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 3: *Advanced Technology Development (ATD)*					R-1 Program Element (Number/Name) PE 0603179C / *Advanced C4ISR*							
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	35.531	3.489	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	39.020
MD73: *Advanced C4ISR*	34.388	3.327	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	37.715
MD40: *Program-Wide Support*	1.143	0.162	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.305
Program MDAP/MAIS Code: 362												

Note

N/A

A. Mission Description and Budget Item Justification

For FY18 and beyond, the discrimination technologies developed under this PE have been transitioned to the Ballistic Missile Defense Sensors (0603884C) Program Element for further refinement and implementation.

The Advanced Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) Program Element develops future BMDS capabilities to out-pace emerging and evolving threats and identifies, develops, and readies for transition the technical solutions that address shortfalls identified by the Combatant Commanders. MDA uses the Prioritized Capabilities List (PCL) and the Agency's Achievable Capabilities List (ACL) to prioritize technology investments including Advanced C4ISR. MDA's investments balance the pursuit of promising next generation technology with the need for near-term solutions to enhance existing BMDS capability.

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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Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 3: *Advanced Technology Development (ATD)*			R-1 Program Element (Number/Name) PE 0603179C / *Advanced C4ISR*		
B. Program Change Summary ($ in Millions)	**FY 2017**	**FY 2018**	**FY 2019 Base**	**FY 2019 OCO**	**FY 2019 Total**
Previous President's Budget	3.626	0.000	0.000	-	0.000
Current President's Budget	3.489	0.000	0.000	-	0.000
Total Adjustments	-0.137	0.000	0.000	-	0.000
• 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	-0.053	0.000			
• SBIR/STTR Transfer	-0.084	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	0.000	-	0.000

Change Summary Explanation

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency			Date: February 2018
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603179C / *Advanced C4ISR*	Project (Number/Name) MD73 / *Advanced C4ISR*	

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
MD73: *Advanced C4ISR*	34.388	3.327	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	37.715

Note

The decrease in FY 2017 is due to the completion of technology development efforts.

A. Mission Description and Budget Item Justification

Advanced Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) enables rapid, exponential capability increases in the Ballistic Missile Defense System (BMDS) command, control, battle management and communications (C2BMC) and existing sensor networks. MDA will develop and mature technology, software and algorithms to facilitate integration of Service command and sensor network approaches into the BMDS.

This Program Element also included support for C2BMC centric discrimination improvements for Near-Term and Mid-Term capability fielding. For FY18 and beyond, the discrimination technologies developed under this PE have been transitioned to the Ballistic Missile Defense Sensors (0603884C) Program Element for further refinement and implementation.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Advanced X-Band Radar Capabilities	3.327	0.000	0.000
Description: Development and incorporation of advanced discrimination algorithms into X-Band Radars (XBRs). Specific and/or unique accomplishments to each FY are as follows: ***FY 2018 Plans:*** N/A ***FY 2019 Plans:*** N/A ***FY 2018 to FY 2019 Increase/Decrease Statement:*** N/A			
Accomplishments/Planned Programs Subtotals	3.327	0.000	0.000

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
• 0603882C: *Ballistic Missile Defense Midcourse Defense Segment*	1,034.861	957.097	926.359	-	926.359	1,046.235	847.537	585.956	572.619	Continuing	Continuing

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency		Date: February 2018
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603179C / *Advanced C4ISR*	**Project (Number/Name)** MD73 / *Advanced C4ISR*

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
• 0603884C: *Ballistic Missile Defense Sensors*	252.665	278.145	220.876	-	220.876	250.238	267.502	263.758	260.273	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
• 0603898C: *Ballistic Missile Defense Joint Warfighter Support*	47.402	48.954	48.767	-	48.767	53.418	51.448	54.076	54.061	Continuing	Continuing
• 0603904C: *Missile Defense Integration and Operations Center (MDIOC)*	53.483	53.265	54.925	-	54.925	58.498	57.764	59.020	61.915	Continuing	Continuing
• 0603907C: *Sea Based X-Band Radar (SBX)*	115.201	145.695	149.715	-	149.715	175.013	155.718	129.044	136.390	Continuing	Continuing

Remarks

D. Acquisition Strategy

Advanced X-Band Radar Capabilities follow the MDA capability-based acquisition strategy that emphasizes testing, development and evolutionary acquisition. The advanced technology development will include development of target acquisition and discrimination algorithms and assessment of performance. Performance assessment and transition risk reduction will use modeling, simulation, and online or offline assessment of live tracking opportunities. When ready, technology will transition to appropriate program elements for advanced component development and integration into BMDS X-Band Radars.

The Radar Sustainment Contract (RSC) will be used for both advanced technology development and for transition of technology to systems. The RSC is an Indefinite Delivery/Indefinite Quantity (IDIQ) task order contract awarded in 2012 to sustain all the BMDS X-Band Radars. The contract provides sustainment of previously developed X-Band radar products, such as:
-Software maintenance of existing software developed to support the X-Band Radars
-Models & Simulation - development, maintenance, and verification of high fidelity models, support for war games and exercises, and support for performance assessment events
-Engineering Services - engineering support for deployed radars to facilitate maintenance efforts which may include but are not limited to hardware obsolescence studies, hardware redesign, technology insertion, and refurbishment efforts
-BMDS Test Planning, Execution, and Analysis - planning, execution and analysis of BMDS test requirements for previously developed hardware and software in accordance with the MDA Integrated Master Test Plan (IMTP).

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E. Performance Metrics

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2019 Missile Defense Agency			Date: February 2018
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603179C / *Advanced C4ISR*	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*	1.143	0.162	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1.305

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).