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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Missile Defense Agency **Date:** February 2016

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604874C I <i>Improved Homeland Defense (HLD) Interceptors</i>
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	-	97.739	278.944	274.148	-	274.148	321.441	479.049	508.198	580.239	Continuing	Continuing
MD97: <i>Improved HD Interceptors</i>	-	97.739	266.676	260.543	-	260.543	306.321	455.080	482.214	549.783	Continuing	Continuing
MD40: <i>Program Wide Support</i>	-	0.000	12.268	13.605	-	13.605	15.120	23.969	25.984	30.456	Continuing	Continuing

Program MDAP/MAIS Code: 362

Note

N/A

A. Mission Description and Budget Item Justification

The Ground-based Midcourse Defense (GMD) element of the Ballistic Missile Defense System (BMDS) provides combatant commanders with a continuously available (24 hours a day, 7 days a week, 365 days a year) capability to defend the Homeland against limited Intercontinental Ballistic Missile (ICBM) attacks.

MD97 Improved Homeland Defense Interceptors Program Element includes development of the GMD Redesigned Kill Vehicle (RKV), a modified tactical GBI booster (Configuration 3, or C3) to enhance survivability and expand homeland defense capabilities against emerging threats, and Ground Systems improvements.

The RKV effort will address the following three needs: 1) design to the evolving threat for increased performance; 2) improve reliability, availability, maintainability, testability, and producibility; 3) and increase in-flight communications to improve use of off-board sensors information and provide software improvements to support the Post-Intercept Assessment (PIA) capability. The Post-Intercept Assessment (PIA) capability will allow the warfighter to know whether engagements were successful, modify firing doctrine as needed, and determine whether or not to re-engage. Implementation of PIA could reduce the number of GBIs required to defeat a threat. The booster improvements will include a modification of the 3-Stage configuration that incorporates enhanced lightning protection, power transient protection, and survivability enhancements. This configuration will also carry forward the 2-stage mode capability currently being developed for the existing operational fleet.

MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to MDA functions and activities across the entire BMDS.

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Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Missile Defense Agency	Date: February 2016
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Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0604874C <i>I Improved Homeland Defense (HLD) Interceptors</i>
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B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	99.500	278.944	279.565	-	279.565
Current President's Budget	97.739	278.944	274.148	-	274.148
Total Adjustments	-1.761	0.000	-5.417	-	-5.417
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-1.761	0.000			
• Other Adjustment	0.000	0.000	-5.417	-	-5.417

Change Summary Explanation

The FY 2017 adjustment reflects a realignment of Department of Defense priorities.

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency										Date: February 2016		
Appropriation/Budget Activity 0400 / 4					R-1 Program Element (Number/Name) PE 0604874C / Improved Homeland Defense (HLD) Interceptors				Project (Number/Name) MD97 / Improved HD Interceptors			
COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
MD97: Improved HD Interceptors	-	97.739	266.676	260.543	-	260.543	306.321	455.080	482.214	549.783	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

The Improved Homeland Defense Interceptor project will address four aspects of the evolving ICBM threat to the United States: quantity, launch timeline, intercept opportunity, and complexity (use of countermeasures). The Redesigned Kill Vehicle (RKV) will be designed to utilize the enhanced capabilities being developed in the Long Range Discriminating Radar (LRDR) and Discrimination programs. The redesign will improve performance to meet emerging threats and will improve the operational capacity of the GMD weapon system. The RKV will be built with a modular, open architecture and designed with common interfaces and standards, making upgrades easier and broadening MDA's vendor and supplier base. The design for growth allows future upgradability. The Configuration 3 integrated boost vehicle will incorporate enhanced lightning protection, power transient protection, and survivability enhancements. The All-Up Round (AUR) development strategy is to develop, test, and field the C3 integrated boost vehicle and 2-or 3-stage flight mode for all boost vehicle configurations. The AUR development also integrates the RKV with three different 3-stage boost vehicle configurations: C1, C2, and C3. The Post-Intercept Assessment (PIA) capability will allow the warfighter to know whether engagements were successful, modify firing doctrine as needed, and determine whether or not to re-engage. Implementation of PIA could reduce the number of GBIs required to defeat a threat. The goal of all of these efforts is to develop and field an integrated set of capabilities to improve Homeland Defense Interceptors reliability, lethality, and discrimination to defeat future threats. Initially, RKV fielding will involve recapping fielded Capability Enhancement (CE) I equipped Ground Based Interceptors (GBI). Eventually, the RKV and C3 All Up Round will replace the current CE I and II GBI fleet.

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017
Title: Improved Homeland Defense (HLD) Interceptor Development	87.878	253.385	247.124
Articles:	-	-	-
Description: HLD development objectives include: redesigning the GMD kill vehicle, implementing tactical booster modifications, and upgrading the GMD Ground Systems. The RKV will be built with a modular, open architecture and designed with common interfaces and standards, making upgrades easier and broadening MDA's vendor and supplier base. The design for growth allows future upgradability. The Configuration 3 integrated boost vehicle will incorporate enhanced lightning protection, power transient protection, and survivability enhancements. The All-Up Round (AUR) development strategy is to develop, test, and field the C3 integrated boost vehicle and 2-or 3-stage flight mode for all boost vehicle configurations. The AUR approach also integrates the RKV with three different 3-stage boost vehicle configurations: C1, C2, and C3. Post-Intercept Assessment capability will allow the warfighter to know whether engagements were successful and modify firing doctrine as needed to account for the outcome. PIA			

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604874C / <i>Improved Homeland Defense (HLD) Interceptors</i>	Project (Number/Name) MD97 / <i>Improved HD Interceptors</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017
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implementation will potentially reduce the number of GBIs required to defeat a threat. The goal of all of these efforts is to develop and field an integrated set of capabilities to improve the reliability, lethality, and discrimination to defeat future threats.

FY 2015 Accomplishments:

- Completed Market Analysis and Material Solution Analysis
- Initiated Task Instructions to enable Industry Team development of RKV hardware, to include definition of requirements and engineering design activities
- Conducted trade studies to inform decisions related to RKV technical solution
- Initiated long-lead material purchases to support design verification testing
- Initiated RKV Component Reliability Program to support and eliminate known risks and identify reliability improvements
- Initiated activities related to development and integration of RKV with GMD Ground Systems communications
- Established the Government RKV Development Laboratory (RDL) with initial capability to assess software maturity using modeling and simulation and software-in-the-loop testing
- Initiated material purchases for hardware-in-the-loop capability at RDL
- Initiated objective evidence documentation and analysis to support a 1QFY16 System Requirements Review (SRR)
- Initiated activities to support a system-level Preliminary Design Review (PDR) and a system-level Critical Design Review (CDR)
- Developed the RKV Acquisition Strategy and obtained Under Secretary of Defense (AT&L) approval
- Initiated requirements development, engineering analysis, capability integration, and performance verification for RKV development
- Initiated Technical Direction Agent activities to obtain the technical expertise and program execution experience required to provide independent assessment/analysis, objective advice on defensive weapon system technical issues and product development challenges facing in the GMD and RKV Program

FY 2016 Plans:

- Complete objective evidence documentation and analysis to support a 1QFY16 System Requirements Review (SRR)
- Complete SRR
- Continue to provide Task Instructions to enable Industry Team development of RKV hardware
- Continue material purchases in support of development activities, design verification testing and initial flight testing
- Continue material purchases in support of hardware-in-the-loop capability at the RKV Development Laboratory (RDL)
- Initiate component-level SRRs and Preliminary Design Reviews (PDRs) in support of system-level PDR and a system-level Critical Design Review (CDR)
- Initiate development of special tooling and other special test equipment
- Complete component and system PDRs and order remaining long lead hardware for Design Verification Testing

FY 2015	FY 2016	FY 2017

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Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604874C / <i>Improved Homeland Defense (HLD) Interceptors</i>	Project (Number/Name) MD97 / <i>Improved HD Interceptors</i>		
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)		FY 2015	FY 2016	FY 2017
<p>-Initiate Electromagnetic Environmental Effects (E3) testing, thermal testing, vibration and shock environments testing and Highly Accelerated Lifecycle Testing as part of the Design Verification Testing program</p> <p>-Continue requirements development, engineering analysis, capability integration, and performance verification for RKV development</p> <p>-Initiate modeling and simulation development and integration to assess component and system performance in support of annual technical assessments</p> <p>FY 2017 Plans:</p> <p>-Continue long lead material purchases for qualification and flight test articles in order to support early testing and evaluation to ensure RKV meets reliability, producibility, modularity and performance requirements</p> <p>-Initiate testing and development efforts associated with the RKV design to include module design verification, qualification, and survivability tests, integrated kill vehicle qualification tests, and BMDS ground tests</p> <p>-Continue development of kill vehicle algorithms and software, and conduct software independent verification and validation testing at contractor and government facilities</p> <p>-Continue development, conduct design reviews, and begin acquisition of qualified long lead items for the integrated 3-Stage boost vehicle, Configuration 3 (C3) that incorporates enhanced lightning protection; power transient protection, survivability enhancements, and a system selectable 2-stage mode capability for integration into the operational fleet</p> <p>-Initiate the Post-Intercept Assessment (PIA) capability, which will allow the warfighter to know whether engagements were successful, modify firing doctrine as needed, and determine whether or not to re-engage. Implementation of PIA could reduce the number of GBIs required to defeat a threat</p> <p>-Continue All Up Round (AUR) development and build two flight test units to support the testing and fielding of RKV and C3 equipped interceptors</p> <p>-Continue requirements development, engineering analysis, capability integration, and performance verification for RKV development</p> <p>-Continue modeling and simulation development and integration to assess component and system performance in support of annual technical assessments</p>				
Title: Program Operations		9.861	13.291	13.419
		Articles:	-	-
<p>Description: Program Operations provides for integrated program management of the Improved Homeland Defense Interceptor efforts. Included in this effort are program and business management, program administration, technical and testing oversight, verification of hardware and software development, quality / safety / mission assurance, integrated logistics support, and government manpower and infrastructure to develop, test and sustain the RKV.</p> <p>FY 2015 Accomplishments:</p>				

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Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604874C / <i>Improved Homeland Defense (HLD) Interceptors</i>	Project (Number/Name) MD97 / <i>Improved HD Interceptors</i>

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017
<ul style="list-style-type: none"> -Conducted technical and business management support, financial management, cost and schedule performance analysis, cost estimation and analysis, configuration management, and integration activities, to ensure the program met cost, schedule, and performance goals -Ensured Ground-based Midcourse Defense (GMD) RKV program compliance with internal and external direction, policies, and regulations to deliver critical capability via a consistent and disciplined process -Provided a Mission Assurance and Manufacturing Engineering Program to include quality, configuration management, manufacturing, engineering, and safety in all phases of the system life cycle, throughout the supply chain, and at all levels of assembly emphasizing high yield rates which minimize test and rework costs -Updated RKV Acquisition Strategy and submitted the plan for approval by the Under Secretary of Defense(AT&L) -Initiated development of a system Work Breakdown Structure -Developed a draft Statement of Work in support of future contract definitization -Developed a Contract Line Item Number structure in support of future contract definitization -Identified and defined Contract Data Requirements List in support of future contract definitization <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> -Perform technical and business management support, financial management, cost and schedule performance analysis, cost estimation and analysis, configuration management, and integration activities to ensure the program meets cost, schedule, and performance goals -Ensure Ground-based Midcourse Defense (GMD) RKV program compliance with internal and external direction, policies, and regulations to deliver critical capability via a consistent and disciplined process -Provide a Mission Assurance and Manufacturing Engineering Program to include quality, configuration management, manufacturing, engineering, and safety in all phases of the system life cycle, throughout the supply chain, and at all levels of assembly emphasizing high yield rates which minimize test and rework costs -Complete development of a system Work Breakdown Structure <p>FY 2017 Plans:</p> <ul style="list-style-type: none"> -Provide technical and business management support, financial management, cost and schedule performance analysis, cost estimation and analysis, configuration management, and integration activities, to ensure the program meets cost, schedule, and performance goals -Ensure Ground-based Midcourse Defense (GMD) RKV program compliance with internal and external direction, policies, and regulations to deliver critical capability via a consistent and disciplined process 			

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B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)	FY 2015	FY 2016	FY 2017
-Provide a Mission Assurance and Manufacturing Engineering Program to include quality, configuration management, manufacturing, engineering, and safety in all phases of the system life cycle, throughout the supply chain, and at all levels of assembly emphasizing high yield rates which minimize test and rework costs			
Accomplishments/Planned Programs Subtotals	97.739	266.676	260.543

C. Other Program Funding Summary (\$ in Millions)

Line Item	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
• 0603294C: <i>Common Kill Vehicle Technology</i>	24.836	61.753	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• 0603882C: <i>Ballistic Missile Defense Midcourse Defense Segment</i>	863.965	1,269.913	862.080	-	862.080	701.311	585.079	600.710	535.614	Continuing	Continuing
• 0604887C: <i>Ballistic Missile Defense Midcourse Defense Segment Test</i>	78.463	64.618	56.481	-	56.481	86.709	76.205	74.776	87.415	Continuing	Continuing

Remarks

D. Acquisition Strategy

MDA is executing an acquisition strategy to develop an integrated Redesigned Kill Vehicle (RKV) with a Cross-Industry team design solution. This concept includes potential production sources from industry and provides a consolidated product that includes the collective knowledge of and leverages capabilities from the industry leaders in kill vehicle design and development. The industry teaming method incorporates the most viable technical approaches from each contractor and allows for combination of resources to shorten the learning curve and reduce the time needed to develop and begin initial production. This strategy allows for industry to provide the best value and best design solution for the MDA while setting the conditions for future competition of production. The development phase is followed by initial production and then a competitive full rate production phase. The competitive production phase encompasses the purchase, production, and the integration of the proven components demonstrated in the development phase and provides competitive benefits to the Government. This strategy allows for industry to provide the best value and best design solution for the MDA while setting the conditions for future competition of production. The Government, as the design authority, retains responsibility for the execution of the program cost, schedule, and the technical performance of the RKV to meet requirements levied on the contractor. The Government has implemented a rigorous systems engineering process to ensure that the design and development efforts meet requirements. The MDA goal is to field the initial production RKVs to recap existing CE-I GBIs and support follow-on BMDS test events by FY2020. This acquisition strategy is documented in the RKV Acquisition Plan signed by the Defense Acquisition Executive in October 2015.

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E. Performance Metrics

N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Missile Defense Agency **Date:** February 2016

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604874C / Improved Homeland Defense (HLD) Interceptors	Project (Number/Name) MD97 / Improved HD Interceptors
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Operations - Contract Support Services	C/CPFF	Various AL/AK/ : CA/CO/VA	0.000	4.510		6.787	Oct 2015	6.141	Oct 2016	-		6.141	Continuing	Continuing	Continuing
Program Operations - FFRDC Support	MIPR	MIT : LL AL	0.000	1.138		1.448	Nov 2015	1.501	Nov 2016	-		1.501	Continuing	Continuing	Continuing
Program Operations - Government Civilian Salaries	MIPR	MDA : AL/VA	0.000	1.714		2.525	Oct 2015	3.363	Oct 2016	-		3.363	Continuing	Continuing	Continuing
Program Operations - Information Management & Technology Ops	C/CPAF	Northrop Grumman : AL, AK, CA, CO, HI, NM, VA	0.000	0.552		0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Program Operations - Other Government Agencies	MIPR	Various AL/VA : FL/CO	0.000	1.767		2.331	Oct 2015	2.043	Oct 2016	-		2.043	Continuing	Continuing	Continuing
Program Operations - Travel	MIPR	MDA : AL/VA	0.000	0.180		0.200	Oct 2015	0.371	Oct 2016	-		0.371	Continuing	Continuing	Continuing
Subtotal			0.000	9.861		13.291		13.419		-		13.419	-	-	-

Remarks

N/A

Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Improved Homeland Defense (HLD) Interceptor Development - Configuration 3 Booster Development	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	0.000		0.000		20.802	Nov 2016	-		20.802	Continuing	Continuing	Continuing
Improved Homeland Defense (HLD) Interceptor Development - PRIME	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	5.505		0.000		0.000		-		0.000	0	5.505	0

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Missile Defense Agency **Date:** February 2016

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604874C / Improved Homeland Defense (HLD) Interceptors	Project (Number/Name) MD97 / Improved HD Interceptors
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Product Development (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Concept Definition and Program Planning															
Improved Homeland Defense (HLD) Interceptor Development - PRIME RKV Development	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	51.714		237.431	Nov 2015	199.783	Nov 2016	-		199.783	Continuing	Continuing	Continuing
Improved Homeland Defense (HLD) Interceptor Development - Post-Intercept Assessment	C/CPIF	Boeing AL/AK/AZ : CA/CO/TX/VA	0.000	0.000		0.000		7.650	Nov 2016	-		7.650	Continuing	Continuing	Continuing
Improved Homeland Defense (HLD) Interceptor Development - RKV Development Lab and System Support	MIPR	AMRDEC : Redstone Arsenal, AL	0.000	15.050		15.954	Nov 2015	18.889	Nov 2016	-		18.889	Continuing	Continuing	Continuing
Improved Homeland Defense (HLD) Interceptor Development - RKV Requirements Development	C/Various	Fifth Gait Technologies Inc, CA / Modern Technologies Solutions Inc, AL : Boeing, AL	0.000	4.535		0.000		0.000		-		0.000	0	4.535	0
Improved Homeland Defense (HLD) Interceptor Development - Technical Direction Agent	MIPR	AL/CA/GA/MA : MD/ NM/UT/VA	0.000	11.074		0.000		0.000		-		0.000	0	11.074	0
Subtotal			0.000	87.878		253.385		247.124		-		247.124	-	-	-

Remarks
N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Missile Defense Agency **Date:** February 2016

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604874C / Improved Homeland Defense (HLD) Interceptors	Project (Number/Name) MD97 / Improved HD Interceptors
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Test and Evaluation (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Subtotal			-	-		-		-		-		-	-	-	-

Remarks
N/A

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	97.739	266.676	260.543	-	260.543	-	-	-

Remarks
N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Missile Defense Agency **Date:** February 2016

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604874C / Improved Homeland Defense (HLD) Interceptors	Project (Number/Name) MD97 / Improved HD Interceptors
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Significant Event Complete	Milestone Decision Complete	Element Test Complete	System Level Test Complete	Complete Activity
Significant Event Planned	Milestone Decision Planned	Element Test Planned	System Level Test Planned	Planned Activity

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021			
	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
System Requirements Review																												
Preliminary Design Review (PDR)								★																				
Key Component Critical Design Review (CDR)								☆				☆																
Critical Design Review (CDR)												☆																
Complete Qualification Test																△												
GM CTV-03 (GM, Non-Intercept Flight Test)																△												
FTG-17 (DT/OT) (GM, Intercept Flight Test)																				△								
FTG-18 (GM, Intercept Flight Test)																								△				

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604874C / <i>Improved Homeland Defense (HLD) Interceptors</i>	Project (Number/Name) MD97 / <i>Improved HD Interceptors</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
System Requirements Review	1	2016	1	2016
Preliminary Design Review (PDR)	4	2016	4	2016
Key Component Critical Design Review (CDR)	2	2017	2	2017
Critical Design Review (CDR)	4	2017	4	2017
Complete Qualification Test	2	2018	2	2018
GM CTV-03 (GM, Non-Intercept Flight Test)	3	2018	3	2018
FTG-17 (DT/OT) (GM, Intercept Flight Test)	3	2019	3	2019
FTG-18 (GM, Intercept Flight Test)	2	2020	2	2020

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency **Date:** February 2016

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604874C / Improved Homeland Defense (HLD) Interceptors	Project (Number/Name) MD40 / Program Wide Support
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COST (\$ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
MD40: Program Wide Support	-	0.000	12.268	13.605	-	13.605	15.120	23.969	25.984	30.456	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note
Beginning in FY 2016, Program Wide Support (PWS) was proportionately allocated to Improved Homeland Defense (HLD) Interceptors. In FY 2017, PWS reflects a proportional change as a result an increase in Improved Homeland Defense (HLD) Interceptors.

A. Mission Description and Budget Item Justification

PWS contains non-headquarters management costs in support of MDA functions and activities across the entire BMDS. It Includes Government Civilians, and Contract Support Services. This provides integrity and oversight of the BMDS as well as supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes Global Deployment personnel and support performing deployment site preparation and activation and, provides facility capabilities for MDA Executing Agent locations. Other MDA wide costs includes: physical and technical security; civilian drug testing; audit readiness; the Science, Technology, Engineering, and Mathematics (STEM) program; legal services and settlements; travel and agency training; office, equipment, vehicle, and warehouse leases; utilities and base operations; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. PWS is allocated on a pro-rata basis and therefore, fluctuates by year based on the adjusted RDT&E profile (which excludes: 0305103C Cyber Security Initiative, 0603274C Special Programs, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters).

B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)

	FY 2015	FY 2016	FY 2017
Title: Program Wide Support	0.000	12.268	13.605
Articles:	-	-	-
Description: N/A			
FY 2015 Accomplishments: - FY 2015 Accomplishments are captured in multiple RDT&E Program Elements under MD40 Budget Project			
FY 2016 Plans: - Beginning in FY 2016, Program Wide Support was redistributed across RDT&E Program Elements with a proportional allocation to Homeland Defense (HLD) Interceptors - See paragraph A: Mission Description and Budget Item Justification			
FY 2017 Plans: - See paragraph A: Mission Description and Budget Item Justification.			
Accomplishments/Planned Programs Subtotals	0.000	12.268	13.605

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Exhibit R-2A, RDT&E Project Justification: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604874C / <i>Improved Homeland Defense (HLD) Interceptors</i>	Project (Number/Name) MD40 / <i>Program Wide Support</i>
C. Other Program Funding Summary (\$ in Millions) N/A		
Remarks		
D. Acquisition Strategy N/A		
E. Performance Metrics N/A		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2017 Missile Defense Agency **Date:** February 2016

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604874C / Improved Homeland Defense (HLD) Interceptors	Project (Number/Name) MD40 / Program Wide Support
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Support (\$ in Millions)				FY 2015		FY 2016		FY 2017 Base		FY 2017 OCO		FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Wide Support - Agency Facilities and Maintenance (MIPR)	MIPR	Various : Multi: AL, VA	0.000	0.000		4.944		4.889	Mar 2017	-		4.889	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations Management	Allot	Various : Multi: AL, VA	0.000	0.000		0.000		0.262	Jul 2017	-		0.262	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Civilian Salaries, Travel, Training	Allot	Various : MDA Multi: AL, CO, CA, VA,	0.000	0.000		2.182		0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services	C/CPFF	Various : Multi: AL, VA	0.000	0.000		5.142		8.454	Jul 2017	-		8.454	Continuing	Continuing	Continuing
Subtotal			0.000	0.000		12.268		13.605		-		13.605	-	-	-

Remarks
N/A

	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000	12.268	13.605	-	13.605	-	-	-

Remarks
N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2017 Missile Defense Agency **Date:** February 2016

Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604874C / Improved Homeland Defense (HLD) Interceptors	Project (Number/Name) MD40 / Program Wide Support
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Significant Event Complete ▲ Milestone Decision Complete ★ Element Test Complete ◆ System Level Test Complete ● Complete Activity +
 Significant Event Planned △ Milestone Decision Planned ☆ Element Test Planned ◇ System Level Test Planned ○ Planned Activity ☆

	FY 2015				FY 2016				FY 2017				FY 2018				FY 2019				FY 2020				FY 2021							
	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				
MD40 Program-Wide Support					☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆				

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Exhibit R-4A, RDT&E Schedule Details: PB 2017 Missile Defense Agency		Date: February 2016
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604874C / <i>Improved Homeland Defense (HLD) Interceptors</i>	Project (Number/Name) MD40 / <i>Program Wide Support</i>

Schedule Details

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