Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Missile Defense Agency											Date: March 2019	
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*							
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
Total Program Element	-	63.032	130.944	157.425	-	157.425	142.391	116.931	119.780	122.078	0.000	852.581
MD29: *Hypersonic Defense*	-	63.032	125.554	150.727	-	150.727	135.716	111.735	113.871	116.148	0.000	816.783
MD40: *Program Wide Support*	-	0.000	5.390	6.698	-	6.698	6.675	5.196	5.909	5.930	0.000	35.798
Program MDAP/MAIS Code: 362												

Note

Increase from FY 2019 to FY 2020 provides for the transition of Hypersonic Defense weapon system concept development to technology risk reduction activities.

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 series of material solutions to defeat hypersonic threats informed by a set of near term technology demonstrations. The Missile Defense Agency (MDA) continues to assess architecture alternatives and provide recommendations for future BMDS configurations to keep pace with evolving threats. MDA will leverage and upgrade existing systems, pursue hypersonic threat defeat weapon system capabilities, and develop disruptive technologies that augment future hypersonic defense architectures. These integrated sets of enhancements will provide incremental capabilities measured by progress and knowledge points in the following areas:

- Systems Engineering (Architecture Analysis, technology prioritization, requirements development, integration planning, test planning & assessment and lethality)
- Modification of existing Ballistic Missile Defense System (BMDS) sensors and Command, Control, Battle Management, and Communications (C2BMC) element for hypersonic threats
- Hypersonic Defense Weapon Systems Technology Development to enable a broad set of solutions including kinetic and non-kinetic means
- Advanced development of Sensor and C2 Technology to include ground, airborne and space-based technologies, to inform the development strategy

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Missile Defense Agency	Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	75.300	120.444	157.672	-	157.672
Current President's Budget	63.032	130.944	157.425	-	157.425
Total Adjustments	-12.268	10.500	-0.247	-	-0.247
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	-15.200	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	10.500			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	4.350	0.000			
• SBIR/STTR Transfer	-1.418	0.000			
• Missile Defeat and Defense Enhancement	0.000	0.000	0.000	-	0.000
• Other Adjustment	0.000	0.000	-0.247	-	-0.247

Change Summary Explanation

Decrease in FY 2018 from PB19 to PB20 reflects the enacted congressional adjustments of:
- $15.200 million reduction to Hypersonic Defense for funds request early to need pending completion of the Analysis of Alternatives
- $4.350 million Reprogramming add for Hypersonic Defense

Increase in FY 2019 from PB19 to PB20 reflects the enacted congressional adjustment for hypersonic defense.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency			Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
MD29: *Hypersonic Defense*	-	63.032	125.554	150.727	-	150.727	135.716	111.735	113.871	116.148	0.000	816.783
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Increase from FY 2019 to FY 2020 provides initiation of Hypersonic Defense concept development and technology risk reduction activities following completion of the Hypersonic Defense Analysis of Alternatives.

A. Mission Description and Budget Item Justification

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

MDA will conduct systems engineering activities required to develop Missile Defense System capabilities to defeat advanced threats. Efforts will include full kill chain and component allocations for requirements development, performance analysis, integration planning, and ground/flight test planning & assessment for near term and far term architectures.

MDA will continue operationalization and integration of the initial hypersonic tracking capability developed under Pacific Command Joint Emergent Operational Need PC-0015 into the C2BMC program of record, Spiral 8.2-5. 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. In addition, MDA will begin integrating these additional sensors into C2BMC and continue to enhance advanced threat ground processing to leverage data from these new sensors.

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. MDA will assess those concepts and identify technology component risk reduction efforts for cost, risk, and performance, and refine requirements to inform future development efforts. The Agency will also enhance analysis tools to assess concept designs and provide input to the requirements process.

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, mid-phase using airborne, and terminal phase using ground, airborne, or 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 2018	FY 2019	FY 2020
Title: Hypersonic Defense	63.032	125.554	150.727
Articles:	-	-	-

Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency		Date: March 2019
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 2018	FY 2019	FY 2020
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 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 2019 Plans:*** Systems Engineering: - Conduct integrated architecture and performance analysis of end-to-end hypersonic threat capabilities. - Complete Analysis of Alternatives. - Complete analysis and assessments of target of opportunity events. - Complete requirements and initial system integration activities. - Finalize capability roadmap. - Develop Initial concept requirements. Missile Defense System Element Upgrades: - Command and Control, Battle Management, Communication (C2BMC): -- Conduct C2BMC 8.2-5 Critical Design Review (CDR) and complete development and integration for the following Hypersonic Defense capabilities. -- Complete design, development, and integration activities for sensor data exploitation tracking algorithms, leveraging the initial limited contingency capability enhancements. -- Develop Link 16 track forwarding of the hypersonic threat tracks. - 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. Sensors & Weapons Technology & Demonstration:			

Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency		Date: March 2019
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 2018	FY 2019	FY 2020
- Identify and demonstrate sensor and weapons component technology - Test and demonstrate sensor and weapons components for future hypersonic applications. - Conduct 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. Hypersonic Defense Weapon Systems Concept Definition: - Complete concept definition initial phase for the hypersonic intercept weapons with industry partners. The weapon systems concepts will aid the Agency in establishing the foundation for hypersonic defense capability - Deliver initial hypersonic defense weapon systems contractor concepts for future development and demonstration activities. ***FY 2020 Plans:*** Systems Engineering: - Execute the Hypersonic Defense program systems engineering process for integrating hypersonic defense capabilities into a layered missile defense system. - Lead Hypersonic Defense program; synchronizing element execution. - Complete analysis and assessments of target of opportunity events. - Perform architectural analysis to define initial Hypersonic Defense missile defense architectures, functional and performance needs. - Develop plans for capability integration; identify and resolve cross element integration technical and scheduling issues. - Update Hypersonic Defense architecture roadmap. Missile Defense System Element Upgrades: - Command and Control, Battle Management, Communication (C2BMC): -- Conduct Enterprise Sensor Laboratory (ESL)/C2BMC Hypersonic Defense capability development. -- Perform C2BMC Hypersonic Defense integration. -- Develop Organic sensor cueing. - Ground Sensor Upgrades: AN/TPY-2 and LRDR update and develop: -- Hypersonic threat profiles (database updates). -- Impact point prediction updates (threat/non-threat calls). -- Track filter techniques. -- Electronic Protection techniques. -- Interfaces. -- Other (higher classification). Sensors Technology & Demonstration:			

Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency		Date: March 2019
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 2018	FY 2019	FY 2020
- Identify, develop, and demonstrate advanced technologies across the hypersonic defense full kill chain in the key areas of: -- Large field of view, digital focal plane array. -- High speed processing & algorithm development. -- High data rate, low latency processing and communications. Hypersonic Defense Weapon Systems Concept Definition: - Complete concept definition follow-on phase for the hypersonic weapon system architecture with industry partners. The weapon system concepts will aid the Agency in establishing the foundation for hypersonic defense capability - Conduct hypersonic weapon systems technology risk reduction to lower technical risk. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase from FY 2019 to FY 2020 provides for the transition of Hypersonic defense weapon system efforts from concept development to technology risk reduction activities.			
Accomplishments/Planned Programs Subtotals	63.032	125.554	150.727

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• 0603176C: *Advanced Concepts and Performance Assessment*	17.683	13.017	14.208	-	14.208	14.904	15.142	16.262	16.574	Continuing	Continuing
• 0603884C: *Ballistic Missile Defense Sensors*	290.289	385.375	283.487	-	283.487	296.098	263.681	276.092	351.607	Continuing	Continuing
• 0603890C: *BMD Enabling Programs*	533.993	620.831	571.507	-	571.507	603.672	541.667	574.553	553.969	Continuing	Continuing
• 0603896C: *Ballistic Missile Defense Command and Control, Battle Management & Communication*	449.985	507.817	564.206	-	564.206	534.988	502.581	525.742	535.636	Continuing	Continuing

Remarks

D. Acquisition Strategy

To optimize Missile Defense System 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 Missile Defense System. 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.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604181C / *Hypersonic Defense*	**Project (Number/Name)** MD29 / *Hypersonic Defense*

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency			Date: March 2019
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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hypersonic Defense - BMDS C2BMC Upgrades	C/Various	Various : AL	0.000	13.375	Nov 2017	20.270	Nov 2018	19.115	Nov 2019	-		19.115	Continuing	Continuing	Continuing
Hypersonic Defense - BMDS Sensor Upgrades - AN/TPY-2	SS/CPFF	Raytheon : MA	0.000	1.896	Nov 2017	14.578	Nov 2018	16.624	Nov 2019	-		16.624	Continuing	Continuing	Continuing
Hypersonic Defense - BMDS Sensor Upgrades - LRDR	C/FFP	Lockheed Martin : NJ	0.000	1.822	Nov 2017	10.185	Feb 2019	6.948	Nov 2019	-		6.948	Continuing	Continuing	Continuing
Hypersonic Defense - Component Technology for Sensors and Weapons	MIPR	Various : AL	0.000	10.949	Nov 2017	9.551	Nov 2018	16.660	Nov 2019	-		16.660	Continuing	Continuing	Continuing
Hypersonic Defense - Sensor Technology - Advanced Threat Tracking and Analysis / Low Latency Processing	MIPR	Various : AL, CA	0.000	7.368	Jun 2018	5.648	Dec 2018	6.623	Nov 2019	-		6.623	Continuing	Continuing	Continuing
Hypersonic Defense - Sensor Technology - Sensor Concept and Development	MIPR	Various : AL	0.000	6.714	Nov 2017	14.808	Nov 2018	5.500	Nov 2019	-		5.500	Continuing	Continuing	Continuing
Hypersonic Defense - Systems Engineering	Allot	MDA : AL, VA	0.000	3.914	Oct 2017	3.000	Oct 2018	3.000	Nov 2019	-		3.000	Continuing	Continuing	Continuing
Hypersonic Defense - Systems Engineering - CSS	C/CPFF	TEAMS : AL, VA	0.000	3.250	Nov 2017	2.000	Nov 2018	2.000	Nov 2019	-		2.000	Continuing	Continuing	Continuing
Hypersonic Defense - Systems Engineering - FFRDC/UARC	MIPR	Various : VA, AL	0.000	2.000	Nov 2017	2.000	Nov 2018	2.000	Nov 2019	-		2.000	Continuing	Continuing	Continuing
Hypersonic Defense - Systems Engineering - Industry	C/CPAF	Boeing : AL	0.000	2.500	Nov 2017	2.596	Nov 2018	2.496	Nov 2019	-		2.496	Continuing	Continuing	Continuing
Hypersonic Defense - Technology Development Program Operations	Allot	MDA : AL, VA	0.000	4.466	Nov 2017	7.395	Nov 2018	6.759	Nov 2019	-		6.759	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency			Date: March 2019
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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Hypersonic Defense - Weapon Concept Definition & Risk Reduction	C/Various	Various : AL	0.000	4.778	Sep 2018	33.523	Feb 2019	63.002	Feb 2020	-		63.002	Continuing	Continuing	Continuing
		Subtotal	0.000	63.032		125.554		150.727		-		150.727	Continuing	Continuing	N/A

Remarks

N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	63.032		125.554		150.727		-		150.727	Continuing	Continuing	N/A

Remarks

Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Missile Defense Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604181C / *Hypersonic Defense*	**Project (Number/Name)** MD29 / *Hypersonic Defense*

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 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
Hypersonic Threat Sensor Tracking Demonstration	▲																											
C2BMC Capability Development	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧			
Hypersonic Threat Sensor Technology Development and Demo	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	
Hypersonic Defense Sensor & Weapons Component Technology Capability Development			✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧
Weapon Systems Concept Definition Contract Award #1				▲																								
AN/TPY-2 Capability Development				✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧				
LRDR Capability Development				✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧				
Weapon Systems Concept Definition & Risk Reduction				✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧		
AoA Completion					▲																							
C2BMC System Requirements Review / Preliminary Design Review					▲																							
Hypersonic Defense Sensor and Weapons Component Technology Development Contract Award						△																						
Weapon Systems Concept Definition Contract Award #2							△																					
Hypersonic Defense Sensor and Weapons Component Technology Performance Testing							✧	✧	✧	✧	✧	✧	✧	✧	✧	✧												
LRDR System Requirements Review									△																			
AN/TPY-2 System Requirements Review									△																			
Weapons Technology Risk Reduction Contract(s) Award										△																		

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Missile Defense Agency		Date: March 2019
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**
Hypersonic Threat Sensor Tracking Demonstration	1	2018	1	2018
C2BMC Capability Development	1	2018	1	2024
Hypersonic Threat Sensor Technology Development and Demo	1	2018	3	2024
Hypersonic Defense Sensor & Weapons Component Technology Capability Development	3	2018	4	2024
Weapon Systems Concept Definition Contract Award #1	4	2018	4	2018
AN/TPY-2 Capability Development	4	2018	4	2023
LRDR Capability Development	4	2018	4	2023
Weapon Systems Concept Definition & Risk Reduction	4	2018	2	2024
AoA Completion	1	2019	1	2019
C2BMC System Requirements Review / Preliminary Design Review	1	2019	1	2019
Hypersonic Defense Sensor and Weapons Component Technology Development Contract Award	2	2019	2	2019
Weapon Systems Concept Definition Contract Award #2	3	2019	3	2019
Hypersonic Defense Sensor and Weapons Component Technology Performance Testing	3	2019	4	2021
LRDR System Requirements Review	1	2020	1	2020
AN/TPY-2 System Requirements Review	1	2020	1	2020
Weapons Technology Risk Reduction Contract(s) Award	2	2020	2	2020

Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency			Date: March 2019
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 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
MD40: *Program Wide Support*	-	0.000	5.390	6.698	-	6.698	6.675	5.196	5.909	5.930	0.000	35.798
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

Program Wide Support (PWS) is allocated on a pro-rata basis across multiple Agency PE's each fiscal year based on the total Agency budget, and therefore fluctuates per PE by fiscal year.

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 personnel to support global deployments performing deployment site preparation and activation, and provides facility capabilities for MDA Executing Agent locations. Other MDA wide costs include: 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; Facilities Sustainment, Restoration and Modernization (SRM) program, (formerly Real Property Maintenance) to keep the Department's inventory of facilities in good working order; and similar operating expenses. PWS is allocated on a pro-rata basis across most Agency PEs and therefore fluctuates per PE by fiscal year based on the total Agency budget in that fiscal year.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020
Title: Program Wide Support	0.000	5.390	6.698
Articles:	-	-	-
Description: 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 personnel to support global deployments performing deployment site preparation and activation, and provides facility capabilities for MDA Executing Agent locations. Other MDA wide costs include: 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; Facilities Sustainment, Restoration and Modernization (SRM) program, (formerly Real Property Maintenance) to keep the Department's inventory of facilities in good working order; and similar operating expenses. PWS is allocated on a pro-rata basis across most Agency PEs and therefore fluctuates per PE by fiscal year based on the total Agency budget in that fiscal year.			
FY 2019 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2020 Missile Defense Agency		Date: March 2019
Appropriation/Budget Activity 0400 / 4	**R-1 Program Element (Number/Name)** PE 0604181C / *Hypersonic Defense*	**Project (Number/Name)** MD40 / *Program Wide Support*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2018	FY 2019	FY 2020
- SEE ABOVE. ***FY 2020 Plans:*** - SEE ABOVE. ***FY 2019 to FY 2020 Increase/Decrease Statement:*** Increase from FY 2019 to FY 2020 reflects the PWS allocation on a pro-rata basis across multiple Agency PE's each fiscal year based on the total Agency budget, and therefore fluctuates per PE by fiscal year.			
Accomplishments/Planned Programs Subtotals	0.000	5.390	6.698

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Missile Defense Agency		Date: March 2019
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 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 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		0.082	Aug 2019	0.100	Aug 2020	-		0.100	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		5.308	Aug 2019	0.000		-		0.000	Continuing	Continuing	Continuing
Program Wide Support - Facilities Maintenance	MIPR	Various : Multi: AK, AL, CA, CO, HI, VA	0.000	0.000		0.000		6.598		-		6.598	Continuing	Continuing	Continuing
		Subtotal	0.000	0.000		5.390		6.698		-		6.698	Continuing	Continuing	N/A

Remarks

N/A

	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	0.000		5.390		6.698		-		6.698	Continuing	Continuing	N/A

Remarks

Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Missile Defense Agency		Date: March 2019
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 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
MD40 Program-Wide Support	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧	✧

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Missile Defense Agency		Date: March 2019
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	2018	4	2024