Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Navy											Date: February 2020	
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0603795N *I Land Attack Tech*							
COST ($ in Millions)	**Prior Years**	**FY 2019**	**FY 2020**	**FY 2021 Base**	**FY 2021 OCO**	**FY 2021 Total**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Cost To Complete**	**Total Cost**
Total Program Element	29.979	6.924	7.328	10.578	1.457	12.035	10.098	5.831	5.543	5.652	Continuing	Continuing
2038: *ADVANCED MINOR CALIBER GUN*	18.197	1.400	5.928	4.422	1.457	5.879	4.181	1.806	1.536	1.566	Continuing	Continuing
3401: *Guided Projectile*	11.782	0.700	1.400	6.156	-	6.156	5.917	4.025	4.007	4.086	Continuing	Continuing
9999: *Congressional Adds*	0.000	4.824	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.824

A. Mission Description and Budget Item Justification

Project 2038 Base & OCO: The MK 38 MOD 3 Machine Gun System (MGS) provides 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 300 systems are installed on U.S. Navy AS, CG, CVN, DDG, LCC, LHA, LHD, LSD, OSV, PC class ships and MK VI Patrol Boats. In order to respond to the Joint Urgent Operational Need (JUONS CC-0558) Counter Unmanned Aerial Systems (C-UAS), the MK 38 MOD 3 MGS' electro-optical/infra-red sensor, hardware, and software is being upgraded to counter emerging unmanned aerial threats. Fielding of initial capability will start in fourth quarter of FY19. Incremental improvements will be made in the out years to further improve on accuracy, effective range, and lethality. Starting in FY20, further development will improve the MK 38 MGS' accuracy, lethality, and effective range to counter unmanned air (C-UAS) and unmanned surface (C-USV) threats with integration to highly accurate fire control system, 30mm gun, and targeting sensor.

Projects 3401 & C452: The Gun Launched Guided Projectile program leverages Hypervelocity Projectile (HVP) technology developed under each of the respective Strategic Capabilities Office (SCO) and Office of Naval Research (ONR) Future Naval Capabilities (FNC) programs to provide gun-based Anti-Ship Cruise Missile (ASCM) defense. Gun-based ASCM defense capability increases both ship's weapon capacity against ASCM raids and battle persistence in successive ASCM raids. The performance improvement is achieved without relying on Vertical Launch System (VLS) cells for weapon deployment. This effectively deepens the ship's magazine for raid defense and supports larger allocation of VLS cells to offensive capability. In addition to improved capacity and battle persistence, gun-based ASCM defense solutions provide a cost effective response to an ASCM attack due to the unit cost of the projectile relative to missiles.

The introduction of gun-based ASCM defense for large caliber guns is made possible by recent advancements in microelectronics, sensors, and energetic systems that enable precision guidance and tailored lethality. GLGP incorporates these HVP technologies into an aerodynamically streamlined sub-caliber airframe to achieve a highly maneuverable projectile. When launched from the MK 45 Gun Weapon System (GWS) at high velocities, GLGP's high maneuverability combined with high kinetic energy at the intercept yields effectiveness against ASCMs.

Initial HVP technology demonstration focused on land-based system integration and implementation. Shipboard integration requires some modifications to the initial concept of operations to implement the technology effectively and affordably. This project matures critical enabling technologies needed to integrate HVP technology on Navy ships and executes the requisite acquisition, systems engineering, and test planning activities to initiate a development effort.

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Navy	Date: February 2020
Appropriation/Budget Activity 1319: *Research, Development, Test & Evaluation, Navy I* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 Program Element (Number/Name)** PE 0603795N *I Land Attack Tech*

B. Program Change Summary ($ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	7.100	9.086	11.095	-	11.095
Current President's Budget	6.924	7.328	10.578	1.457	12.035
Total Adjustments	-0.176	-1.758	-0.517	1.457	0.940
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-3.186			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.176	0.000			
• Program Adjustments	0.000	1.428	-0.546	1.457	0.911
• Rate/Misc Adjustments	0.000	0.000	0.029	-	0.029

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2019	FY 2020
Project: 9999: *Congressional Adds*		
Congressional Add: *Guided Projectile*	4.824	0.000
Congressional Add Subtotals for Project: 9999	4.824	0.000
Congressional Add Totals for all Projects	4.824	0.000

Change Summary Explanation

The FY 2021 funding request was reduced by (-$0.017) million to account for the availability of prior year execution balances.

FY19: -$0.176M SBIR
FY20: $1.428 OCO Request, -$3.186 Congressional Directed Reductions
FY21: Rate Adjustment increase $0.029, Program Adjustment -$0.529, Prior Year Execution -$0.017

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy			Date: February 2020
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603795N / *Land Attack Tech*	Project (Number/Name) 2038 / *ADVANCED MINOR CALIBER GUN*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
2038: *ADVANCED MINOR CALIBER GUN*	18.197	1.400	5.928	4.422	1.457	5.879	4.181	1.806	1.536	1.566	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The MK 38 MOD 3 Machine Gun System (MGS) provides 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 350 systems are installed on U.S. Navy AS, CG, CVN, DDG, LCC, LHA, LHD, LSD, OSV, PC class ships and MK VI Patrol Boats, and U.S. Coast Guard FRC cutters. In order to respond to the Joint Urgent Operational Need (JUONS CC-0558) Counter Unmanned Aerial Systems (C-UAS), the MK 38 MOD 3 MGS' electro-optical/infra-red sensor, hardware, and software is being upgraded to counter emerging unmanned aerial threats. Fielding of initial capability will start in first quarter of FY20. Incremental improvements will be made in FY20-21 to further improve on accuracy and effective range of C-UAS capability. Starting in FY20, further development will improve the MK 38 MGS' accuracy, lethality, and effective range to counter unmanned air (C-UAS) and unmanned surface (C-USV) threats with integration to highly accurate fire control system, 30mm gun, and targeting sensor.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Systems Engineering and Testing	1.400	5.928	4.422	1.457	5.879
Articles:	-	-	-	-	-
FY 2020 Plans: - Evaluation and down-select of 30mm gun mount candidates via comparative testing - Evaluation and down-selection of electro-optical sensor via comparative testing OCO: - Train Fleet and collect feedback on operation of initial C-UAS upgrade to Mk 38 MOD 3 - Analyze Fleet feedback, identify required bug fixes and software improvements, develop follow-on software build					
FY 2021 Base Plans: - Evaluate and qualify 30mm gun weapon system prototype (including gun mounts and optical sensor) - Preliminary logistics development					
FY 2021 OCO Plans: - Install software improvements and train Fleet					
FY 2020 to FY 2021 Increase/Decrease Statement:					

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603795N / *Land Attack Tech*	**Project (Number/Name)** 2038 / *ADVANCED MINOR CALIBER GUN*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
No significant change.					
Accomplishments/Planned Programs Subtotals	1.400	5.928	4.422	1.457	5.879

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Evaluation of 30mm gun mounts and electro-optical sensors is being competitively acquired using Other Transactional Authority (OTA) through the Defense Ordnance Technology Consortium (DOTC).

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603795N / *Land Attack Tech*	**Project (Number/Name)** 2038 / *ADVANCED MINOR CALIBER GUN*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Counter-UAS (JUONS CC-0558) Primary Product Integration	SS/BOA	BAE Systems : Minneapolis MN	14.443	0.181	Mar 2019	1.200	Jun 2020	0.000		0.800	Jun 2021	0.800	Continuing	Continuing	Continuing
MK38 Counter UAS/USV Improvement Primary Product Integration	C/CPFF	TBD : Not Specified	0.000	0.000		2.000	Apr 2020	2.000	Mar 2021	-		2.000	0.000	4.000	-
		Subtotal	14.443	0.181		3.200		2.000		0.800		2.800	Continuing	Continuing	N/A

Remarks

Counter UAS capability upgrades to MK 38 MOD 3 Machine Gun System

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Government Engineering Services	WR	NSWC, DD : Dahlgren, VA	2.899	1.219	Mar 2019	1.128	Jun 2020	1.772	Nov 2020	0.200	Nov 2020	1.972	0.000	7.218	-
Government Engineering Services	WR	NSWC, IHD : Picatinny, NJ	0.690	0.000		1.100	Jun 2020	0.350	Nov 2020	0.307	Nov 2020	0.657	0.000	2.447	-
Government Engineering Services	WR	NSWC, CR : Crane, IN	0.165	0.000		0.500	Jun 2020	0.300	Nov 2020	0.150	Nov 2020	0.450	0.000	1.115	-
		Subtotal	3.754	1.219		2.728		2.422		0.657		3.079	0.000	10.780	N/A

Remarks

Configuration Management (CM), qualification testing, certification

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	18.197	1.400		5.928		4.422		1.457		5.879	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603795N / *Land Attack Tech*	**Project (Number/Name)** 2038 / *ADVANCED MINOR CALIBER GUN*

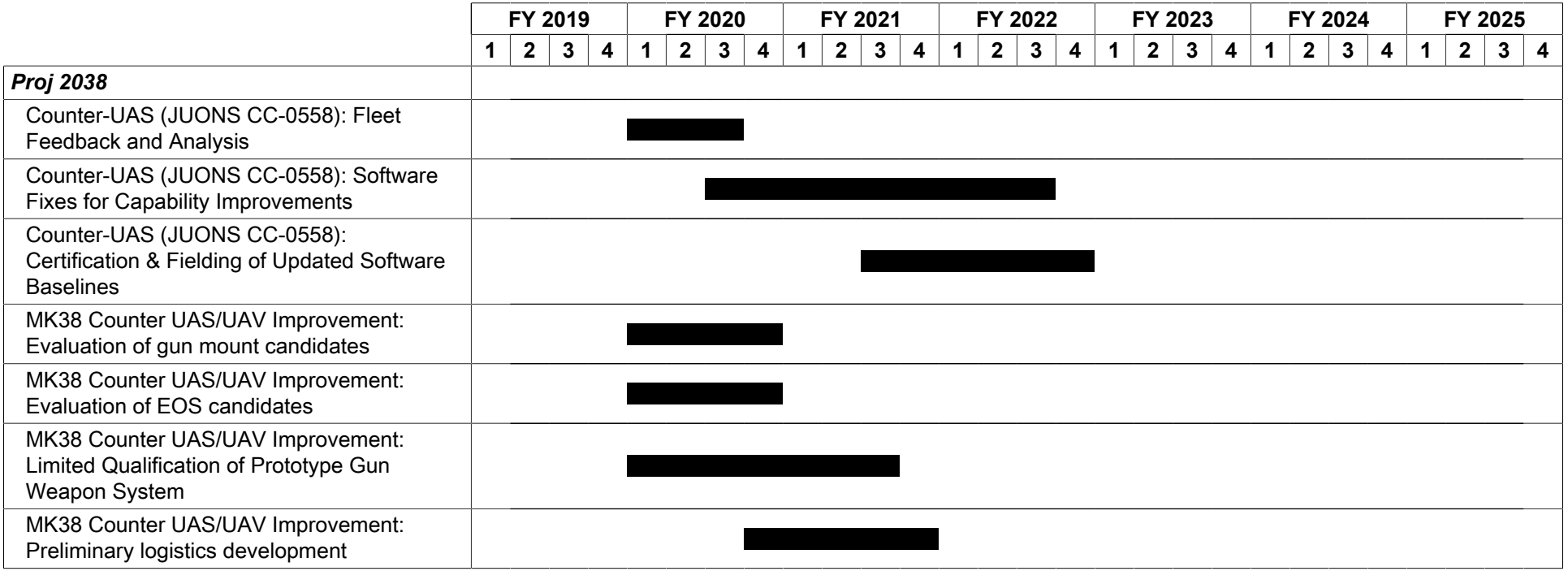

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603795N / *Land Attack Tech*	**Project (Number/Name)** 2038 / *ADVANCED MINOR CALIBER GUN*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 2038				
Counter-UAS (JUONS CC-0558): Fleet Feedback and Analysis	1	2020	3	2020
Counter-UAS (JUONS CC-0558): Software Fixes for Capability Improvements	3	2020	3	2022
Counter-UAS (JUONS CC-0558): Certification & Fielding of Updated Software Baselines	3	2021	4	2022
MK38 Counter UAS/UAV Improvement: Evaluation of gun mount candidates	1	2020	4	2020
MK38 Counter UAS/UAV Improvement: Evaluation of EOS candidates	1	2020	4	2020
MK38 Counter UAS/UAV Improvement: Limited Qualification of Prototype Gun Weapon System	1	2020	3	2021
MK38 Counter UAS/UAV Improvement: Preliminary logistics development	4	2020	4	2021

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy			Date: February 2020
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603795N / *Land Attack Tech*	Project (Number/Name) 3401 / *Guided Projectile*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
3401: *Guided Projectile*	11.782	0.700	1.400	6.156	-	6.156	5.917	4.025	4.007	4.086	Continuing	Continuing
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Gun Launched Guided Projectile program leverages Hypervelocity Projectile (HVP) technology developed under each of the respective Strategic Capabilities Office (SCO) and Office of Naval Research (ONR) Future Naval Capabilities (FNC) programs to provide gun-based Anti-Ship Cruise Missile (ASCM) defense. Gun-based ASCM defense capability increases both ship's weapon capacity against ASCM raids and battle persistence in successive ASCM raids. The performance improvement is achieved without relying on Vertical Launch System (VLS) cells for weapon deployment. This effectively deepens the ship's magazine for raid defense and supports larger allocation of VLS cells to offensive capability. In addition to improved capacity and battle persistence, gun-based ASCM defense solutions provide a cost effective response to an ASCM attack due to the unit cost of the projectile relative to missiles.

The introduction of gun-based ASCM defense for large caliber guns is made possible by recent advancements in microelectronics, sensors, and energetic systems that enable precision guidance and tailored lethality. GLGP incorporates these HVP technologies into an aerodynamically streamlined sub-caliber airframe to achieve a highly maneuverable projectile. When launched from the MK 45 Gun Weapon System (GWS) at high velocities, GLGP's high maneuverability combined with high kinetic energy at the intercept yields effectiveness against ASCMs.

Initial HVP technology demonstration focused on land-based system integration and implementation. Shipboard integration requires some modifications to the initial concept of operations to implement the technology effectively and affordably. This project matures critical enabling technologies needed to integrate HVP technology on Navy ships and executes the requisite acquisition, systems engineering, and test planning activities to initiate a development effort.

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Title: Systems Engineering and Testing	0.700	1.400	6.156	0.000	6.156
Articles:	-	-	-	-	-
FY 2020 Plans: - Conduct subcomponent technology performance sensitivity/ trade space analyses - Continue Milestone B documentation preparation to include Test & Evaluation Master Plan (TEMP), Systems Engineering Master Plan (SEMP), Independent Logistics Assessment (ILA), Modeling & Simulation (M&S) strategy, and draft performance specifications - Continue common interface definition documentation preparation for ammunition handling, projectile initialization - Develop combat system integration strategy based on notional EM&D entry point					
FY 2021 Base Plans:					

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603795N / *Land Attack Tech*	**Project (Number/Name)** 3401 / *Guided Projectile*

B. Accomplishments/Planned Programs ($ in Millions, Article Quantities in Each)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
- Refine Milestone B documentation based on completion of sensitivity/ trade space analyses - Refine combat system integration architecture definition - Complete common interface definition documentation preparation for ammunition handling, projectile initialization - Refine the detailed Acquisition Strategy - Conduct market research to refine Request for Proposal (RFP); finalize the government furnished information library to support the RFP ***FY 2021 OCO Plans:*** N/A ***FY 2020 to FY 2021 Increase/Decrease Statement:*** Funding increase due to efforts associated with Milestone B documentation development and systems definition requirements for competitive Request for Proposal (RFP).					
Accomplishments/Planned Programs Subtotals	0.700	1.400	6.156	0.000	6.156

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

Leverage the Office Of Naval Research (ONR) sponsored Future Naval Capabilities project, Strategic Capabilities Office (SCO) Hypervelocity Projectile (HVP) demonstrations, and Government developed Interface Control Drawings and specification to establish a competitive solicitation for Engineering & Manufacturing Development (E&MD) Phase.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603795N / *Land Attack Tech*	**Project (Number/Name)** 3401 / *Guided Projectile*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
5 Inch Cartridge Case Process Modification	C/CPFF	Rock Island : Rock Island, IN	0.684	0.000		0.000		0.000		-		0.000	0.000	0.684	16.000
Interface Development	WR	NSWC Dahlgren : Dahlgren, VA	1.085	0.000		0.000		0.000		-		0.000	0.000	1.085	-
Tech Maturation	FFRDC	MIT : Boston, MA	0.350	0.000		0.000		0.000		-		0.000	0.000	0.350	-
Tech Maturation	WR	NSWC IH : Indian Head, MD	4.452	0.000		0.000		0.000		-		0.000	0.000	4.452	-
Tech Maturation	FFRDC	APL : Laurel, MD	0.312	0.000		0.000		0.000		-		0.000	0.000	0.312	-
Combat System and Terminal Guidance Analyses	C/CPFF	APL : Laurel, MD	0.500	0.000		0.000		0.311	Nov 2020	-		0.311	0.000	0.811	-
Systems Engineering, Cyber, T&E, Software Guidance, and Electronic Engineering	WR	NSWC DD : Dahlgren, VA	2.000	0.670	Nov 2018	1.300	Nov 2019	3.797	Nov 2020	-		3.797	0.000	7.767	-
Fuzing Warhead, Propellant Charge	WR	NSWC IHD : indian Head, MD	0.150	0.000		0.000		0.818	Nov 2020	-		0.818	0.000	0.968	-
CM/Data Management Acquisition Support Logistics	WR	NSWC IH : Picatinny, NJ	0.630	0.000		0.100	Feb 2020	0.848	Nov 2020	-		0.848	0.000	1.578	-
		Subtotal	10.163	0.670		1.400		5.774		-		5.774	0.000	18.007	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Office Contractor Services	C/CPFF	Various : Arlington, VA	1.415	0.030	Jul 2019	0.000		0.382	Nov 2020	-		0.382	Continuing	Continuing	Continuing
Program Support Services	FFRDC	MITRE : McLean, VA	0.089	0.000		0.000		0.000		-		0.000	0.000	0.089	-
Program Support Services	WR	NPS : Monterey, CA	0.090	0.000		0.000		0.000		-		0.000	0.000	0.090	-
		Subtotal	1.594	0.030		0.000		0.382		-		0.382	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy			Date: February 2020
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603795N / *Land Attack Tech*	Project (Number/Name) 3401 / *Guided Projectile*	

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
T&E Support	WR	NSWC Dahlgren : Dahlgren, VA	0.025	0.000		0.000		0.000		-		0.000	0.000	0.025	-
		Subtotal	0.025	0.000		0.000		0.000		-		0.000	0.000	0.025	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	11.782	0.700		1.400		6.156		-		6.156	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603795N / *Land Attack Tech*	**Project (Number/Name)** 3401 / *Guided Projectile*

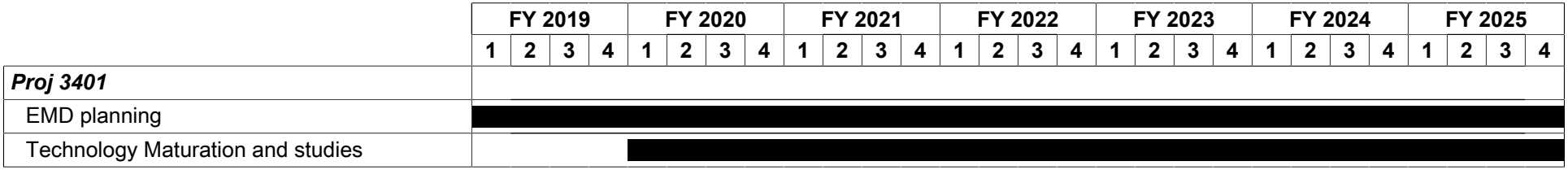

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603795N / *Land Attack Tech*	**Project (Number/Name)** 3401 / *Guided Projectile*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 3401				
EMD planning	1	2019	4	2025
Technology Maturation and studies	1	2020	4	2025

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy			Date: February 2020
Appropriation/Budget Activity 1319 / 4	R-1 Program Element (Number/Name) PE 0603795N / *Land Attack Tech*	Project (Number/Name) 9999 / *Congressional Adds*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
9999: *Congressional Adds*	0.000	4.824	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	0.000	4.824
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Gun Launched Guided Projectile program leverages Hypervelocity Projectile (HVP) technology developed under each of the respective Strategic Capabilities Office (SCO) and Office of Naval Research (ONR) Future Naval Capabilities (FNC) programs to provide gun-based Anti-Ship Cruise Missile (ASCM) defense. Gun-based ASCM defense capability increases both ship's weapon capacity against ASCM raids and battle persistence in successive ASCM raids. The performance improvement is achieved without relying on Vertical Launch System (VLS) cells for weapon deployment. This effectively deepens the ship's magazine for raid defense and supports larger allocation of VLS cells to offensive capability. In addition to improved capacity and battle persistence, gun-based ASCM defense solutions provide a cost effective response to an ASCM attack due to the unit cost of the projectile relative to missiles.

The introduction of gun-based ASCM defense for large caliber guns is made possible by recent advancements in microelectronics, sensors, and energetic systems that enable precision guidance and tailored lethality. GLGP incorporates these HVP technologies into an aerodynamically streamlined sub-caliber airframe to achieve a highly maneuverable projectile. When launched from the MK 45 Gun Weapon System (GWS) at high velocities, GLGP's high maneuverability combined with high kinetic energy at the intercept yields effectiveness against ASCMs.

Initial HVP technology demonstration focused on land-based system integration and implementation. Shipboard integration requires some modifications to the initial concept of operations to implement the technology effectively and affordably. This project matures critical enabling technologies needed to integrate HVP technology on Navy ships and executes the requisite acquisition, systems engineering, and test planning activities to initiate a development effort.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020
Congressional Add: Guided Projectile	4.824	0.000
FY 2019 Accomplishments: - Initiated combat system architecture and design - Progressed technology maturation for critical components such as data link and terminal guidance. - Interface design documentation is in process		
FY 2020 Plans: N/A		
Congressional Adds Subtotals	4.824	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603795N / *Land Attack Tech*	**Project (Number/Name)** 9999 / *Congressional Adds*

D. Acquisition Strategy

Execute efforts with government labs, FFRDCs and UARCs to preserve competitive posture for a subsequent development program.

Exhibit R-3, RDT&E Project Cost Analysis: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603795N / *Land Attack Tech*	**Project (Number/Name)** 9999 / *Congressional Adds*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Testing and Interface Development	WR	NSWC DD : Dahlgren, VA	0.000	1.333	Jan 2019	0.000		0.000		-		0.000	0.000	1.333	-
Tech Maturation	FFRDC	JHU APL : Laurel, MD	0.000	0.593	Feb 2019	0.000		0.000		-		0.000	0.000	0.593	-
Tech Maturation	FFRDC	MIT LL : Arlington, VA	0.000	0.350	Mar 2019	0.000		0.000		-		0.000	0.000	0.350	-
Fuzing, Warhead, propelling Charge	WR	NSWC IH : indian Head, MD	0.000	0.253	Jan 2019	0.000		0.000		-		0.000	0.000	0.253	-
Sys. Eng.,Cyber, T&E	WR	NSWC DD : Dahlgren, VA	0.000	1.471	Jan 2019	0.000		0.000		-		0.000	0.000	1.471	-
CDIM, Acq. Support, ILS	WR	NSWC IH PIC Det. : Picatinny, NJ	0.000	0.538	Jan 2019	0.000		0.000		-		0.000	0.000	0.538	-
		Subtotal	0.000	4.538		0.000		0.000		-		0.000	0.000	4.538	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2019 Cost	FY 2019 Award Date	FY 2020 Cost	FY 2020 Award Date	FY 2021 Base Cost	FY 2021 Base Award Date	FY 2021 OCO Cost	FY 2021 OCO Award Date	FY 2021 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Eng Support	C/CPFF	Various : Various	0.000	0.286	Dec 2018	0.000		0.000		-		0.000	0.000	0.286	-
		Subtotal	0.000	0.286		0.000		0.000		-		0.000	0.000	0.286	N/A

	Prior Years	FY 2019		FY 2020		FY 2021 Base		FY 2021 OCO		FY 2021 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	4.824		0.000		0.000		-		0.000	0.000	4.824	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603795N / *Land Attack Tech*	**Project (Number/Name)** 9999 / *Congressional Adds*

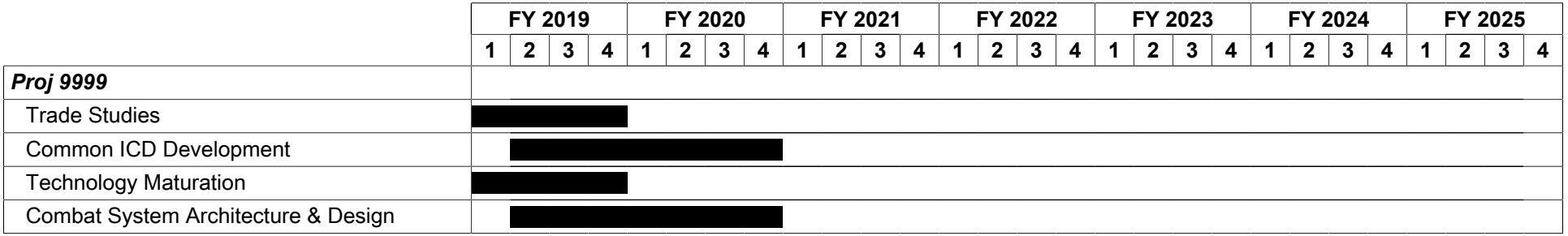

Exhibit R-4A, RDT&E Schedule Details: PB 2021 Navy		Date: February 2020
Appropriation/Budget Activity 1319 / 4	**R-1 Program Element (Number/Name)** PE 0603795N / *Land Attack Tech*	**Project (Number/Name)** 9999 / *Congressional Adds*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Proj 9999				
Trade Studies	1	2019	4	2019
Common ICD Development	2	2019	4	2020
Technology Maturation	1	2019	4	2019
Combat System Architecture & Design	2	2019	4	2020