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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 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0603795N / <i>Land Attack Tech</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	29.629	3.922	0.358	1.624	-	1.624	1.717	1.238	1.222	1.209	Continuing	Continuing
2038: <i>ADVANCED MINOR CALIBER GUN</i>	29.629	3.922	0.358	1.624	-	1.624	1.717	1.238	1.222	1.209	Continuing	Continuing

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

Project 2038: The 25mm MK 38 MOD 2 and MOD 3 Machine Gun Systems (MGS) provide Anti-Surface Warfare (ASUW) and Anti-terrorism and Force Protection (AT/FP) capability as a simple, stabilized, low cost solution to outfit near-term deployers to counter small boat threats. Over 360 U.S. Navy-owned systems are installed on U.S. Navy AS, CG, CVN, DDG, LCC, LHA, LHD, LSD, OSV, PC class ships, MK VI Patrol Boats and U.S. Coast Guard Fast Response Cutters. Established in order to respond to Joint Urgent Operational Need Statement (JUONS) CC-0558 for Counter Unmanned Aerial Systems (C-UAS), the MK 38 MOD 3 MGS's electro-optical/infra-red sensor, hardware, and software are being upgraded to counter emerging unmanned aerial threats. Initial C-UAS capability was fielded in Q1FY20. Incremental improvements are being made to this C-UAS capability, for cybersecurity and to address operability issues. The 30mm MK 38 MOD 4 Gun Weapon System, will introduce greater accuracy, lethality, and effective range for C-UAS and Counter Unmanned Surface Vehicle (C-USV) capability with integration to highly accurate fire control system, 30mm gun, targeting sensor and AEGIS combat system. The MOD 4 will be fielded on all DDG 51 Flight IIA and Flight III AEGIS Destroyers. Project 2038 provides qualification and logistics development of the 30mm MK 38 MOD 4. This will include Function Integration Testing, Functional Acceptance Testing, AEGIS Light-off, Structural Test Firing, and an at-sea Quick Reaction Assessment (on board DDG 91). Upgrading fielded 25mm MK 38 MGS to MOD 3 with C-UAS and concurrently developing and fielding the MOD 4 GWS on all current and future DDG 51 Flight IIA and Flight III Destroyers is the fastest and most cost-effective way to field critical C-UAS ship self-defense capability.

<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	4.017	0.358	2.009	-	2.009
Current President's Budget	3.922	0.358	1.624	-	1.624
Total Adjustments	-0.095	0.000	-0.385	-	-0.385
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.095	0.000			
• Program Adjustments	0.000	0.000	-0.407	-	-0.407
• Rate/Misc Adjustments	0.000	0.000	0.022	-	0.022

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**Appropriation/Budget Activity**  
1319: *Research, Development, Test & Evaluation, Navy / BA 4: Advanced Component Development & Prototypes (ACD&P)*

**R-1 Program Element (Number/Name)**  
PE 0603795N / *Land Attack Tech*

**Change Summary Explanation**

FY 2022 includes \$0.000M in OOC execution.  
FY 2023 includes \$0.000M in OOC enacted budget.  
FY 2024 includes \$15.00M for the OOC budget request.

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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 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0603795N / <i>Land Attack Tech</i>				<b>Project (Number/Name)</b> 2038 / <i>ADVANCED MINOR CALIBER GUN</i>			
<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>
2038: <i>ADVANCED MINOR CALIBER GUN</i>	29.629	3.922	0.358	1.624	-	1.624	1.717	1.238	1.222	1.209	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

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

Project 2038: The 25mm MK 38 MOD 2 and MOD 3 Machine Gun Systems (MGS) provide Anti-Surface Warfare (ASUW) and Anti-terrorism and Force Protection (AT/FP) capability as a simple, stabilized, low cost solution to outfit near-term deployers to counter small boat threats. Over 360 U.S. Navy-owned systems are installed on U.S. Navy AS, CG, CVN, DDG, LCC, LHA, LHD, LSD, OSV, PC class ships, MK VI Patrol Boats and U.S. Coast Guard Fast Response Cutters. Established in order to respond to Joint Urgent Operational Need Statement (JUONS) CC-0558 for Counter Unmanned Aerial Systems (C-UAS), the MK 38 MOD 3 MGS's electro-optical/infra-red sensor, hardware, and software are being upgraded to counter emerging unmanned aerial threats. Initial C-UAS capability was fielded in Q1FY20. Incremental improvements are being made to this C-UAS capability, for cybersecurity and to address operability issues. The 30mm MK 38 MOD 4 Gun Weapon System, will introduce greater accuracy, lethality, and effective range for C-UAS and Counter Unmanned Surface Vehicle (C-USV) capability with integration to highly accurate fire control system, 30mm gun, targeting sensor and AEGIS combat system. The MOD 4 will be fielded on all DDG 51 Flight IIA and Flight III AEGIS Destroyers. Project 2038 provides qualification and logistics development of the 30mm MK 38 MOD 4. This will include Function Integration Testing, Functional Acceptance Testing, AEGIS Light-off, Structural Test Firing, and an at-sea Quick Reaction Assessment (on board DDG 91). Upgrading fielded 25mm MK 38 MGS to MOD 3 with C-UAS and concurrently developing and fielding the MOD 4 GWS on all current and future DDG 51 Flight IIA and Flight III Destroyers is the fastest and most cost-effective way to field critical C-UAS ship self-defense capability.

**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> Systems Engineering and Testing	3.922	0.358	1.624	0.000	1.624
<b>Articles:</b>	-	-	-	-	-
<b>FY 2023 Plans:</b>					
- Continue Functional Integration Test of 30mm MK 38 MOD 4 GWS					
- Continue planning for Quick Reaction Assessment of prototype 30mm MK 38 MOD 4 GWS					
- Begin combat system certification and element certification					
- Begin variance qualification for Initial Operational Capability (IOC) configuration					
<b>FY 2024 Base Plans:</b>					
- Continue planning and perform Quick Reaction Assessment of prototype 30mm MK 38 MOD 4 GWS					
- Complete combat system certification and element certification					

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Navy	<b>Date:</b> March 2023
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<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603795N / <i>Land Attack Tech</i>	<b>Project (Number/Name)</b> 2038 / <i>ADVANCED MINOR CALIBER GUN</i>
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<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total
- Perform and complete qualification re-testing on components upgraded to support FY25 Initial Operational Capability (IOC)  <b>FY 2024 OCO Plans:</b> N/A  <b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> FY23 to FY24 \$1.266 increase attributed to performing Quick Reaction Assessment of prototype 30mm MK 38 MOD 4 GWS, completing combat system certification and element certification, and performing qualification re-testing on components upgraded to support FY25 Initial Operational Capability.					
<b>Accomplishments/Planned Programs Subtotals</b>	3.922	0.358	1.624	0.000	1.624

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

N/A

**Remarks**

**D. Acquisition Strategy**

Engineering and technical services to support qualification and ILS development for the 30mm MK 38 MOD 4 GWS in FY22-24 is being procured from Naval Surface Warfare Center (NSWC) Dahlgren (VA), NSWC Indian Head Picatinny, and NSWC Crane.

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

<b>Appropriation/Budget Activity</b> 1319 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603795N / <i>Land Attack Tech</i>	<b>Project (Number/Name)</b> 2038 / <i>ADVANCED MINOR CALIBER GUN</i>
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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			
Counter-UAS (JUONS CC-0558) Primary Product Integration	SS/BOA	BAE Systems : Minneapolis MN	15.824	0.000		0.000		0.000		-		0.000	0.000	15.824	-
30mm MK 38 MOD 4 Electro-optical Sensor/ Gun Mount Performance Demonstration	C/CPFF	BAE Systems : Minneapolis, MN	1.641	0.000		0.000		0.000		-		0.000	0.000	1.641	-
30mm MK 38 MOD 4 Electro-optical Sensor/ Gun Mount Performance Demonstration	C/CPFF	MSI-Defence Systems : Rock Hill, SC	0.575	0.000		0.000		0.000		-		0.000	0.000	0.575	-
<b>Subtotal</b>			18.040	0.000		0.000		0.000		-		0.000	0.000	18.040	N/A

**Remarks**  
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<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			
Government Engineering Services	WR	NSWC, DD : Dahlgren, VA	9.868	3.532	Nov 2021	0.358	Nov 2022	1.309	Nov 2023	-		1.309	Continuing	Continuing	Continuing
Government Engineering Services	WR	NSWC, IHD : Picatinny, NJ	1.318	0.000	Nov 2021	0.000		0.157	Nov 2023	-		0.157	Continuing	Continuing	Continuing
Government Engineering Services	WR	NSWC, CR : Crane, IN	0.403	0.390	Nov 2021	0.000		0.158	Nov 2023	-		0.158	Continuing	Continuing	Continuing
<b>Subtotal</b>			11.589	3.922		0.358		1.624		-		1.624	Continuing	Continuing	N/A

**Remarks**  
Government Engineering Services: NSWC Dahlgren provides engineering services for gun weapon system technical direction and test engineering. NSWC IHD provides engineering services for gun weapon system configuration management, logistics, and in-service engineering. NSWC Crane provides engineering services for electro-optical sensor technical direction and test engineering.



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

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FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
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>Proj 2038</b>	
Counter-UAS (JUONS CC-0558): Qualification and Certification of Follow-on Software Baseline	██████████
30mm MK 38 MOD 4 GWS: Limited Qualification of Prototype Gun Weapon System	██████████
30mm MK 38 MOD 4 GWS: Preliminary logistics development	██████████
30mm MK 38 MOD 4 GWS: Functional Integration Test	██████████
30mm MK 38 MOD 4 GWS: Plan & Execute Quick Reaction Assessment	██
30mm MK 38 MOD 4 GWS: Evaluate 30mm Ammunition Candidate for GWS Integration	██████████
30mm MK 38 MOD 4 GWS: Perform variance qualification for IOC configuration	██
30mm MK 38 MOD 4 GWS: Complete element & combat system certifications	████████████████████

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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 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0603795N / <i>Land Attack Tech</i>	<b>Project (Number/Name)</b> 2038 / <i>ADVANCED MINOR CALIBER GUN</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Proj 2038</i></b>				
Counter-UAS (JUONS CC-0558): Qualification and Certification of Follow-on Software Baseline	3	2022	4	2022
30mm MK 38 MOD 4 GWS: Limited Qualification of Prototype Gun Weapon System	1	2022	4	2022
30mm MK 38 MOD 4 GWS: Preliminary logistics development	1	2022	3	2022
30mm MK 38 MOD 4 GWS: Functional Integration Test	4	2022	2	2023
30mm MK 38 MOD 4 GWS: Plan & Execute Quick Reaction Assessment	1	2022	4	2024
30mm MK 38 MOD 4 GWS: Evaluate 30mm Ammunition Candidate for GWS Integration	1	2022	4	2022
30mm MK 38 MOD 4 GWS: Perform variance qualification for IOC configuration	1	2023	4	2024
30mm MK 38 MOD 4 GWS: Complete element & combat system certifications	1	2023	1	2024