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

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force / BA 5: System Development &amp; Demonstration (SDD)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0207328F / <i>Stand In Attack Weapon</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	144.362	145.858	166.570	283.152	0.000	283.152	270.228	379.628	718.120	226.800	584.701	2,919.419
653133: <i>Stand In Attack Weapon</i>	144.362	145.858	166.570	283.152	0.000	283.152	270.228	379.628	718.120	226.800	584.701	2,919.419
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

**A. Mission Description and Budget Item Justification**

The Stand-in Attack Weapon (SiAW) system will provide the capability to strike rapidly re-locatable targets that create the Anti-Access/Area Denial (A2/AD) environment. SiAW targets include Theater Ballistic Missile Launchers, Land Attack and Anti-Ship Cruise Missile Launchers, GPS Jammers, Anti-Satellite Systems, and Integrated Air Defense Systems. The SiAW missile system will be developed under a Digital Acquisition (DA) approach in a competitive environment that will emphasize agility and innovation. Interim combat capability will be pursued through the Navy's Advanced Anti-Radiation Guided Missile-Extended Range (AARGM-ER) program with improved warhead/fuze and F-35 integration (including Universal Armament Interface [UAI] and Mission Planning).

The total cost of the SiAW Middle Tier of Acquisition Rapid Prototyping effort is 1,126 million, including RDT&E and procurement of prototype units. SiAW is fully funded across the Future Years Defense Program.

This requirement supports performance of a full financial audit as required by title 10 U.S.C. Chapter 9A, Sec 240-D.

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, 0606398F. In FY21 4.000M was expended for civilian pay expenses in this program element, and in FY22 4.192M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 5, System Development and Demonstration (SDD) because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full rate production.

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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023 Base</b>	<b>FY 2023 OCO</b>	<b>FY 2023 Total</b>
Previous President's Budget	150.371	166.570	0.000	0.000	0.000
Current President's Budget	145.858	166.570	283.152	0.000	283.152
Total Adjustments	-4.513	0.000	283.152	0.000	283.152
• 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	-4.513	0.000			
• Other Adjustments	0.000	0.000	283.152	0.000	283.152

**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.

<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p><b>Title:</b> Warhead / Electronic Safe and Arm Fuze (ESAF) Development / System Engineering / Program Management (SEPM)</p> <p><b>Description:</b> Development of a new warhead and ESAF to support AARGM-ER. Will design, test, and certify new warhead/ESAF.</p> <p><b>FY 2022 Plans:</b> Continue working with the USN AARGM-ER Program Office on warhead/ESAF development, test, integration, and qualification. This year is funded with FY21 dollars.</p> <p><b>FY 2023 Plans:</b> Continue working with the USN AARGM-ER Program Office on the warhead/ESAF development, test, integration, and qualification.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to amount of support needed to accomplish scheduled development efforts.</p>	64.080	0.000	4.208
<p><b>Title:</b> Universal Armament Interface (UAI) / Anti-Radiation Homing (ARH) message / SEPM</p> <p><b>Description:</b> Develop and test a UAI/ARH message set for the AARGM-ER missile.</p> <p><b>FY 2022 Plans:</b></p>	10.540	0.000	12.040

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
Continue to test, certify, and validate the UAI/ARH for the AARGM-ER missile. This year is funded with FY21 dollars. <b>FY 2023 Plans:</b> Continue testing, certification and validation of the UAI/ARH for the AARGM-ER missile. <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to amount of support needed to accomplish scheduled development efforts.				
<b>Title:</b> F-35 Integration <b>Description:</b> Integration of the AARGM-ER and SiAW missiles onto the F-35. Efforts for aircraft integration will address the F-35 aircraft software development, Mission Planning capability, engineering to support weapon integration, testing, and airworthiness certification for the missile carriage and employment efforts. <b>FY 2022 Plans:</b> Integrate the AARGM-ER on the F-35 as an interim combat capability; includes ground testing, F-35 weapon integration, launcher adapter development and mission planning. <b>FY 2023 Plans:</b> Continue integrating the AARGM-ER on the F-35 as an interim combat capability; includes ground testing, F-35 weapon integration, launcher adapter development and mission planning. <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to ramp up of AARGM-ER integration activities on the F-35.		2.041	10.950	26.574
<b>Title:</b> Advanced Technology Risk Reduction <b>Description:</b> Conduct risk reduction on emerging technologies for future SiAW tech insertion to maintain operational effectiveness in classified scenarios. <b>FY 2022 Plans:</b> Risk Reduction efforts for the technology maturation of critical components transition to SiAW Development Major Thrust. <b>FY 2023 Plans:</b> Risk Reduction efforts for the technology maturation of critical components transition to SiAW Development Major Thrust. <b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> No increase/decrease		31.606	0.000	0.000
<b>Title:</b> SiAW Development		22.505	121.293	172.599

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<b>C. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2021</b>	<b>FY 2022</b>	<b>FY 2023</b>
<p><b>Description:</b> Conduct development and testing of discrete SiAW technologies as well as the integrated SiAW weapons system. This includes the development of an initial SiAW capability via the Middle Tier Acquisition described in Section A, as well as a post-MTA activity that will bring additional capability and integrate the weapon onto the F-35.</p> <p><b>FY 2022 Plans:</b> Begin Phase 1 of the MTA which will initiate the SiAW detailed design work and integration of critical components in a Model Based System Engineering environment, leading up to a PDR-like event at the end of Phase 1 in 2023.</p> <p><b>FY 2023 Plans:</b> Continue work on Phase 1 that begun in FY22 and proceed to a PDR-like event in a Model Based System Engineering environment by late FY23. Complete acquisition planning for Phase 2 and prepare for a competitive selection in late FY23.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to ramp up of system design and integration activities and initial evaluation of advanced technologies.</p>				
<p><b>Title:</b> Target/Test Assets, Testing, &amp; Support</p> <p><b>Description:</b> Provides associated government and contract support for F-35 developmental and operational testing for AARGM-ER and SiAW. Includes required test assets and support, flight test equipment, construction and procurement of targets to meet mission requirements, test wing and range support to include both sea and land ranges, and ground/flight test support.</p> <p><b>FY 2022 Plans:</b> Conduct test/range/ground support, purchase targets, test equipment, and test assets. Continue target/threat emitter acquisition to include weapon cybersecurity support and test investments, and development of flight telemetry and termination system.</p> <p><b>FY 2023 Plans:</b> Continue test support, purchasing test equipment, target construction, range/ground support, and test assets. Continue target/threat emitter acquisition to include weapon cybersecurity support and test investments and development of flight telemetry and termination system.</p> <p><b>FY 2022 to FY 2023 Increase/Decrease Statement:</b> Funding increased due to variation in test and target costs.</p>		15.086	34.327	67.731
<b>Accomplishments/Planned Programs Subtotals</b>		145.858	166.570	283.152

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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 0205601N: <i>AARGM-ER (Navy)</i>	126.897	123.445	82.614	-	82.614	41.078	6.877	6.160	6.088	0.000	393.159
• MPAF 02 0207328F: <i>Stand-In Attack Weapon</i>	-	-	77.975	-	77.975	41.710	207.739	273.593	254.689	7,784.500	8,640.206

**Remarks**

RDTE: US Navy AARGM-ER Program Office, Anti-Radiation Missile Improvement Systems Development US Navy appropriation RDT&E 1319.  
MPAF: Funding contained in procurement document utilized to procure initial production lot of AARGM-ER weapons.

**E. Acquisition Strategy**

The Stand-in Attack Weapon (SiAW) program will utilize a multi-phase approach to migrate advanced technologies and weapon designs into an Model Based System Engineering (MBSE) environment and then rapidly evolve the designs for an initial capability followed by a more comprehensive capability. The first Phases (1 & 2) have been approved as a Middle Tier of Acquisition (MTA) program, and will focus on the integration of key technologies, the implementation of digital acquisition, a competitive selection, and an initial capability on a surrogate aircraft in less than 5 yrs. In Phase 3, sometimes referred to as the "Post-MTA" phase, the SiAW program plans to transition to a Major Capability Acquisition (MCA) where the capability will be improved and the system will be integrated on the F-35A.

Key tenets of the SiAW program will be the establishment/use of a MBSE environment, implementation of a Weapon Open System Architecture (WOSA), and Agile Software Development.

Air Force plans to continue Navy-led AARGM-ER investments to field an interim combat capability on the F-35.

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

<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0207328F / <i>Stand In Attack Weapon</i>	<b>Project (Number/Name)</b> 653133 / <i>Stand In Attack Weapon</i>
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<b>Product Development (\$ in Millions)</b>				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			
Warhead / ESAF Development	MIPR	NGDS : Northridge, CA	19.215	9.833	Dec 2020	0.000	Dec 2021	4.208	Jul 2023	-		4.208	0.000	33.256	-
Universal Armament Interface (UAI) Anti-Radiation Homing message (ARH)	MIPR	Various : Various	1.134	2.620	Dec 2020	0.000	Dec 2021	12.040	Nov 2022	-		12.040	0.000	15.794	-
KTR SEPM	MIPR	NGDS : Northridge, CA	20.230	62.167	Dec 2020	0.000	Dec 2021	0.000	Nov 2022	-		0.000	0.000	82.397	-
F-35 Integration	MIPR	Various : Various	9.632	0.441	Apr 2021	10.000	May 2022	26.574	Jan 2023	-		26.574	376.930	423.577	-
Mission Planning	MIPR	Various : Various	0.190	1.600	Feb 2021	0.950	Jun 2022	0.000	Nov 2022	-		0.000	0.000	2.740	-
Advanced Technology Risk Reduction	MIPR	Various : Various	65.527	31.606	Dec 2020	0.000	Dec 2021	0.000		-		0.000	0.000	97.133	-
SiAW Development	Various	Various : Various	1.125	13.825	Feb 2021	107.000	Apr 2022	150.901	Jul 2023	-		150.901	1,230.200	1,503.051	-
<b>Subtotal</b>			117.053	122.092		117.950		193.723		-		193.723	1,607.130	2,157.948	N/A

**Remarks**  
Northrop Grumman Defense Systems (NGDS)

<b>Support (\$ in Millions)</b>				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			
Civ Pay - Direct Site Authorization (DCA)	Allot	AFLCMC/FZA : Wright Pat, OH	4.097	4.000		4.700		8.966		-		8.966	69.736	91.499	-
<b>Subtotal</b>			4.097	4.000		4.700		8.966		-		8.966	69.736	91.499	N/A

<b>Test and Evaluation (\$ in Millions)</b>				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			
Test Assets AARGM-ER	MIPR	NGDS : Northridge, CA	10.411	8.808	Jun 2021	21.390	Feb 2022	20.924	Jan 2023	-		20.924	2.385	63.918	-



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

<b>Appropriation/Budget Activity</b> 3600 / 5	<b>R-1 Program Element (Number/Name)</b> PE 0207328F / <i>Stand In Attack Weapon</i>	<b>Project (Number/Name)</b> 653133 / <i>Stand In Attack Weapon</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

<b>Warhead &amp; ESAF Development</b>	
Design Warhead & Electronic Safe and Arm Fuze	
<b>UAI / ARH</b>	
Design, Test and validate UAI / ARH message set	
<b>F-35 Integration</b>	
AARGM-ER and SiAW integration on F-35	
<b>Advanced Technology Risk Reduction</b>	
Emerging technology maturation for future SiAW tech insertion.	
<b>SiAW Development</b>	
SiAW Development	
<b>Target &amp; Test Assets, Test, &amp; Support</b>	
Flight test support, range modifications, & targets for AARGM-ER and SiAW	

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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
<b><i>Warhead &amp; ESAF Development</i></b>				
Design Warhead & Electronic Safe and Arm Fuze	1	2021	4	2023
<b><i>UAI / ARH</i></b>				
Design, Test and validate UAI / ARH message set	1	2021	4	2023
<b><i>F-35 Integration</i></b>				
AARGM-ER and SiAW integration on F-35	1	2021	4	2027
<b><i>Advanced Technology Risk Reduction</i></b>				
Emerging technology maturation for future SiAW tech insertion.	1	2021	4	2021
<b><i>SiAW Development</i></b>				
SiAW Development	2	2021	4	2027
<b><i>Target &amp; Test Assets, Test, &amp; Support</i></b>				
Flight test support, range modifications, & targets for AARGM-ER and SiAW	1	2021	4	2027