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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0207161F / <i>Tactical AIM Missiles</i>
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	233.677	18.779	32.974	34.536	0.000	34.536	43.079	34.667	15.963	16.318	0.000	429.993
674132: <i>AIM-9 Product Improvement</i>	233.677	18.779	32.974	34.536	0.000	34.536	43.079	34.667	15.963	16.318	0.000	429.993
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Program MDAP/MAIS Code: 442

A. Mission Description and Budget Item Justification

The AIM-9X Block II/II+ Sidewinder (AIM-9X Blk II/II+) continues the evolution of the AIM-9 series of missiles. This missile program delivers a launch and leave, air combat munition that uses passive Infrared (IR) energy to acquire and track enemy air targets and complements the radar guided Advanced Medium Range Air-to-Air Missile (AMRAAM). The missile provides first shot, first kill opportunities while conducting air combat maneuvering Within Visual Range (WVR) which is essential for aircrew survival. The AIM-9X provides these opportunities with unmatched offensive and defensive capabilities against threats WVR, even when IR countermeasures are employed. The AIM-9X also provides air superiority in the Beyond Visual Range (BVR) air-to-air battle. Anti-tamper features have been incorporated to protect improvements inherent in this design. The AIM-9X Block II missile is critical for projecting power and winning decisively against threats identified in Defense Planning Guidance and the Air Force Strategic Master Plan.

AIM-9X is a Post Milestone C, Acquisition Category IC (ACAT-IC) joint service program led by the Department of the Navy. The Block II program has completed independent operational testing and found to be operationally effective and operational/suitable. The program achieved Air Force Initial Operational Capability (IOC) in September 2016 and received Full Rate Production (FRP) decision in August 2015. The first Full Rate Production Lot contract was awarded in September 2015. This budget line will continue technical refresh of critical obsolete components, implement cost reduction initiatives, improve insensitive munitions performance, correct deficiencies, and increase capabilities through software enhancements, and conduct testing to ensure platform integration onto threshold US Air Force aircraft.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, or 0606398F. In FY21 \$0 were expended for civilian pay expenses in this program element, and in FY22 \$0 is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	19.382	32.974	0.000	0.000	0.000
Current President's Budget	18.779	32.974	34.536	0.000	34.536
Total Adjustments	-0.603	0.000	34.536	0.000	34.536
• 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	-0.603	0.000			
• Other Adjustments	0.000	0.000	34.536	0.000	34.536

Change Summary Explanation

The FY 2022 President's Budget submittal did not reflect FY 2023 through FY 2026 funding. Therefore, an explanation of the change between the two budget positions for FY2023 cannot be made in a relevant manner.

C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023
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Title: AIM- 9X Product Development	18.218	31.174	32.736
Description: Continuation of Primary Hardware Development/Pre-Planned Product Improvement (Tech Refresh) efforts for the AIM-9X weapon system. This includes Systems Engineering & Program management, as well as support required to ensure AIM-9X missile integration with threshold US Air Force aircraft platforms. This also includes efforts to redesign missile components in order to resolve obsolescence to ensure missile producibility and increase reliability. It will incorporate anti-tamper and cyber security technology improvements, implement cost reduction initiatives, and comply with the Insensitive Munitions (IM) requirements. In addition, the program will evaluate and begin risk reduction efforts that will address hardware and software improvements to facilitate follow-on capability and mitigate obsolescence.			
FY 2022 Plans: Complete the AIM-9X SIP III Phase 2 hardware (IMU/dome/processor) Engineering Change Proposal. Continue SIP III v10.4 software development and test. Continue SIP IV hardware and software risk reduction activities to facilitate follow-on capability and obsolescence mitigation; and begin software development efforts to support future v9.X and v10.X software releases. The AIM-9X SIP-IV contract will be awarded in FY22 to address hardware and technological obsolescence in several missile sub-systems in order to maintain required performance against increasingly challenging threat platforms. Software will be developed to facilitate the use of the updated hardware. In particular, FY22 SIP-IV RDT&E funding will focus on the development of an			

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C. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023
advanced sensor replacement and electronic unit upgrades to address hardware obsolesce and processing improvement for the missile guidance system			
FY 2023 Plans: Continue AIM-9X SIP III v10.4 software development and test. Continue v9.5 and v10.5 software development efforts, to support required performance against increasingly challenging threat platforms. Continue AIM-9X SIP-IV hardware development of an advanced sensor and Electronics Unit. Hold Preliminary Design Review (PDR) for the SIP IV hardware. Begin v11.5 to expand on the updated SIP IV hardware.			
FY 2022 to FY 2023 Increase/Decrease Statement: Funding increased due to the ramp up of SIP IV development efforts.			
Title: AIM-9X, Test and Evaluation	0.561	1.800	1.800
Description: Test and Evaluation (T&E) and associated governmental support required to ensure the AIM-9X missile integration with US Air Force aircraft platforms. Developmental and Operational testing of Operation Flight Software.			
FY 2022 Plans: Continue SIP-III hardware testing to include verification of the Phase II Hardware (Inertial Measurement Unit/dome/processor) as well as v10.4 software. Start SIP IV effort testing of follow-on v9.5 software.			
FY 2023 Plans: Complete v10.4 software flight test. Continue v9.5 software development test and start Integrated Test (IT).			
FY 2022 to FY 2023 Increase/Decrease Statement: No Change from prior year.			
Accomplishments/Planned Programs Subtotals	18.779	32.974	34.536

D. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
• MPAF 02 Line Item M09HAI: <i>Sidewinder (AIM-9X)</i>	119.769	102.507	111.855	-	111.855	95.102	106.064	126.730	128.778	1,078.859	1,869.664
• MPAF 04 Line Item 000999: <i>Replen Spares, USAF</i>	5.906	5.937	4.641	-	4.641	6.420	6.534	6.613	6.720	0.000	42.771
• MPAF 04 Line Item 000999 <i>(2)...: Inital Spares, USAF</i>	1.861	2.659	2.801	-	2.801	2.023	2.060	2.084	2.117	36.589	52.194

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

<u>Line Item</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u> <u>Base</u>	<u>FY 2023</u> <u>OCO</u>	<u>FY 2023</u> <u>Total</u>	<u>FY 2024</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTE 07 PE 0207161N: <i>Tactical AIM Missile</i>	5.715	23.881	29.236	-	29.236	33.470	25.818	12.458	12.622	0.000	143.200
• WPN Line Item 2209: <i>Sidewinder</i>	104.502	78.606	63.288	-	63.288	79.930	87.960	110.521	111.778	1,220.730	1,857.315

Remarks

E. Acquisition Strategy

Milestone C decision for LRIP was held June 24, 2011. The program received USN Initial Operational Capability (IOC) in March 2015 and Full Rate Production (FRP) Approval in August 2015. The Air Force achieved IOC in September 2016. In February 2019, the Acquisition Program Baseline for SAF was revised to increase total missile procurements and extend missile procurements through 2035. The program awarded FRP-7 in June 2021. The SIP IV is a cost plus fixed fee contract with a planned award in FY22.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207161F / <i>Tactical AIM Missiles</i>	Project (Number/Name) 674132 / <i>AIM-9 Product Improvement</i>
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Product Development (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
Software/OFP Upgrade/Hdw Development	SS/CPFF	RMD : Tucson, AZ	170.919	16.417	Oct 2020	29.100	Oct 2021	30.662	Oct 2022	-		30.662	75.149	322.247	325.836
Flight Termination System	MIPR	NAWC WD : China Lake, CA	4.034	-		-		0.000	Feb 2023	-		0.000	0.000	4.034	10.578
Munitions Improvement Study (USG)	MIPR	NAWC WD : China Lake, CA	12.443	-		-		-		-		-	0.000	12.443	-
Systems Engineering (USG)	MIPR	NAWC WD : China Lake, CA	6.104	1.300	Feb 2021	1.600	Feb 2022	1.600	Feb 2023	-		1.600	8.200	18.804	-
Aircraft Integration	SS/CPFF	Boeing : St. Louis, MO	1.038	0.200	May 2021	0.100	May 2022	0.100	May 2023	-		0.100	0.400	1.838	2.624
Subtotal			194.538	17.917		30.800		32.362		-		32.362	83.749	359.366	N/A

Test and Evaluation (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
DT&E/OT&E	PO	Eglin AFB : Eglin, FL	28.623	0.432	Jan 2021	1.500	Jan 2022	1.500	Jan 2023	-		1.500	23.582	55.637	-
IT/OT Support F-15	SS/CPAF	RMD : Tuscon, AZ	0.641	0.129	May 2021	0.300	May 2022	0.300	May 2023	-		0.300	1.200	2.570	3.370
Subtotal			29.264	0.561		1.800		1.800		-		1.800	24.782	58.207	N/A

Management Services (\$ in Millions)				FY 2021		FY 2022		FY 2023 Base		FY 2023 OCO		FY 2023 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			
PMA	Various	Eglin AFB : Eglin, FL	9.875	0.301	Jan 2021	0.374	Jan 2022	0.374	Jan 2023	-		0.374	1.496	12.420	7.285
Subtotal			9.875	0.301		0.374		0.374		-		0.374	1.496	12.420	N/A

			Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			233.677	18.779	32.974	34.536	-	34.536	110.027	429.993	N/A

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2023 Air Force	Date: April 2022
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	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	Cost To Complete	Total Cost	Target Value of Contract
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<u>Remarks</u>	
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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0207161F / <i>Tactical AIM Missiles</i>	Project (Number/Name) 674132 / <i>AIM-9 Product Improvement</i>
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	FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
	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

AIM-9X Block II Tech Refresh (SIP III): Software	
Phase II Hardware (IMU, Dome, Processor)	
Phase II Hardware Cut in: Engineering Change Proposal	
Software v9.4 Improvements: Software v9.4 Release	
Operational Flight Software v9.5	
Operational Flight Software v9.5 Release	
Software v10.4 Rehost: Development Testing (DT-D2)	
Software v10.4 Rehost: Software v10.4 Release	
AIM-9X Block II Tech Refresh (SIP IV)	
Hardware and Software Obsolescence	

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>AIM-9X Block II Tech Refresh (SIP III): Software</i>				
Phase II Hardware (IMU, Dome, Processor)	1	2021	3	2022
Phase II Hardware Cut in: Engineering Change Proposal	3	2022	3	2022
Software v9.4 Improvements: Software v9.4 Release	4	2021	4	2021
Operational Flight Software v9.5	1	2021	3	2023
Operational Flight Software v9.5 Release	4	2023	4	2023
Software v10.4 Rehost: Development Testing (DT-D2)	1	2021	1	2023
Software v10.4 Rehost: Software v10.4 Release	3	2023	3	2023
<i>AIM-9X Block II Tech Refresh (SIP IV)</i>				
Hardware and Software Obsolescence	1	2022	4	2027