Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Missile Defense Agency											Date: February 2018	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0604181C *I Hypersonic Defense*							
COST ($ in Millions)	**Prior Years**	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**	**FY 2020**	**FY 2021**	**FY 2022**	**FY 2023**	**Cost To Complete**	**Total Cost**
Total Program Element	-	0.000	75.300	120.444	-	120.444	157.672	142.296	117.381	119.434	0.000	732.527
MD29: *Hypersonic Defense*	-	0.000	75.300	115.054	-	115.054	150.838	135.886	111.917	114.032	0.000	703.027
MD40: *Program Wide Support*	-	0.000	0.000	5.390	-	5.390	6.834	6.410	5.464	5.402	0.000	29.500
Program MDAP/MAIS Code: 362												

Note

N/A

A. Mission Description and Budget Item Justification

This program element supports a focused program that includes executing the systems engineering process, full kill chain technology identification and maturation, providing analysis and assessment of target of opportunity events, and executing near term sensor and command and control capability upgrades to address defense from hypersonic threats, which pose a significant threat.

The Hypersonic Defense effort will develop and deliver a set of material solutions to address and defeat hypersonic threats informed by a set of near term technology demonstrations. Based on Department of Defense FY 2017 efforts to counter hypersonic threats, MDA will assess architecture alternatives and provide recommendations for future BMDS configurations to keep pace with evolving threats. An integrated set of enhancements provides incremental capability measured by progress and knowledge points in the following areas:

- Establishment of systems engineering needs, requirements, and architecture trade studies to identify alternative material solutions
- Modification of existing BMDS sensors and C2BMC element for hypersonic threats
- Definition of weapon concepts and investments in key technology to enable a broad set of solutions including kinetic and non-kinetic means both right and left of launch
- Execution of a series of sensor technology demonstrations, to include ground, airborne and space-based technology, to inform the development strategy

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Missile Defense Agency					Date: February 2018
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*			R-1 Program Element (Number/Name) PE 0604181C / *Hypersonic Defense*		
B. Program Change Summary ($ in Millions)	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**
Previous President's Budget	0.000	75.300	116.300	-	116.300
Current President's Budget	0.000	75.300	120.444	-	120.444
Total Adjustments	0.000	0.000	4.144	-	4.144
• 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	0.000	0.000			
• FY 2017 Request for Additional Appropriations	0.000	0.000	0.000	-	0.000
• Missile Defeat and Defense Enhancement	0.000	0.000	0.000	-	0.000
• Other Adjustment	0.000	0.000	4.144	-	4.144

Change Summary Explanation

The increase in FY 2019 from PB18 to PB19 reflects Program Wide Support (PWS) being proportionately reallocated to the Hypersonic Defense program element.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604181C / *Hypersonic Defense*	Project (Number/Name) MD29 / *Hypersonic Defense*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
MD29: *Hypersonic Defense*	-	0.000	75.300	115.054	-	115.054	150.838	135.886	111.917	114.032	0.000	703.027
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

N/A

A. Mission Description and Budget Item Justification

The Hypersonic Defense effort will develop and deliver a set of material solutions to address and defeat hypersonic threats informed by a set of near term technology demonstrations.

MDA will conduct systems engineering activities required to initiate development of BMDS capabilities to address advanced threats. Efforts will include architecture analysis activities such as a Defense Against Hypersonic Threats Analysis of Alternatives (AoA), jointly conducted with the Office of the Secretary of Defense, Cost Assessment and Program Evaluation, and Services with participation from the Combatant Commands.

MDA will leverage existing sensors and ground infrastructure/Command and Control to quickly demonstrate and deploy a three-phase limited contingency capability to provide real-time warning over the majority of the hypersonic threat profile. The initial limited contingency capability will be fully integrated into the C2BMC program of record. MDA plans to leverage the lessons learned and analysis from this capability development for the design and development of additional sensors for potential advanced threat applications.

To address the weapon technology required to defeat the hypersonic threat, MDA will focus on the development of weapon concepts through competitive development efforts with industry. The concepts and identified technology component risk reduction will formulate the trade space across cost, risk, and performance to inform the requirements development process. The Agency will also extend analysis tools to provide inputs to concept design and requirements development.

MDA will conduct sensor demonstrations and develop sensor technology for hypersonic threats. The demonstrations build on ground, air, and space sensor technology to demonstrate capabilities to detect and track hypersonic threats. Demonstrations will employ tracking capability in all three phases of flight: boost phase using overhead persistent infrared, mid-phase using airborne or space, and terminal phase using ground, airborne, or space tracking. MDA will also conduct pre and post demonstration performance assessment to analyze data collects.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
Title: Hypersonic Defense	0.000	75.300	115.054
Articles:	-	-	-
Description: This effort includes the systems engineering, technology development, and near term component capability development activities required to evolve the BMDS to address hypersonic threats, to include architecture analysis, capability			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604181C / *Hypersonic Defense*	**Project (Number/Name)** MD29 / *Hypersonic Defense*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
roadmap development, and requirements development. It also includes an assessment of existing and new capabilities, identification, development, and demonstration of new technology and capabilities needed across the kill chain in support of architecture alternatives, and their ability to address advanced threats. Specific and/or unique accomplishments to each FY are as follows: ***FY 2018 Plans:*** Systems Engineering: - Complete and deliver the Defense Against Hypersonic Threats Analysis of Alternatives (AoA) report - Conduct integrated architecture and performance analysis of end-to-end hypersonic threat capabilities based on the outcome of the AoA - Complete analysis and assessments of target of opportunity events - Draft capability roadmap - Complete requirements and initial system integration activities for near term capabilities - Draft initial requirements document Sensors Technology & Demonstration: - Identify and demonstrate sensor technology through: -- Dual airborne passive observation with stereo MDA configured MQ-9 Reapers -- Ground electro-optical/infrared and advanced sensor observations with a Multi-Spectral Targeting System (MTS)-C -- Pre and post mission performance analysis - Award technology demonstration contract - Purchase long lead component hardware required to build and test sensor technologies for hypersonic threat defense applications Weapon Concept Definition: - Initiate development of innovative weapon concepts to address the hypersonic threat set - Deliver multiple initial concepts and identify technology risk reduction efforts Near Term Capability Development - Initiate design and development activities for prototype updates to various BMD sensor algorithms - Conduct design and development activities for C2BMC/BOA changes to provide limited tracking/display of the hypersonic threat. ***FY 2019 Plans:*** Systems Engineering: - Conduct integrated architecture and performance analysis of end-to-end hypersonic threat capabilities			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604181C / *Hypersonic Defense*	**Project (Number/Name)** MD29 / *Hypersonic Defense*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
- Complete analysis and assessments of target of opportunity events - Complete requirements and initial system integration activities - Finalize capability roadmap - Develop Initial concept requirements Sensors Technology & Demonstration: - Identify and demonstrate sensor technology - Test and demonstrate sensor components for future hypersonic applications - Conduct EO/IR sensor-to-tactical network experiments to lower latency of sensor data to user - Ground test data processing and algorithms for wide field of view threat scenes Weapon Concept Definition: - Complete joint government and industry concept definition for the hypersonic intercept weapons. The weapons concepts will aid the Agency in establishing the requirements foundation for hypersonic defense - Deliver hypersonic interceptor weapon contractor concept(s) for component technology risk reduction future activities Command and Control, Battle Management, Communication (C2BMC)/ BMDS OPIR Architecture (BOA): - Conduct C2BMC 8.2-5 Critical Design Review and complete development and integration for the following Hypersonic Defense capabilities: - Complete design, development, and integration activities for sensor data exploitation tracking algorithms (fielded as a BOA capability), leveraging the initial limited contingency capability enhancements. - Develop Link 16 track forwarding of the hypersonic threat tracks generated by BOA through C2BMC AN/TPY-2: - Complete System Engineering, Analysis and Requirements development for initial capability - Initiate Software Design, Development, and Testing for initial capability - Initiate System Engineering, Analysis and Requirements development for objective capability LRDR: - Complete System Engineering, Analysis and Requirements development for objective capability - Initiate Software Design and Development for objective capability - Begin incorporation of hypersonic threat defense capabilities into LRDR software Version 2.0			
FY 2018 to FY 2019 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604181C / *Hypersonic Defense*	**Project (Number/Name)** MD29 / *Hypersonic Defense*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2017	FY 2018	FY 2019
Increase from FY 2018 to FY 2019 is due to initiation of sensor objective capability development.			
Accomplishments/Planned Programs Subtotals	0.000	75.300	115.054

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	14.534	12.996	13.017	-	13.017	14.267	14.899	15.235	16.224	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	252.665	278.145	220.876	-	220.876	250.238	267.502	263.758	260.273	Continuing	Continuing
• 0603890C: *BMD Enabling Programs*	435.203	465.642	540.926	-	540.926	542.326	608.210	489.637	496.313	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	465.433	454.862	475.168	-	475.168	515.239	494.873	492.119	515.529	Continuing	Continuing

Remarks

D. Acquisition Strategy

To optimize BMDS performance, MDA leverages the nation's engineering centers of excellence at government agencies, military Services, Federally Funded Research and Development Centers (FFRDCs), University Affiliated Research Centers (UARCs), and industry. The executing agents use varying contracting strategies in a flexible manner to maximize their contribution to the BMDS. MDA acquires products and services by competitive means to the extent that is possible, practical and uses the Advanced Technology Broad Area Announcement process to award concept definition contracts.

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604181C / *Hypersonic Defense*	**Project (Number/Name)** MD29 / *Hypersonic Defense*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hypersonic Defense - BMDS C2BMC/BOA Upgrades	C/Various	Various : AL	0.000	0.000		14.000	Nov 2017	20.270	Nov 2018	-		20.270	Continuing	Continuing	Continuing
Hypersonic Defense - BMDS Sensor Upgrades	SS/CPFF	Raytheon : MA	0.000	0.000		4.100	Nov 2017	14.578	Nov 2018	-		14.578	Continuing	Continuing	Continuing
Hypersonic Defense - BMDS Sensor Upgrades - LRDR	C/FFP	Lockheed Martin : NJ	0.000	0.000		0.000		10.185	Feb 2019	-		10.185	Continuing	Continuing	Continuing
Hypersonic Defense - Performance Assessment for Sensors and Weapons	MIPR	Various : AL	0.000	0.000		6.500	Nov 2017	5.051	Nov 2018	-		5.051	Continuing	Continuing	Continuing
Hypersonic Defense - Sensor Technology	Allot	MDA : AL, NM	0.000	0.000		2.700	Oct 2017	4.100	Oct 2018	-		4.100	Continuing	Continuing	Continuing
Hypersonic Defense - Sensor Technology - EO/ IR Tracking Demonstration	C/CPFF	Various : AL, CA	0.000	0.000		3.277	Nov 2017	0.000		-		0.000	0.000	3.277	0.000
Hypersonic Defense - Sensor Technology - OGA	MIPR	Various : AL	0.000	0.000		1.900	Nov 2017	1.900	Nov 2018	-		1.900	Continuing	Continuing	Continuing
Hypersonic Defense - Sensor Technology - Sensor Concept and Development	C/CPIF	Various : AL	0.000	0.000		20.823	Nov 2017	32.011	Nov 2018	-		32.011	Continuing	Continuing	Continuing
Hypersonic Defense - Systems Engineering	Allot	MDA : AL, VA	0.000	0.000		0.500	Oct 2017	2.496	Oct 2018	-		2.496	Continuing	Continuing	Continuing
Hypersonic Defense - Systems Engineering - CSS	C/CPFF	TEAMS : AL, VA	0.000	0.000		2.000	Nov 2017	1.997	Nov 2018	-		1.997	Continuing	Continuing	Continuing
Hypersonic Defense - Systems Engineering - FFRDC/UARC	MIPR	Various : VA, AL	0.000	0.000		2.000	Nov 2017	1.997	Nov 2018	-		1.997	Continuing	Continuing	Continuing
Hypersonic Defense - Systems Engineering - Industry	C/CPAF	Boeing : AL	0.000	0.000		2.500	Nov 2017	2.496	Nov 2018	-		2.496	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604181C / *Hypersonic Defense*	Project (Number/Name) MD29 / *Hypersonic Defense*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hypersonic Defense - Weapon Concept Definition	C/CPFF	Various : AL	0.000	0.000		15.000	Apr 2018	17.973	Oct 2018	-		17.973	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		75.300		115.054		-		115.054	Continuing	Continuing	N/A

Remarks

N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		75.300		115.054		-		115.054	Continuing	Continuing	N/A

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604181C / *Hypersonic Defense*	**Project (Number/Name)** MD29 / *Hypersonic Defense*

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 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
Tracking Demonstration					△																							
Sensor Technology Development and Demo					✧	✧	✧	✧																				
Weapons Concept Definition Contract(s) Award							△																					
AoA Completion								△																				
Weapons Concept Definition							✧	✧	✧	✧																		
AN/TPY-2 Initial Capability Development									✧	✧	✧	✧	✧	✧	✧	✧	✧	✧										
C2BMC Critical Design Review										△																		
Sensor Component Delivery										△																		
C2BMC Development										✧	✧	✧	✧															
AN/TPY-2 Objective Capability										✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧			
LRDR Objective Capability										✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧			
Initial Requirements Document Completion											△																	
Sensor Component Performance Testing											✧																	
AN/TPY-2 CX Software Release												△																
LRDR System Requirements Review												△																
Weapons Technology Risk Reduction Contract(s) Award													△															
Weapons Technology Risk Reduction													✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧				

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604181C / *Hypersonic Defense*	**Project (Number/Name)** MD29 / *Hypersonic Defense*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
Tracking Demonstration	1	2018	1	2018
Sensor Technology Development and Demo	1	2018	4	2018
Weapons Concept Definition Contract(s) Award	3	2018	3	2018
AoA Completion	4	2018	4	2018
Weapons Concept Definition	3	2018	2	2019
AN/TPY-2 Initial Capability Development	1	2019	2	2021
C2BMC Critical Design Review	2	2019	2	2019
Sensor Component Delivery	2	2019	2	2019
C2BMC Development	2	2019	1	2020
AN/TPY-2 Objective Capability	2	2019	1	2023
LRDR Objective Capability	2	2019	1	2023
Initial Requirements Document Completion	3	2019	3	2019
Sensor Component Performance Testing	3	2019	3	2019
AN/TPY-2 CX Software Release	4	2019	4	2019
LRDR System Requirements Review	4	2019	4	2019
Weapons Technology Risk Reduction Contract(s) Award	2	2020	2	2020
Weapons Technology Risk Reduction	2	2020	4	2022

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency			Date: February 2018
Appropriation/Budget Activity 0400 / 4	R-1 Program Element (Number/Name) PE 0604181C / *Hypersonic Defense*	Project (Number/Name) MD40 / *Program Wide Support*	

COST ($ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
MD40: *Program Wide Support*	-	0.000	0.000	5.390	-	5.390	6.834	6.410	5.464	5.402	0.000	29.500
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Beginning in FY 2019, Program Wide Support (PWS) was proportionately reallocated to the Hypersonic Defense program element. FY 2020 and out reflects proportional changes as a result of budget changes to this program element.

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 2017	FY 2018	FY 2019
Title: Program Wide Support	0.000	0.000	5.390
Articles:	-	-	-
Description: N/A			
FY 2018 Plans: N/A			
FY 2019 Plans: N/A			
FY 2018 to FY 2019 Increase/Decrease Statement: N/A			
Accomplishments/Planned Programs Subtotals	0.000	0.000	5.390

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604181C / *Hypersonic Defense*	**Project (Number/Name)** MD40 / *Program Wide Support*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604181C / *Hypersonic Defense*	**Project (Number/Name)** MD40 / *Program Wide Support*

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Wide Support - Agency Operations Management	Allot	Various : Multi, AL, CA, CO, VA	0.000	0.000		0.000		0.082	Aug 2019	-		0.082	Continuing	Continuing	Continuing
Program Wide Support - Agency Operations and Support Services (FFP)	C/FFP	Various : Multi: AK, AL, CA, CO, HI, VA	0.000	0.000		0.000		5.308	Aug 2019	-		5.308	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		0.000		5.390		-		5.390	Continuing	Continuing	N/A

Remarks

N/A

	Prior Years	FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		0.000		5.390		-		5.390	Continuing	Continuing	N/A

Remarks

N/A

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604181C / *Hypersonic Defense*	**Project (Number/Name)** MD40 / *Program Wide Support*

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 ✧

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
MD40 Program-Wide Support	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604181C / *Hypersonic Defense*	**Project (Number/Name)** MD40 / *Program Wide Support*

Schedule Details

	Start		End	
Events	**Quarter**	**Year**	**Quarter**	**Year**
MD40 Program-Wide Support	1	2017	4	2023