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**Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Navy** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / <i>ANTI-RADIATION MISSILE IMPROVEMENT</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	1,285.933	133.315	89.479	59.555	-	59.555	34.681	30.691	19.049	18.353	Continuing	Continuing
1780: <i>ARM Improvement</i>	75.670	6.129	7.144	6.718	-	6.718	7.268	7.396	7.531	7.682	Continuing	Continuing
2185: <i>AARGM</i>	773.099	1.918	1.021	1.030	-	1.030	1.032	1.031	1.018	1.038	Continuing	Continuing
2189: <i>AARGM ER</i>	423.635	120.568	76.314	51.807	-	51.807	26.381	22.264	10.500	9.633	Continuing	Continuing
9999: <i>Congressional Adds</i>	13.529	4.700	5.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	23.229

**Program MDAP/MAIS Code:**  
**Project MDAP/MAIS Code(s):** 607

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

Research, Development, Test and Evaluation funding for the Joint Service Anti-Radiation Missile (ARM) program, which will include near and far term performance improvements, cost reduction, and studies that establish future development requirements.

JUSTIFICATION FOR BUDGET ACTIVITY: These projects are funded under Operational Systems Development because they include development efforts to upgrade systems that have been fielded or have received approval for full-rate production and anticipate funding in the current or subsequent fiscal year.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
Previous President's Budget	138.520	90.779	49.137	-	49.137
Current President's Budget	133.315	89.479	59.555	-	59.555
Total Adjustments	-5.205	-1.300	10.418	-	10.418
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-6.300			
• Congressional Rescissions	-	-			
• Congressional Adds	-	5.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-1.813	0.000			
• SBIR/STTR Transfer	-3.393	0.000			
• Program Adjustments	0.000	0.000	9.806	-	9.806
• Rate/Misc Adjustments	0.001	0.000	0.612	-	0.612

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project:** 9999: *Congressional Adds*

FY 2022	FY 2023

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2024 Navy	<b>Date:</b> March 2023
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<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy I BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / <i>ANTI-RADIATION MISSILE IMPROVEMENT</i>
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<b>Congressional Add Details (\$ in Millions, and Includes General Reductions)</b>	<b>FY 2022</b>	<b>FY 2023</b>
Congressional Add: <i>Advanced Anti-Radiation Guided Missile (AARGM) and the Extended Range (ER)</i>	4.700	0.000
Congressional Add: <i>AARGM improvements</i>	0.000	5.000
Congressional Add Subtotals for Project: 9999	4.700	5.000
Congressional Add Totals for all Projects	4.700	5.000

**Change Summary Explanation**

Program increase of \$9.806M in FY 2024 as indicated on the Program Change Summary includes adding a Virtual Store capability and Next Generation Naval Mission Planning System (NGNMPS) as follow-on development efforts to the AARGM-ER.

Rate/misc adjustments of \$0.612M in FY 2024 is for inflationary and rate adjustments.

Project Unit 2185 Schedule Changes since the previous President's Budget submission:

- NGNMPS will begin in 1 QTR FY 2024 and end in 4 QTR FY 2028.
- FRP-8 delivery end date has been moved from 3 QTR FY 2022 to 4 QTR FY 2022.
- FRP-9 delivery start date has been moved from 3 QTR FY 2022 to 3 QTR FY 2023 and end date has been moved from 2 QTR FY 2023 to 2 QTR FY 2024.
- FRP-10 delivery end date has been moved from 2 QTR FY 2024 to 3 QTR FY 2024.
- M-Code ECP award date has been moved from 2 QTR FY 2022 to 3 QTR FY 2023.

Project Unit 2189 Schedule Changes since the previous President's Budget submission:

- Initial Operational Capability date has moved from 4 QTR FY 2023 to 2 QTR FY 2024.
- Engineering & Manufacturing Development end date has moved from 4 QTR FY 2023 to 2 QTR FY 2024 to reflect completion of EMD.
- Test Asset deliveries end date has moved from 1 QTR FY 23 to 2 QTR FY 2024 to include delivery of FY 2022 procured AARGM-ER Live Fire Test and Evaluation (LFT&E) assets.
- M-Code/GP Redesign start date has moved from 2 QTR FY 2022 to 3 QTR FY 2022 to reflect actual contract award.
- Virtual Store and NGNMPS added as follow-on development efforts. Virtual Store will begin in 1 QTR FY 2024 and end in 3 QTR FY 2026. NGNMPS will begin in 1 QTR FY 2024 and end in 4 QTR FY 2028.
- Aircraft Integration end date has moved from 4 QTR FY 2023 to 2 QTR FY 2024.
- Developmental Test end date has moved from 1 QTR FY 2023 to 2 QTR FY 2023.
- Developmental Test & Evaluation for Stations 2 and 10 Aircraft Integration has been added. This will start in 4 QTR FY 2023 and end in 2 QTR FY 2025.
- Operational Test end date has moved from 4 QTR FY 2023 to 2 QTR FY 2024.
- Correction of Deficiencies (CoD) start date has moved from 1 QTR FY 2024 to 1 QTR FY 2025. The start of CoD has slid due to extension of Operational testing into FY 2024.

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<b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319: <i>Research, Development, Test &amp; Evaluation, Navy / BA 7: Operational Systems Development</i>	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / <i>ANTI-RADIATION MISSILE IMPROVEMENT</i>	
<p>-FOT&amp;E start date has moved from 1 QTR FY 2024 to 2 QTR FY 2024.</p> <p>Project Unit 9999 Changes:</p> <ul style="list-style-type: none"><li>-Schedule Changes: Control Design Analysis and Surface Launch Demonstration start dates were moved from 2 QTR FY 2022 to 3 QTR FY 2022 to reflect actual contract award and end dates were moved from 2 QTR FY 2023 to 3 QTR FY 2023.</li><li>- FY 2023 Congressional Add increases funds for research and study activities related to incorporating Solid Fuel Ramjet into the AARGM-ER.</li></ul>		

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Navy										<b>Date:</b> March 2023		
<b>Appropriation/Budget Activity</b> 1319 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT				<b>Project (Number/Name)</b> 1780 / ARM Improvement			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
1780: ARM Improvement	75.670	6.129	7.144	6.718	-	6.718	7.268	7.396	7.531	7.682	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

Anti-Radiation Missile (ARM) Improvement is a combination of the Navy-led High Speed Anti-Radiation Missile (HARM) program, the Advanced Anti-Radiation Guide Missile (AARGM) program and the Advanced Anti-Radiation Guided Missile Extended Range (AARGM-ER). HARM is a Navy led joint service program with the United States Air Force. AARGM is a program derived from a Small Business Innovative Research (SBIR) program that developed a dual mode guidance section, incorporating Millimeter Wave (MMW) radar with an advanced anti-radiation homing seeker. Additional AARGM capabilities include Global Positioning System (GPS) enabled point-to-point weapon engagement and missile impact avoidance/missile impact zones, MMW terminal guidance, and a Weapon Impact Assessment (WIA) transmitter to provide Battle Damage Assessment (BDA) cueing. AARGM-ER is a derivative of the AARGM program that repackages the seeker electronics and all of weapon engagement capabilities from AARGM into a new missile shape with a new rocket motor to achieve greater speed, range and survivability.

AGM-88 ARM weapon systems require periodic updates to the user database to remain relevant based on changing threat parameters, enhanced air defense engagement tactics and modern complex emerging systems. These funds provide the means to conduct ground and flight testing against actual and surrogate threat systems. Procurement deliverables include surrogate threat system MMW radar shapes and surrogate complex emitter systems. Foreign Material Assessment (FMA) evaluates AGM-88 ARM performance against threat systems to develop alternative Concept of Operations (CONOPs) against emerging threat capabilities. FMA testing also includes assessment of special project efforts to support advanced kill-chain capability development against threat systems.

FMA deliverables include analytical reports on findings, critical updates to fleet tactics manuals, curriculum changes to the Suppression of Enemy Air Defenses / Destruction of Enemy Air Defenses lead Air Combat Training Curriculum course work and weapon school tactics/training and procedure briefs. FMA focuses on air defense weapon system exploitation, analysis and subsequent integration and response to ensure that the AGM-88 ARM weapon systems family remains relevant in the planned operational environment.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
<b>Title:</b> ARM Foreign Material Assessment (FMA)	6.129	7.144	6.718	0.000	6.718
<b>Articles:</b>	-	-	-	-	-
<b>FY 2023 Plans:</b> The FMA team will continue to conduct FMA testing (both ground-based and captive flight testing), data analysis, and systems engineering to maximize ARM family of weapons effectiveness against threat air defense systems in FY 2023.					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 1780 / ARM Improvement

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
<p>ARM FMA laboratory, ground and flight testing will evaluate AARGM and AARGM-ER capabilities against threat systems to evaluate lethality improvement options. FMA assessments will remain focused on emerging modern complex threat systems as they become available for evaluation as well as theater/country-specific systems of interest. FMA HW procurements will continue as an important element to support threat system evaluations for AARGM/AARGM-ER digital Anti-Radiation Homing (ARH) seekers and Millimeter Wave (MMW) terminal seekers. Priorities are coordinated through the Fleet ARM Steering Committee. Expect continued testing and evaluation on advanced Surface-to-Air weapons and related IADS, jammers, and ARM countermeasures. Fleet engagement will continue as a key element of testing, engineering, and analytical efforts, which includes funding for threat assessment, algorithm update recommendations, operational updates, and integration efforts. Additional test priorities include characterizing emerging complex threat systems in the field, so that FMA assessments can directly populate missile threat data libraries with updated attributes to enhance lethality for ARM family of weapons along with continued assessment of special projects developmental improvements against foreign material.</p> <p><b>FY 2024 Base Plans:</b> FMA will continue to maximize AGM-88 ARM weapon effectiveness against threat air defense systems through laboratory, ground-based, captive and live-fire flight test events, data analysis, and systems engineering to improve weapon employment lethality.</p> <p>FMA testing via laboratory, ground and flight events will evaluate AARGM and AARGM-ER digital Anti-Radiation Homing (ARH) seeker and Millimeter Wave (MMW) terminal seeker capabilities against threat systems to evaluate lethality improvement options. FMA assessments will remain focused on emerging modern complex threat systems as well as theater/country-specific systems of interest. Expect continued testing and evaluation on advanced Surface-to-Air weapons and related IADS, jammers, and ARM countermeasures.</p> <p>FMA HW procurements are an important element to enable threat system evaluations. Threat system HW procurement priorities are coordinated through the Fleet ARM Steering Committee.</p> <p>Fleet engagement will also continue as a key element of testing, engineering, and analytical efforts, which includes funding for threat assessment, algorithm update recommendations, operational updates, and integration efforts. Fleet testing priorities include characterizing emerging complex threat systems in the field, so FMA assessments can directly populate missile threat data libraries with updated attributes to enhance lethality for AGM-88 ARM weapons.</p>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 1780 / ARM Improvement

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
FMA will also assess special project efforts to support over the horizon (OTH)/advanced kill-chain capability development against threat systems.  <b>FY 2024 OCO Plans:</b> N/A  <b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> FY 2023 to FY 2024 decreased due to reduced algorithm development and system engineering support.					
<b>Accomplishments/Planned Programs Subtotals</b>	6.129	7.144	6.718	0.000	6.718

**C. Other Program Funding Summary (\$ in Millions)**

N/A

**Remarks**

**D. Acquisition Strategy**

ARM system updates are provided through the System Support Activity (SSA) at Naval Air Warfare Center - Weapons Division (NAWCWD), China Lake, CA. ARM fleet priorities are set by the Fleet ARM Steering Committee. FMA procurement of surrogate threat system hardware components are executed through supplier contracts and deliver to the Government team for integration into complete surrogate threat systems. Hardware components expense upon the delivery of end items, which normally take 8-12 months to deliver.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 1780 / ARM Improvement
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<b>Product Development (\$ in Millions)</b>				<b>FY 2022</b>		<b>FY 2023</b>		<b>FY 2024 Base</b>		<b>FY 2024 OCO</b>		<b>FY 2024 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Systems Engineering	WR	NAWCWD : China Lake, CA	14.600	1.802	Nov 2021	2.266	Nov 2022	1.971	Nov 2023	-		1.971	Continuing	Continuing	Continuing
Systems Engineering	Various	Various : Various	1.233	0.300	Dec 2021	0.420	Jul 2023	0.320	Jul 2024	-		0.320	Continuing	Continuing	Continuing
Hardware Procurement	C/IDIQ	DTIC : FT Belvoir, VA	5.195	2.074	Dec 2021	2.222	Jan 2023	2.376	Nov 2023	-		2.376	Continuing	Continuing	Continuing
Algorithm Development	C/IDIQ	Northrop Grumman Defense Systems : Northridge, CA	0.000	0.808	Nov 2021	0.810	Mar 2023	0.619	Nov 2023	-		0.619	0.000	2.237	-
Prior Year Prod Dev no longer funded in FYDP	Various	Various : Various	24.732	0.000		0.000		0.000		-		0.000	0.000	24.732	-
<b>Subtotal</b>			45.760	4.984		5.718		5.286		-		5.286	Continuing	Continuing	N/A

**Remarks**  
 FY 2024 funding supports hardware procurement as well as manpower, system engineering, analysis and software development updates resulting from the evaluation of foreign material assessment data. Vendor software updates are required when threat library or user data file updates are unable to provide critical missile improvements. Fleet engagement will continue as a key element of testing, engineering, and analytical efforts, which includes funding for threat assessment, algorithm update recommendations, operational updates, and integration efforts.

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2022</b>		<b>FY 2023</b>		<b>FY 2024 Base</b>		<b>FY 2024 OCO</b>		<b>FY 2024 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Developmental Test & Evaluation (DT&E)	WR	NAWCWD : China Lake, CA	9.740	0.877	Nov 2021	1.150	Nov 2022	1.155	Nov 2023	-		1.155	0.000	12.922	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	18.701	0.000		0.000		0.000		-		0.000	0.000	18.701	-
<b>Subtotal</b>			28.441	0.877		1.150		1.155		-		1.155	0.000	31.623	N/A

**Remarks**  
 FY 2024 funding supports laboratory, ground, and flight testing that leverages previous investments in ARM laboratory capabilities.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 1780 / ARM Improvement
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<b>Management Services (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Program Management Support	WR	NAWCAD : Patuxent River, MD	1.008	0.260	Nov 2021	0.260	Nov 2022	0.262	Nov 2023	-		0.262	0.000	1.790	-
Travel	WR	Various : Various	0.461	0.008	Nov 2021	0.016	Nov 2022	0.015	Dec 2023	-		0.015	0.000	0.500	-
<b>Subtotal</b>			1.469	0.268		0.276		0.277		-		0.277	0.000	2.290	N/A

**Remarks**  
Contract Type for Travel is Travel Order (TO).

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	75.670	6.129	7.144	6.718	-	6.718	Continuing	Continuing	N/A

**Remarks**

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**Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy**

**Date: March 2023**

**Appropriation/Budget Activity**  
1319 / 7

**R-1 Program Element (Number/Name)**  
PE 0205601N / ANTI-RADIATION MISSILE  
IMPROVEMENT

**Project (Number/Name)**  
1780 / ARM Improvement

PU-1780 Funding	FY22				FY23				FY24				FY25				FY26				FY27				FY28							
	1st QTR	2nd QTR	3rd QTR	4th QTR	1st QTR	2nd QTR	3rd QTR	4th QTR	1st QTR	2nd QTR	3rd QTR	4th QTR	1st QTR	2nd QTR	3rd QTR	4th QTR	1st QTR	2nd QTR	3rd QTR	4th QTR	1st QTR	2nd QTR	3rd QTR	4th QTR	1st QTR	2nd QTR	3rd QTR	4th QTR				
Product Development	FY21 HW				FY22 HW deliveries				FY23 HW deliveries				FY24 HW deliveries				FY25 HW deliveries				FY26 HW deliveries				FY27 HW deliveries				FY28 HW			
	▲				▲				▲				▲				▲				▲				▲							
	Contract Award				Contract Award				Contract Award				Contract Award				Contract Award				Contract Award				Contract Award							
Developmental Test & Evaluation	FMA Flight test events				FMA Flight test				FMA Flight test events				FMA Flight test events				FMA Flight test events				FMA Flight test events											
	■		■		■		■		■		■		■		■		■		■		■		■		■		■					
	FMA Lab and Ground				FMA Lab and Ground				FMA Lab and Ground Testing				FMA Lab and Ground				FMA Lab and Ground				FMA Lab and Ground Testing											
Systems Engineering Deliverables	FMA Assessment Reports				FMA Assessment Reports				FMA Assessment Reports				FMA Assessment Reports				FMA Assessment Reports				FMA Assessment Reports											
	Threat Data Library Updates				Threat Data Library Updates				Threat Data Library Updates				Threat Data Library				Threat Data Library Updates				Threat Data Library Updates				Threat Data Library Updates							
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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 1780 / ARM Improvement

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>ARM IMPROVEMENT</b>				
Product Development: Shape and Transmitter procurements: Contract award FY 2022	1	2022	1	2022
Product Development: Shape and Transmitter procurements: Contract award FY 2023	1	2023	1	2023
Product Development: Shape and Transmitter procurements: Contract award FY 2024	1	2024	1	2024
Product Development: Shape and Transmitter procurements: Contract award FY 2025	1	2025	1	2025
Product Development: Shape and Transmitter procurements: Contract award FY 2026	1	2026	1	2026
Product Development: Shape and Transmitter procurements: Contract award FY 2027	1	2027	1	2027
Product Development: Shape and Transmitter procurements: Contract award FY 2028	1	2028	1	2028
Product Development: Shape and Transmitter procurements: Hardware deliveries FY 2021	1	2022	1	2022
Product Development: Shape and Transmitter procurements: Hardware deliveries FY 2022	4	2022	1	2023
Product Development: Shape and Transmitter procurements: Hardware deliveries FY 2023	4	2023	1	2024
Product Development: Shape and Transmitter procurements: Hardware deliveries FY 2024	4	2024	1	2025
Product Development: Shape and Transmitter procurements: Hardware deliveries FY 2025	4	2025	1	2026
Product Development: Shape and Transmitter procurements: Hardware deliveries FY 2026	4	2026	1	2027
Product Development: Shape and Transmitter procurements: Hardware deliveries FY 2027	4	2027	1	2028
Product Development: Shape and Transmitter procurements: Hardware deliveries FY 2028	4	2028	4	2028

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**Exhibit R-4A, RDT&E Schedule Details: PB 2024 Navy** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 1780 / ARM Improvement
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<b>Events by Sub Project</b>	<b>Start</b>		<b>End</b>	
	<b>Quarter</b>	<b>Year</b>	<b>Quarter</b>	<b>Year</b>
Test & Evaluation: FMA Flight Testing: FMA Flight Testing	1	2022	4	2028
Test & Evaluation: FMA Lab & Ground Testing: FMA Lab & Ground Testing	1	2022	4	2028
Systems Engineering Deliveries: Threat Data Library Update: Threat Data Library Update FY 2022	4	2022	4	2022
Systems Engineering Deliveries: Threat Data Library Update: Threat Data Library Update FY 2023	4	2023	4	2023
Systems Engineering Deliveries: Threat Data Library Update: Threat Data Library Update FY 2024	4	2024	4	2024
Systems Engineering Deliveries: Threat Data Library Update: Threat Data Library Update FY 2025	4	2025	4	2025
Systems Engineering Deliveries: Threat Data Library Update: Threat Data Library Update FY 2026	4	2026	4	2026
Systems Engineering Deliveries: Threat Data Library Update: Threat Data Library Update FY 2027	4	2027	4	2027
Systems Engineering Deliveries: Threat Data Library Update: Threat Data Library Update FY 2028	4	2028	4	2028

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Navy										<b>Date:</b> March 2023		
<b>Appropriation/Budget Activity</b> 1319 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT				<b>Project (Number/Name)</b> 2185 / AARGM			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2185: AARGM	773.099	1.918	1.021	1.030	-	1.030	1.032	1.031	1.018	1.038	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

Advanced Anti-Radiation Guided Missile (AARGM) transitioned a Phase III Small Business Innovation Research (SBIR) program to develop and demonstrate a multi-mode guidance section on a High Speed Anti-Radiation Missile (HARM) airframe to System Development and Demonstration (SD&D) in FY 2003. The AARGM SD&D program was designed to integrate multi-mode guidance (passive Anti-Radiation Homing (ARH)/active Millimeter Wave (MMW) Radar/Global Positioning System (GPS)/Inertial Navigation System) on the HARM Air-to-Ground Missile (AGM)-88. Planned AARGM weapon system capabilities include: active MMW terminal guidance to counter shutdown, expanded threat coverage, enhanced ARH, Weapon Impact Assessment (WIA) transmitted prior to detonation, GPS/point-to-point weapon navigation, enhanced navigational performance in denied environments and weapon employment with impact avoidance zone/missile impact zones.

The AARGM program includes 40 SD&D test articles with follow on production modification kits. Milestone C was achieved 4Q FY 2008, followed by a combined FY 2008/FY 2009 Low-Rate Initial Production (LRIP) contract award in 1Q FY 2009. Developmental testing was completed in 2009. Initial Operational Test and Evaluation (IOT&E) was completed in 3Q FY 2012. Full-Rate Production (FRP) decision was received 4 September 2012, with FRP contract award on 10 September 2012, and deliveries began in January 2014.

The AARGM Block 1 Upgrade program began in FY 2012 and consists of a software only upgrade to implement deferred Key Performance Parameter 3 and to correct IOT&E deficiencies in the AGM-88E All-Up-Round as well as the Common Munitions Built-in Test (BIT) Reprogramming Equipment (CMBRE). Follow-on Operational Test and Evaluation/Integrated Test (FOT&E/IT) of the Block 1 Upgrade completed with Fleet Release approval in July 2017, and fielding completed in January 2018.

The AARGM program continues to upgrade Electronic Intelligence (ELINT) files for missile updates and testing against advanced Integrated Air Defense System (IADS) over the FY 2023 - FY 2028 timeframe.

FY 2024 funding will continue to support AARGM ELINT file upgrades, lab ground and flight tests, commencement of AARGM integration into the new mission planning tool, and technology infusion for obsolescence mitigations.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
<b>Title:</b> Threat Data Library / System Updates	0.343	0.417	0.419	0.000	0.419
<b>Articles:</b>	-	-	-	-	-
<b>FY 2023 Plans:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 2185 / AARGM

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
<p>FY 2023 activities continue to include efforts to upgrade and prioritize ELINT as well as test and assessment of threat systems that impact already fielded weapons, development of threat data for new target sets, and test and evaluation on advanced Surface-to-Air weapons and related IADS, jammers, ARM countermeasures, and human system interface improvements to mission planning.</p> <p><b>FY 2024 Base Plans:</b> FY 2024 activities include continuation of AARGM ELINT file upgrades as well as lab ground and flight tests.</p> <p><b>FY 2024 OCO Plans:</b> N/A</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> FY 2023 to FY 2024 increased due to inflation.</p>					
<p><b>Title:</b> Follow-on Test and Evaluation and Correction of Deficiencies</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2023 Plans:</b> Continue assessing software and hardware anomalies, as well as testing verification and validation of E2 Hardware algorithms and software.</p> <p><b>FY 2024 Base Plans:</b> FY 2024 activities include continuation of software and hardware anomaly and technology infusion assessment for obsolescence mitigation.</p> <p><b>FY 2024 OCO Plans:</b> N/A</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> FY 2023 to FY 2024 increased due to technology infusion assessment for obsolescence mitigation.</p>	0.100 -	0.504 -	0.611 -	0.000 -	0.611 -
<p><b>Title:</b> Advanced Development</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2023 Plans:</b> Funds will support corrections for ADP software.</p> <p><b>FY 2024 Base Plans:</b></p>	1.475 -	0.100 -	0.000 -	0.000 -	0.000 -

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 2185 / AARGM

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
N/A					
<b>FY 2024 OCO Plans:</b> N/A					
<b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> FY 2023 to FY 2024 decreased due to completion of Advanced Development software corrections.					
<b>Accomplishments/Planned Programs Subtotals</b>	1.918	1.021	1.030	0.000	1.030

**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• WPN/2327: AARGM	0.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	1,468.086

**Remarks**

AARGM procurement funding ended in FY 2021.

**D. Acquisition Strategy**

The AARGM program started as a Phase I Small Business Innovative Research (SBIR) Advanced Technology Program and evolved into a Phase III SBIR program that transitioned into a System Development and Demonstration (SD&D) Acquisition Category 1C program in June 2003. The AARGM SD&D met most U.S. Navy operational requirements. AARGM Block 1 fulfills the rest of the operational requirements. Block 1 Fleet Release was approved in 4Q FY 2017. The AARGM program added GPS M-code in FY 2018 - FY 2021. For FY 2022 and out, the program will continue follow-on development efforts, ELINT file upgrades, and obsolescence mitigation for the AARGM missile.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 2185 / AARGM
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<b>Product Development (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Systems Engineering	WR	NAWCWD : China Lake, CA	90.232	0.250	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Mission Planning	WR	Various : Various	1.133	0.000		0.087	Nov 2022	0.088	Nov 2023	-		0.088	Continuing	Continuing	Continuing
Advanced Threats Development	SS/CPIF	Northrop Grumman Defense Systems : Northridge, CA	6.000	0.000		0.000		0.000		-		0.000	0.000	6.000	6.000
Software Efforts & Advanced Development	WR	NAWCWD : China Lake, CA	0.000	0.970	Nov 2021	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
Prior year Prod Dev no longer funded in the FYDP	Various	Various : Various	576.922	0.000		0.000		0.000		-		0.000	0.000	576.922	-
<b>Subtotal</b>			674.287	1.220		0.087		0.088		-		0.088	Continuing	Continuing	N/A

**Remarks**  
 Mission Planning has increased in FY 2024 due to commencement of Next Generation Navy Mission Planning System (NGNMPS) program that transitions all USN/USMC platforms from Joint Mission Planning System (JMPS) to NGNMPS due to obsolescence, ensuring mission planning for AARGM.  
 The following lines have been moved to Prior year no longer funded: Primary Hardware Development, M-Code, Software Development (Block 1A), ADP Development.

<b>Support (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Prior year Support no longer funded in the FYDP	Various	Various : Various	7.147	0.000		0.000		0.000		-		0.000	0.000	7.147	-
<b>Subtotal</b>			7.147	0.000		0.000		0.000		-		0.000	0.000	7.147	N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Developmental Test & Evaluation (DT&E)	WR	NAWCWD : China Lake, CA	27.102	0.000		0.604	Dec 2022	0.610	Dec 2023	-		0.610	Continuing	Continuing	Continuing

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 2185 / AARGM
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<b>Test and Evaluation (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	40.210	0.000		0.000		0.000		-		0.000	0.000	40.210	-
<b>Subtotal</b>			67.312	0.000		0.604		0.610		-		0.610	Continuing	Continuing	N/A

**Remarks**  
 Development Test & Evaluation funding in FY 2024 is to support ELINT and User Data File updates and flight testing required to verify and validate updates to the weapon.  
 The following lines have been moved to Prior year no longer funded: Operational and Integrated Test & Evaluation, and Test Support and Planning.

<b>Management Services (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Program Management Support	Various	Various : Various	7.600	0.250	Feb 2022	0.150	Feb 2023	0.150	Feb 2024	-		0.150	Continuing	Continuing	Continuing
Travel	WR	NAVAIR HQ : Patuxent River, MD	1.800	0.003	Oct 2021	0.010	Oct 2022	0.011	Oct 2023	-		0.011	Continuing	Continuing	Continuing
Government Engineering Support	WR	NAWCAD : Patuxent River, MD	3.503	0.445	Nov 2021	0.170	Nov 2022	0.171	Nov 2023	-		0.171	Continuing	Continuing	Continuing
Prior year Mgmt no longer funded in the FYDP	Various	Various : Various	11.450	0.000		0.000		0.000		-		0.000	0.000	11.450	11.450
<b>Subtotal</b>			24.353	0.698		0.330		0.332		-		0.332	Continuing	Continuing	N/A

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>		773.099	1.918	1.021	1.030	1.030	Continuing	Continuing	N/A

**Remarks**

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**Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 2185 / AARGM
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Fiscal Year	2022				2023				2024				2025				2026				2027				2028				
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	
Systems Development	New Mission Planning Tool Integration																												
	Threat Data Library Updates																												
	UDF Release				UDF Release				UDF Release				UDF Release				UDF Release				UDF Release				UDF Release				
Test and Evaluation	CC Build				M-Code ECP																								
	UDF CC		UDF CC		UDF CC		UDF CC		UDF CC		UDF CC		UDF CC		UDF CC		UDF CC		UDF CC		UDF CC		UDF CC		UDF CC		UDF CC		UDF CC
Contract Deliveries	Development Effort																												
	Deliveries																												
	Production Lead Time																												
	Test & Evaluation Event																												
	FRP 9																												
	FRP 10																												

= Production Lead Time  
 = Deliveries  
 = Development Effort  
 = Test & Evaluation Event

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 2185 / AARGM

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>AARGM</b>				
M-Code: M-Code Captive Carry Flight	1	2022	2	2022
M-Code: M-Code ECP	3	2023	3	2023
Systems Development: New Mission Planning Tool Integration	1	2024	4	2028
Test & Evaluation: Threat Data Captive Flight Test FY 2022	3	2022	4	2022
Test & Evaluation: Threat Data Captive Flight Test FY 2023	3	2023	4	2023
Test & Evaluation: Threat Data Captive Flight Test FY 2024	3	2024	4	2024
Test & Evaluation: Threat Data Captive Flight Test FY 2025	3	2025	4	2025
Test & Evaluation: Threat Data Captive Flight Test FY 2026	3	2026	4	2026
Test & Evaluation: Threat Data Captive Flight Test FY 2027	3	2027	4	2027
Test & Evaluation: Threat Data Captive Flight Test FY 2028	3	2028	4	2028
Threat Data Library Updates: Threat Data Library Updates	1	2022	4	2028
Threat Data Library Updates: Threat Data File Release FY 2022	4	2022	4	2022
Threat Data Library Updates: Threat Data File Release FY 2023	4	2023	4	2023
Threat Data Library Updates: Threat Data File Release FY 2024	4	2024	4	2024
Threat Data Library Updates: Threat Data File Release FY 2025	4	2025	4	2025
Threat Data Library Updates: Threat Data File Release FY 2026	4	2026	4	2026
Threat Data Library Updates: Threat Data File Release FY 2027	4	2027	4	2027
Threat Data Library Updates: Threat Data File Release FY 2028	4	2028	4	2028
Full-Rate Production Deliveries: Full-Rate Production Deliveries - Lot 8 (WPN)	1	2022	4	2022
Full-Rate Production Deliveries: Full-Rate Production Deliveries - Lot 9 (WPN)	3	2023	2	2024
Full-Rate Production Deliveries: Full-Rate Production Deliveries - Lot 10 (WPN)	3	2023	3	2024

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Navy										<b>Date:</b> March 2023		
<b>Appropriation/Budget Activity</b> 1319 / 7					<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT				<b>Project (Number/Name)</b> 2189 / AARGM ER			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
2189: AARGM ER	423.635	120.568	76.314	51.807	-	51.807	26.381	22.264	10.500	9.633	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
<b>Project MDAP/MAIS Code:</b> 607												

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

The Air-to-Ground (AGM)-88G AARGM-ER Upgrade was a new start in FY 2016. The purpose of this effort is to develop hardware and software modifications to improve the Advanced Anti-Radiation Guided Missile (AARGM)'s operational capabilities, including extended range, survivability and effectiveness against complex, new, and emerging threats. This budget line item funds a new rocket motor design, system development and integration, test asset procurement, testing, correction of deficiencies, and associated software updates for the AARGM-ER to ensure these capabilities perform in accordance with established requirements. FY 2024 activities include conclusion of the Engineering and Manufacturing Development contract, system-level operational testing of production-representative missiles, and integration and test of the Guidance Processor redesign. FY 2024 activities also include continuing expansion of the F/A-18 employment envelope onto stations 2 and 10 through follow-on test and evaluation, development of a virtual store training capability, and commencement of AARGM-ER integration into the new mission planning tool. AARGM-ER retains the same guidance and sensor capabilities of the AARGM.

The AARGM-ER program is part of the Navy's approach to address advanced threat capabilities in the Anti-Access/Area-Denial (A2/AD) environment. Solutions enable individual system capabilities to be leveraged across an effects chain, placing the full spectrum of tactical capability in the hands of the warfighter. Solutions that push engagement distances beyond the launch platform's radar horizon and allows the U.S. Navy to operate in, and control, contested battle space in littoral waters and A2/AD environments are increasingly critical as more scenarios require compressed and coordinated fire control timelines.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
<b>Title:</b> AARGM ER Development	120.568	76.314	37.294	0.000	37.294
<b>Articles:</b>	-	-	-	-	-
<b>FY 2023 Plans:</b> FY 2023 activities include continuation of the Engineering and Manufacturing Development contract, system-level operational testing of production-representative missiles, completion of insensitive munition testing for shipboard certification, expansion of the F/A-18 employment envelope onto stations 2 and 10, and integration of M-code capability and redesign of Guidance Processor for Advanced Threats. Manufacturing of missile components and missiles will continue in support of contractor and government test plans. Testing conducted by the government will assess system-level performance and substantiate readiness for Initial Operational Capability (IOC). Results from an IOC Supportability Review (IOCSR) will inform the IOC event.					
<b>FY 2024 Base Plans:</b>					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 2189 / AARGM ER

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
<p>FY 2024 activities include conclusion of the Engineering and Manufacturing Development contract, system-level operational testing of production-representative missiles, and integration and test of the Guidance Processor redesign. Activities also include continuing expansion of the F/A-18 employment envelope onto stations 2 and 10 through follow-on test and evaluation, development of a virtual store training capability, and commencement of AARGM-ER integration into the new mission planning tool.</p> <p><b>FY 2024 OCO Plans:</b> N/A</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding decrease in FY 2024 is due to conclusion of the Engineering and Manufacturing Development phase.</p>					
<p><b>Title:</b> Next Generation Naval Mission Planning System (NGNMPS)</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2023 Plans:</b> N/A</p> <p><b>FY 2024 Base Plans:</b> FY 2024 activities include commencement of development and integration of an AARGM-ER NGNMPS capability to ensure mission planning for AARGM-ER on the F/A-18E/F and EA-18G. NGNMPS transitions all USN/USMC platforms from Joint Mission Planning System (JMPS) to NGNMPS due to obsolescence.</p> <p><b>FY 2024 OCO Plans:</b> N/A</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding increase in FY 2024 is due to development of NGNMPS capability for the AARGM-ER program.</p>	0.000 -	0.000 -	5.400 -	0.000 -	5.400 -
<p><b>Title:</b> Virtual Store</p> <p align="right"><b>Articles:</b></p> <p><b>FY 2023 Plans:</b> N/A</p> <p><b>FY 2024 Base Plans:</b> FY 2024 activities include development of an AARGM-ER Virtual Store capability to provide the F/A-18E/F and EA-18G with improved Anti-Surface/Strike Warfare training capability. It will provide the fleet with a training capability when CATMs and/or Command Launch Computer (CLC) are unavailable or cannot be carried during</p>	0.000 -	0.000 -	9.113 -	0.000 -	9.113 -

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 2189 / AARGM ER

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>
training due to incompatible stores configuration or lack of CLC. This capability will be further developed to include Live-Virtual-Constructive (LVC) surface threats for a more realistic training environment.  <b>FY 2024 OCO Plans:</b> N/A  <b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding increase in FY 2024 is due to development of a Virtual Store training capability for the AARGM-ER program.					
<b>Accomplishments/Planned Programs Subtotals</b>	120.568	76.314	51.807	0.000	51.807

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024 Base</u>	<u>FY 2024 OCO</u>	<u>FY 2024 Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To Complete</u>	<u>Total Cost</u>
• WPN/2327: AARGM	108.661	181.275	162.429	-	162.429	247.942	260.053	275.502	265.964	1,976.210	3,523.228

**Remarks**  
Additional AARGM-ER funding is also contained in USAF PE 0207328F.

**D. Acquisition Strategy**  
The AARGM-ER Program will provide hardware and software modifications to improve the AARGM's operational capabilities, including extended range, survivability, and effectiveness against complex, new, and emerging threats. The program's objective requirement for Initial Operational Capability is FY 2023. The AARGM-ER program will develop a virtual store training capability in FY 2024 - FY 2026 and will integrate AARGM-ER into the new mission planning tool beginning in FY 2024. Follow-on development activities also include correction of deficiencies resulting from operational testing, which may include software updates and follow-on testing to ensure corrections meet required capability.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 2189 / AARGM ER
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<b>Product Development (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Engineering & Manufacturing Development	SS/CPIF	Northrop Grumman Defense Systems : Northridge, CA	179.165	71.201	Nov 2021	23.833	Jan 2023	10.899	Nov 2023	-		10.899	0.000	285.098	285.098
Aircraft Integration	WR	NAWCWD : China Lake, CA	16.055	1.500	Nov 2021	0.155	Nov 2022	0.000		-		0.000	0.000	17.710	-
Aircraft Integration	Various	Various : Various	0.783	0.000	Nov 2021	1.167	Nov 2022	0.000		-		0.000	0.000	1.950	-
Aircraft Integration	SS/CPIF	Boeing : St. Louis, MO	15.432	0.309	Dec 2021	3.304	Dec 2022	2.072	Dec 2023	-		2.072	0.000	21.117	21.117
Systems Engineering	WR	NAWCWD : China Lake, CA	40.034	14.182	Nov 2021	7.525	Nov 2022	3.877	Nov 2023	-		3.877	6.955	72.573	-
Systems Engineering	WR	NAWCAD : Patuxent River, MD	15.235	3.525	Nov 2021	2.564	Nov 2022	1.815	Nov 2023	-		1.815	1.972	25.111	-
Systems Engineering	Various	Various : Various	0.000	0.178	Jan 2022	0.000		0.000		-		0.000	Continuing	Continuing	Continuing
AUR Containers	WR	NSWC : Indian Head, MD	1.389	0.480	Nov 2021	0.559	Nov 2022	0.000		-		0.000	0.000	2.428	-
M-Code/GP Redesign	SS/CPFF	Northrop Grumman Defense Systems : Northridge, CA	2.281	2.000	Apr 2022	4.553	Nov 2022	0.000		-		0.000	0.000	8.834	8.834
Virtual Store	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		5.663	Nov 2023	-		5.663	Continuing	Continuing	Continuing
Virtual Store	C/CPIF	Boeing : St. Louis, MO	0.000	0.000		0.000		3.032	Dec 2023	-		3.032	Continuing	Continuing	Continuing
Mission Planning (NGNMPS)	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		4.957	Nov 2023	-		4.957	Continuing	Continuing	Continuing
Prior year Prod Dev no longer funded in the FYDP	Various	Various : Various	80.770	0.000		0.000		0.000		-		0.000	0.000	80.770	-
<b>Subtotal</b>			351.144	93.375		43.660		32.315		-		32.315	Continuing	Continuing	N/A

**Remarks**  
 The Engineering and Manufacturing Development (EMD) funding decrease in FY 2024 is due to completion of EMD in 2QTR24.  
  
 Aircraft Integration (Boeing) will continue with physical and logical aircraft interface development and testing, mainly in support of Aircraft Integration on stations 2 and 10 in FY 2024.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 2189 / AARGM ER
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<b>Product Development (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			

Systems Engineering (NAWCWD and NAWCAD) will decrease in FY 2024 due to completion of EMD and system-level testing of production representative missiles.

M-Code/GP Redesign will decrease in FY 2024 due to completion of integration and test of the Guidance Processor redesign.

New cost categories for Virtual Store were added to support increased training capability of the AARGM-ER on the F/A-18E/F and EA-18G. Updates will take place from FY 2024 - FY 2026 to code virtual store into aircraft software for AARGM-ER. The addition is a follow-on development effort to the AARGM-ER Program of Record.

A new cost category for Next Generation Navy Mission Planning System (NGNMPS) was added in FY 2024 and beyond. NGNMPS transitions all USN/USMC platforms from Joint Mission Planning System (JMPS) to NGNMPS due to obsolescence and ensures mission planning system for AARGM-ER on the F/A-18E/F and EA-18G. The addition is a follow-on development effort to the AARGM-ER Program of Record.

A new cost category for Prior Year Product Development was added in to capture efforts no longer funded in the FYDP, including Rocket Motor Risk Initiatives (\$1.947M), Front End Design Analysis (\$15.221M), Missile Section Integration (\$57.675M), Telemetry Sections (\$5.447M), and PSE Development (\$0.480M).

<b>Support (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Studies & Analysis	Various	Various : Various	6.371	0.000		0.000		0.000		-		0.000	0.000	6.371	-
<b>Subtotal</b>			6.371	0.000		0.000		0.000		-		0.000	0.000	6.371	N/A

<b>Test and Evaluation (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Developmental Test & Evaluation (DT&E)	WR	NAWCAD : Patuxent River, MD	13.484	5.493	Nov 2021	4.538	Nov 2022	12.516	Nov 2023	-		12.516	6.213	42.244	-
Developmental Test & Evaluation (DT&E)	WR	NAWCWD : China Lake, CA	5.893	12.139	Nov 2021	4.618	Nov 2022	0.623	Nov 2023	-		0.623	9.719	32.992	-
Developmental Test & Evaluation (DT&E)	Various	Various : Various	0.604	0.582	Nov 2021	0.000		0.000		-		0.000	0.000	1.186	-

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 2189 / AARGM ER
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<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2022</b>		<b>FY 2023</b>		<b>FY 2024 Base</b>		<b>FY 2024 OCO</b>		<b>FY 2024 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Developmental Test & Evaluation (DT&E)	SS/CPIF	Northrop Grumman Defense Systems : Northridge, CA	28.968	6.295	Apr 2022	0.000		0.000		-		0.000	0.000	35.263	35.263
Developmental Test & Evaluation (DT&E)	WR	COTF : Norfolk, VA	0.385	0.288	Dec 2021	1.670	Nov 2022	0.176	Nov 2023	-		0.176	0.000	2.519	-
Operational Test & Evaluation (OT&E)	WR	NAWCWD : China Lake, CA	0.000	0.880	Jul 2022	17.180	Dec 2022	0.448	Dec 2023	-		0.448	0.000	18.508	-
Operational Test & Evaluation (OT&E)	WR	WSMR : White Sands Missile Range, NM	0.000	0.000		2.645	Dec 2022	4.160	Dec 2023	-		4.160	0.000	6.805	-
Prior Year Developmental Test & Evaluation Not Funded FYDP (PYDT&E)	Various	Various : Various	4.471	0.000		0.000		0.000		-		0.000	0.000	4.471	-
<b>Subtotal</b>			53.805	25.677		30.651		17.923		-		17.923	15.932	143.988	N/A

**Remarks**

Developmental Test and Evaluation (NAWCAD) will increase in FY 2024 due to F/A-18 employment expansion and integration on stations 2 and 10.

Developmental Test and Evaluation (NAWCWD) will decrease in FY 2024 due to completion of system-level testing of production-representative missiles.

Operational Test and Evaluation will decrease in FY 2024 as the program completes testing in support of Full Rate Production, following IOC in FY 2023. New cost categories for Operational Test and Evaluation were created to reflect the breakout of funds between NAWCWD China Lake and WSMR.

A new cost category for Prior Year T&E was added to capture efforts no longer funded in the FYDP, including DT&E at NASA Ames Research Center (\$1.972M) and AEDC (\$2.499M).

<b>Management Services (\$ in Millions)</b>				<b>FY 2022</b>		<b>FY 2023</b>		<b>FY 2024 Base</b>		<b>FY 2024 OCO</b>		<b>FY 2024 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Program Management Support	Various	Various : Various	7.115	0.620	Nov 2021	0.984	Nov 2022	0.363	Nov 2023	-		0.363	0.370	9.452	-
Program Management Support	WR	NAWCAD : Patuxent River, MD	4.723	0.844	Nov 2021	0.598	Nov 2022	0.309	Nov 2023	-		0.309	0.315	6.789	-

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 2189 / AARGM ER
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<b>Management Services (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 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			
Program Management Support Follow-on Development	Various	Various : Various	0.000	0.000		0.000		0.861	Nov 2023	-		0.861	Continuing	Continuing	Continuing
Government Engineering & Information Technology Support	WR	NSWC : Dahlgren, VA	0.296	0.010	Oct 2021	0.356	Oct 2022	0.011	Oct 2023	-		0.011	0.000	0.673	-
Travel	WR	NAVAIR HQ : Patuxent River, MD	0.181	0.042	Nov 2021	0.065	Nov 2022	0.025	Nov 2023	-		0.025	0.026	0.339	-
<b>Subtotal</b>			12.315	1.516		2.003		1.569		-		1.569	Continuing	Continuing	N/A

**Remarks**  
A new cost category was created for Program Management Support of Follow-on Development efforts to the AARGM-ER Program of Record, including Virtual Store, Mission Planning and Correction of Deficiencies.

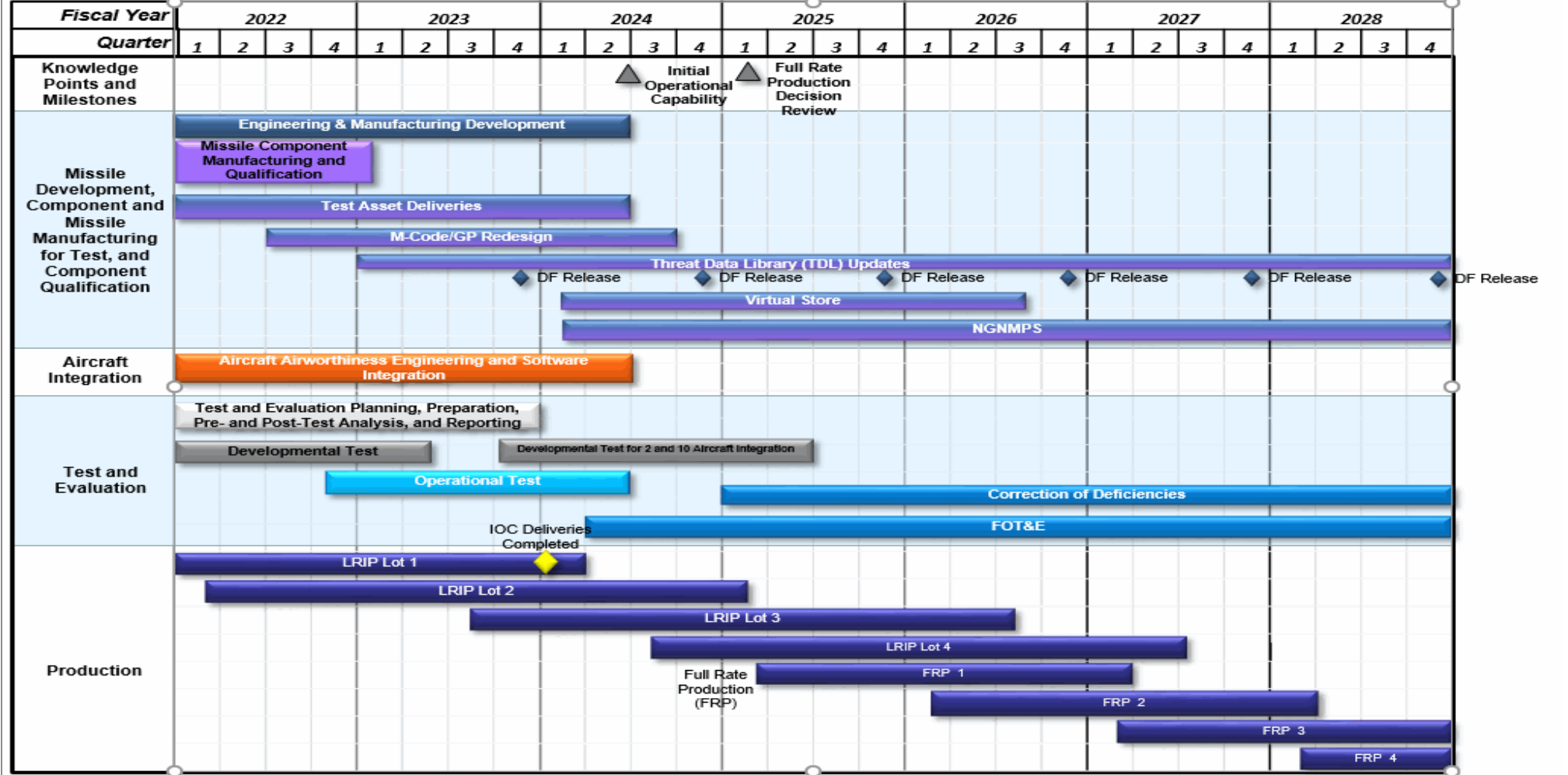
	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	423.635	120.568	76.314	51.807	-	51.807	Continuing	Continuing	N/A

**Remarks**

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Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy Date: March 2023

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 2189 / AARGM ER
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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 2189 / AARGM ER

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>AARGM ER</b>				
Acquisition Milestones: Milestones: IOC	2	2024	2	2024
Acquisition Milestones: Milestones: FRP Decision Review	1	2025	1	2025
Systems Development: Engineering & Manufacturing Development: Engineering & Manufacturing Development	1	2022	2	2024
Systems Development: M-Code/GP Redesign: M-Code/GP Redesign	3	2022	3	2024
Systems Development: Threat Data Library: Threat Data Library (TDL) Updates	1	2023	4	2028
Systems Development: Virtual Store: Virtual Store	1	2024	3	2026
Systems Development: Mission Planning (NGNMPS): Mission Planning (NGNMPS)	1	2024	4	2028
Test & Evaluation: Aircraft Integration: Aircraft Integration	1	2022	2	2024
Test & Evaluation: Technical Evaluation: Developmental Test & Evaluation (DT&E)	1	2022	2	2023
Test & Evaluation: Technical Evaluation: Developmental Test & Evaluation (DT&E) for Stations 2 and 10 Aircraft Integration	4	2023	2	2025
Test & Evaluation: Operational Evaluation: Operational Test & Evaluation (OT&E)	4	2022	2	2024
Test & Evaluation: Follow on Test & Evaluation: Follow on Test & Evaluation (FOT&E)	2	2024	4	2028
Production Milestones: Contract Awards: LRIP 2 WPN	1	2022	1	2022
Production Milestones: Contract Awards: LRIP 3 WPN	3	2023	3	2023
Production Milestones: Contract Awards: LRIP 4 WPN	3	2024	3	2024
Production Milestones: Contract Awards: FRP 1 WPN	1	2025	1	2025
Production Milestones: Contract Awards: FRP 2 WPN	1	2026	1	2026
Production Milestones: Contract Awards: FRP 3 WPN	1	2027	1	2027
Production Milestones: Contract Awards: FRP 4 WPN	1	2028	1	2028
Deliveries: Test Assets	1	2022	2	2024

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2024 Navy **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 2189 / AARGM ER
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Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
Deliveries: LRIP 1 WPN	4	2023	1	2024
Deliveries: LRIP 2 WPN	1	2024	1	2025
Deliveries: LRIP 3 WPN	4	2026	3	2027
Deliveries: LRIP 4 WPN	4	2027	3	2028
Deliveries: FRP 1 WPN	1	2027	1	2028
Deliveries: FRP 2 WPN	1	2028	4	2028

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**Exhibit R-2A, RDT&E Project Justification:** PB 2024 Navy **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 9999 / Congressional Adds
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
9999: <i>Congressional Adds</i>	13.529	4.700	5.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	23.229
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

Advanced Anti-Radiation Guided Missile Extended Range (AARGM-ER) integrates hardware and software upgrades to the AARGM missile guidance and control sections, a new rocket motor, and Control Actuation System (CAS) into a new outer mold line able to be launched from tactical aircraft. AARGM-ER's capabilities will add extended range, increased survivability, and improve effectiveness against complex, new, and emerging threats.

The FY 2022 program increase funds research and study activities to determine whether the AARGM weapon system family can be integrated on other long endurance platforms, such as the Navy's P-8.

The FY 2023 program increase funds research and study activities related to incorporating Solid Fuel Ramjet into the AARGM-ER, which would enable flight at supersonic speeds and leverage existing manufacturing processes and affordable materials, helping to increase capabilities while keeping costs low relative to comparable engines.

**B. Accomplishments/Planned Programs (\$ in Millions)**

	FY 2022	FY 2023
<b>Congressional Add:</b> Advanced Anti-Radiation Guided Missile (AARGM) and the Extended Range (ER)	4.700	0.000
<b>FY 2022 Accomplishments:</b> Fund research and study activities to determine whether the AARGM can be equipped on other long endurance platforms.		
<b>FY 2023 Plans:</b> N/A		
<b>Congressional Add:</b> AARGM improvements	0.000	5.000
<b>FY 2022 Accomplishments:</b> N/A		
<b>FY 2023 Plans:</b> Fund research and study activities related to incorporating Solid Fuel Ramjet into the AARGM-ER, which would enable flight at supersonic speeds and leverage existing manufacturing processes and affordable materials, helping to increase capabilities while keeping costs low relative to comparable engines.		
<b>Congressional Adds Subtotals</b>	4.700	5.000

**C. Other Program Funding Summary (\$ in Millions)**

N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2024 Navy		Date: March 2023
Appropriation/Budget Activity 1319 / 7	R-1 Program Element (Number/Name) PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	Project (Number/Name) 9999 / Congressional Adds

**C. Other Program Funding Summary (\$ in Millions)**

**Remarks**

**D. Acquisition Strategy**

This demonstration effort will leverage the AARGM-ER Program of Record to develop initial hardware and software modifications that could provide for a surface-launched variant. These efforts will leverage the AARGM-ER program of record to research and study activities to make AARGM-ER more lethal against advancing threats.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Navy** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 9999 / Congressional Adds
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<b>Product Development (\$ in Millions)</b>				<b>FY 2022</b>		<b>FY 2023</b>		<b>FY 2024 Base</b>		<b>FY 2024 OCO</b>		<b>FY 2024 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Control Design Analysis	SS/CPFF	Northrop Grumman Defense Systems : Northridge, CA	7.824	0.000		0.000		0.000		-		0.000	0.000	7.824	7.824
Surface Launch Demonstration	SS/CPFF	Northrop Grumman Defense Systems : Northridge, CA	5.012	0.000		0.000		0.000		-		0.000	0.000	5.012	5.012
Systems Engineering	WR	NAWCWD : China Lake, CA	0.338	0.400	Aug 2022	0.435	Aug 2023	0.000		-		0.000	0.000	1.173	-
Systems Engineering	WR	NAWCAD : Patuxent River, MD	0.105	0.300	Aug 2022	0.065	Aug 2023	0.000		-		0.000	0.000	0.470	-
AARGM/AARGMER Integration Efforts	SS/CPFF	Northrop Grumman Defense Systems : Northridge, CA	0.000	4.000	Jan 2023	0.000		0.000		-		0.000	0.000	4.000	4.000
AARGM/AARGMER Ramjet Efforts	SS/CPFF	Northrop Grumman Defense Systems : Northridge, CA	0.000	0.000		4.500	Jan 2024	0.000		-		0.000	0.000	4.500	4.500
<b>Subtotal</b>			13.279	4.700		5.000		0.000		-		0.000	0.000	22.979	N/A

**Remarks**  
 Prior Year changes are due to a \$1.471M SBIR reduction in FY 2021 and a reflection of actual negotiated contract values.

FY 2022 funding for research and study activities to determine whether the AARGM weapon system family can be integrated on long endurance platforms, such as the Navy's P-8.

FY 2023 funding for research and study activities to incorporate Solid Fuel Ramjet into the AARGM-ER, which would enable flight at supersonic speeds and leverage existing manufacturing processes and affordable materials, helping to increase capabilities while keeping costs low relative to comparable engines.

<b>Management Services (\$ in Millions)</b>				<b>FY 2022</b>		<b>FY 2023</b>		<b>FY 2024 Base</b>		<b>FY 2024 OCO</b>		<b>FY 2024 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>			
Program Management Support	WR	NAWCAD : Patuxent River, MD	0.250	0.000		0.000		0.000		-		0.000	0.000	0.250	-



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**Exhibit R-4, RDT&E Schedule Profile: PB 2024 Navy** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 9999 / Congressional Adds
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<b>Congressional Adds</b>	<b>FY 2022</b>				<b>FY 2023</b>				<b>FY 2024</b>				<b>FY 2025</b>				<b>FY 2026</b>				<b>FY 2027</b>				<b>FY 2028</b>			
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
<b>Systems Development</b>																												
Control Design Analysis			Control Design Analysis																									
Surface Launch Demonstration			Surface Launch Demonstration																									
<b>AARGM and AARGM ER FY22 Add</b>																												
			Integration on long endurance platforms																									
<b>AARGM and AARGM ER FY23 Add</b>																												
								Incorporating Solid Fuel Ramjet into AARGM-ER																				

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Navy		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 1319 / 7	<b>R-1 Program Element (Number/Name)</b> PE 0205601N / ANTI-RADIATION MISSILE IMPROVEMENT	<b>Project (Number/Name)</b> 9999 / Congressional Adds

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>Congressional Adds</b>				
Systems Development: Control Design Analysis: Control Design Analysis	3	2022	3	2023
Systems Development: Surface Launch Demonstration: Surface Launch Demonstration	3	2022	3	2023
AARGM and AARGM ER FY 2022 Add: Integration on long endurance platforms	4	2022	4	2023
AARGM and AARGM ER FY 2023 Add: Incorporating Solid Fuel Ramjet into AARGM-ER	4	2023	4	2024