.891	-	-0.513	-	-0.513
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	9.970	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment Detail	-0.079	-	-0.513	-	-0.513

Change Summary Explanation

The FY 2012 $0.513 million dollar decrease in this program element is the result of efficiency savings estimates.

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0901598C: *Management Headquarters-MDA*	PROJECT ZX38: *Management Headquarters*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
ZX38: *Management Headquarters*	62.294	-	-	-	-	-	-	-	-	0.000	62.294
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

Project ZX38 has been transferred to Project MD38.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: See Project MD38 for FY 2010 Accomplishments. ***Articles:*** ***Description:*** See Description Below ***FY 2010 Accomplishments:*** NA	62.294 0	-	-
Accomplishments/Planned Programs Subtotals	62.294	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

NA

E. Performance Metrics

NA

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency			DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0901598C: *Management Headquarters-MDA*	PROJECT MD38: *Management Headquarters*	

COST ($ in Millions)	FY 2010	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	FY 2013	FY 2014	FY 2015	FY 2016	Cost To Complete	Total Cost
MD38: *Management Headquarters*	-	29.754	28.908	-	28.908	29.112	27.728	27.827	29.949	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

A. Mission Description and Budget Item Justification

This program element (0901598C) funds costs associated with the HQ activities of the Missile Defense Agency, including the following areas: Government and Contract Support Services HQ staff within the Director`s Office, General Counsel, Legislative Affairs, Public Affairs, Internal Review, NCR facilities (other than FOB 2) and Agency Operations.

At the time MDA submitted the FY2011 Congressional Justification materials it was anticipated that MDA would reduce its presence in the National Capital Region (NCR) by completing its consolidated campus on Redstone Arsenal in Huntsville, Alabama and the Headquarters Command Center (HQCC) at Ft. Belvoir, Virginia. Due to construction delays of Von Braun III and HQCC, the MDA will continue to maintain its headquarters facility within Federal Office Building #2 (FOB2) through FY2011. Project ZX38 was transferred to MD38. FY 2010 accomplishments were ($62.294M).

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
Title: Civilian Salaries	-	23.583	23.583
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments:			
FY 2011 Plans: See paragraph A. Mission description and Budget Item Justification.			
FY 2012 Plans: See paragraph A. Mission description and Budget Item Justification.			
Title: HQ Travel	-	1.729	1.894
Articles:	0	0	0
Description: See Description Below			
FY 2010 Accomplishments:			
FY 2011 Plans: See paragraph A. Mission description and Budget Item Justification.			
FY 2012 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0901598C: *Management Headquarters-MDA*	PROJECT MD38: *Management Headquarters*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2010	FY 2011	FY 2012
See paragraph A. Mission description and Budget Item Justification.			
Title: Specialized HQ Contract Support	-	3.444	2.931
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** ***FY 2011 Plans:*** See paragraph A. Mission description and Budget Item Justification. ***FY 2012 Plans:*** See paragraph A. Mission description and Budget Item Justification.			
Title: HQCC Rents, Utilities, Facilities	-	0.998	0.500
Articles:	0	0	0
Description: See Description Below ***FY 2010 Accomplishments:*** NA ***FY 2011 Plans:*** See paragraph A. Mission description and Budget Item Justification. ***FY 2012 Plans:*** See paragraph A. Mission description and Budget Item Justification.			
Accomplishments/Planned Programs Subtotals	-	29.754	28.908

C. Other Program Funding Summary ($ in Millions)

N/A

D. Acquisition Strategy

MDA is consolidating over 300 individual support services contracts to an enterprise-wide Advisory and Assistance Services (A&AS) approach to support the Ballistic Missile Defense System (BMDS) mission which will result in approximately 59 task orders total and provide for over 34% scope as Small Business opportunities. The objectives are to implement national engineering and support services for the BMDS mission across the enterprise, enhance the sharing of ballistic missile defense

Exhibit R-2A, RDT&E Project Justification: PB 2012 Missile Defense Agency		DATE: February 2011
APPROPRIATION/BUDGET ACTIVITY 0400: *Research, Development, Test & Evaluation, Defense-Wide* BA 6: *RDT&E Management Support*	R-1 ITEM NOMENCLATURE PE 0901598C: *Management Headquarters-MDA*	PROJECT MD38: *Management Headquarters*

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.

E. Performance Metrics

NA