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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Navy										Date: March 2019		
Appropriation/Budget Activity 1319: Research, Development, Test & Evaluation, Navy / BA 5: System Development & Demonstration (SDD)					R-1 Program Element (Number/Name) PE 0604727N / Joint Standoff Weapon Systems							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	898.721	0.418	0.441	18.725	-	18.725	63.677	89.741	87.761	40.170	3.005	1,202.659
2068: Joint Standoff Weapon (JSOW)	898.721	0.418	0.441	18.725	-	18.725	63.677	89.741	87.761	40.170	3.005	1,202.659
Program MDAP/MAIS Code: Project MDAP/MAIS Code(s): 766												
A. Mission Description and Budget Item Justification												
JSOW Extended Range (ER) development commences in FY 2020 providing a JSOW variant with powered flight, avionics upgrades, and improved software enabling operations at tactically significant ranges of greater than 200nm, to kinetically engage adversary surface combatants and land targets. Additionally, the JSOW ER capability fundamentally supports Navy's strategy of intelligent, Network Enabled Weapons in order to apply effective and lethal firepower from secure positions. The FY 2020 budget request supports Engineering, Manufacturing, and Development (EMD) phase beginning in FY 2020 and Initial Operational Capability (IOC) in FY 2025 for F/A-18E/F. This effort leverages demonstration funding from OSD in FY 2018 and FY 2019, transitioning capability to the Navy.												
The Joint Standoff Weapon (JSOW) is an air-to-ground weapon designed to attack a variety of targets during day, night, and adverse weather conditions. JSOW will enhance aircraft survivability as compared to current interdiction weapon systems by providing the capability for launch aircraft to standoff outside the range of most target area surface-to-air threat systems. The JSOW launch-and-leave capability will allow several target kills per aircraft sortie. The JSOW program first developed a baseline weapon for use against fixed area targets. JSOW is a Navy led joint Navy/Air Force program. JSOW utilizes a "common truck" for both AGM-154A and AGM-154C variants. Through adherence to international standards for weapons interfaces, weight, and dimension considerations, JSOW is compatible with Air Force and North Atlantic Treaty Organization aircraft.												
The JSOW Unitary (AGM-154C-1) variant includes a Network Enabled Weapon moving maritime target capability. The AGM-154C-1 capability enables the weapon to be integrated with the network and attack sea moving maritime targets via real-time pre-and post-launch targeting updates. JSOW will continue to conduct analysis and development of solutions to system integration challenges, and continual enhancement of warfighter effectiveness in the employment of the JSOW weapon system. The FY 2019 funding included the integration of new functionality into the joint mission planning systems and precision guided munitions planning system. JSOW C-1 Initial Operational Capability was achieved in June 2016. JSOW C-1 Full Operational Capability was achieved in August 2017.												
This program is funded under SYSTEM DEVELOPMENT AND DEMONSTRATION because it includes those projects that have passed Milestone B approval and are conducting engineering and manufacturing development tasks aimed at meeting validated requirement prior to full-rate production decision.												

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B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	0.435	0.441	0.439	-	0.439
Current President's Budget	0.418	0.441	18.725	-	18.725
Total Adjustments	-0.017	0.000	18.286	-	18.286
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.017	0.000			
• Program Adjustments	0.000	0.000	18.286	-	18.286
Change Summary Explanation					
The FY 2020 funding request was increased to support the development of the ER configuration in conjunction with funded demonstration efforts.					
The FY2020 funding request was reduced by \$.218M to account for the availability of prior year execution balances.					
Schedule:					
Incorporate JSOW ER events.					
Technical: N/A					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Navy										Date: March 2019		
Appropriation/Budget Activity 1319 / 5					R-1 Program Element (Number/Name) PE 0604727N / Joint Standoff Weapon Systems				Project (Number/Name) 2068 / Joint Standoff Weapon (JSOW)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
2068: Joint Standoff Weapon (JSOW)	898.721	0.418	0.441	18.725	-	18.725	63.677	89.741	87.761	40.170	3.005	1,202.659
Quantity of RDT&E Articles		-	-	-	-	-	-	-	-	-		
Project MDAP/MAIS Code: 766												
A. Mission Description and Budget Item Justification												
JSOW Extended Range (ER) development commences in FY 2020 providing a JSOW variant with powered flight, avionics upgrades, and improved software enabling operations at tactically significant ranges of greater than 200nm, to kinetically engage adversary surface combatants and land targets. Additionally, the JSOW ER capability fundamentally supports Navy's strategy of intelligent, Network Enabled Weapons in order to apply effective and lethal firepower from secure positions. The FY 2020 budget request supports Engineering, Manufacturing, and Development (EMD) phase beginning in FY 2020 and Initial Operational Capability (IOC) in FY 2025 for F/A-18E/F. This effort leverages demonstration funding from OSD in FY 2018 and FY 2019, transitioning capability to the Navy.												
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Title: JSOW-ER Articles: Description: JSOW ER program development efforts include activities to support the development and incorporation of an Extended Range (ER) variant of the JSOW into the US Navy's operational inventory. FY 2019 Plans: N/A FY 2020 Base Plans: The System Design and Development (SDD) phase will begin in FY 2020 to support the development of the JSOW ER configuration, in conjunction with funded demonstration efforts, to conduct engineering support activities, and leverage demonstration results to develop the JSOW ER design. Efforts include the SRR milestone review; system architecture and design work and evaluation; hardware and software planning, integration, and qualification; and verification and validation of critical design attributes. FY 2020 OCO Plans:								0.000	0.000	18.286	0.000	18.286
								-	-	-	-	-

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Appropriation/Budget Activity 1319 / 5				R-1 Program Element (Number/Name) PE 0604727N / Joint Standoff Weapon Systems				Project (Number/Name) 2068 / Joint Standoff Weapon (JSOW)				
B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)								FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
N/A												
FY 2019 to FY 2020 Increase/Decrease Statement: The FY 2020 funding request was increased to support the development of the Extended Range configuration in conjunction with funded demonstration efforts.												
Title: JSOW Mission Planning Systems								0.418	0.441	0.439	0.000	0.439
Articles:								-	-	-	-	-
Description: JSOW program development efforts include new mission planning functionality required for Network Enabled Weapon (NEW) moving target capability for the JSOW-C-1.												
FY 2019 Plans: Continue interoperability efforts for JSOW C-1.												
FY 2020 Base Plans: Legacy JSOW C-1 efforts include JSOW baseline C-1 integration and interoperability path forward; continued network interoperability efforts for JSOW C-1; continue software improvement efforts; initiate efforts to migrate JSOW mission planning software from the contractor owned Common Weapon Planning Environment (CWPE) to the Government owned Precision Guidance Mission Planning System (PGMPS) common component.												
FY 2020 OCO Plans: N/A												
FY 2019 to FY 2020 Increase/Decrease Statement: FY 2019 to FY 2020 decrease of \$.002 is due to service miscellaneous.												
Accomplishments/Planned Programs Subtotals								0.418	0.441	18.725	0.000	18.725
C. Other Program Funding Summary (\$ in Millions)												
Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost	
• USN WP,N BLI 2230: JSOW	5.487	1.330	0.000	-	0.000	0.000	64.300	85.100	122.800	261.228	2,810.006	
Remarks												
FY2020 - BLI 2230. No funding is required as Telemetry Instrumentation Kit (TIK) 2.0 component assembly certification will be complete.												

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Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604727N / Joint Standoff Weapon Systems	Project (Number/Name) 2068 / Joint Standoff Weapon (JSOW)
D. Acquisition Strategy The JSOW-ER acquisition strategy includes the development, integration, test, qualification and production of a moving maritime target (MMT), Stationary Land Target (SLT) and Relocatable Land Target (RLT) capability. This program will utilize the rapid acquisition interim approach Section 804 middle tier acquisition process to apply innovative technologies to rapidly develop and field the new JSOW-ER capability with separate cost, schedule, and performance measurements as an ACAT II program. The contracting strategy for JSOW line of weapons is planned to be sole source for the life of the program. JSOW-ER will use cost-type contracts to rapidly transition the already-prototyped Extended Range variant of the AGM-154 into a production configuration via the Middle Tier Acquisition framework. The schedule is phased to leverage the existing engineering team that conducted successful powered-flight demonstrations, and affordably transition of the production line from its current operations supporting foreign sales to domestic Extended Range quantities. Fixed-price contracts will be used for procurement.		
E. Performance Metrics Primary metrics for JSOW-ER will be program schedule, range, and unit cost.		

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy												Date: March 2019			
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0604727N / Joint Standoff Weapon Systems				Project (Number/Name) 2068 / Joint Standoff Weapon (JSOW)					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
JSOW System Engineering	MIPR	National Security Agency : Fort Meade, MD	1.259	0.000		0.000		0.000		-		0.000	0.000	1.259	-
JSOW Prior year Prod Dev no longer funded in the FYDP	Various	Various : Various	802.617	0.000		0.000		0.000		-		0.000	0.000	802.617	-
JSOW ER Product Development	SS/CPIF	Raytheon Missile Systems : Tucson, AZ	0.000	0.000		0.000		13.046	Mar 2020	-		13.046	194.820	207.866	139.180
Subtotal			803.876	0.000		0.000		13.046		-		13.046	194.820	1,011.742	N/A
Remarks															
Product development was added in support of JSOW-ER Integration. Primary Hardware Development was added in support of JSOW-ER. Currently evaluating a pool of mature technical solutions for weapon warhead to select a final payload solution.															
Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
JSOW Software Development	SS/CPFF	Various : Various	6.414	0.418	Feb 2018	0.441	Mar 2019	0.439	Mar 2020	-		0.439	4.816	12.528	12.526
JSOW Prior year Support no longer funded in the FYDP	Various	Various : Various	8.007	0.000		0.000		0.000		-		0.000	0.000	8.007	-
JSOW ER Government Support	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		1.500	Nov 2019	-		1.500	15.000	16.500	-
JSOW ER Government Support	WR	NAWCWD : China Lake, CA	0.000	0.000		0.000		3.000	Nov 2019	-		3.000	20.000	23.000	-
Subtotal			14.421	0.418		0.441		4.939		-		4.939	39.816	60.035	N/A
Remarks															
Government support was added in support of JSOW-ER.															

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Navy												Date: March 2019			
Appropriation/Budget Activity 1319 / 5						R-1 Program Element (Number/Name) PE 0604727N / Joint Standoff Weapon Systems				Project (Number/Name) 2068 / Joint Standoff Weapon (JSOW)					
Test and Evaluation (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
JSOW Oper Test and Evaluation	WR	COMOPTEVFOR : Norfolk, VA	20.886	0.000		0.000		0.000		-		0.000	20.000	40.886	-
JSOW Prior year T&E no longer funded in the FYDP	WR	NAWCWD : China Lake, CA	34.034	0.000		0.000		0.000		-		0.000	25.000	59.034	-
Subtotal			54.920	0.000		0.000		0.000		-		0.000	45.000	99.920	N/A
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
JSOW Prior year Mgmt no longer funded in the FYDP	Various	Various : Various	25.504	0.000		0.000		0.000		-		0.000	0.000	25.504	-
JSOW ER Government Support	WR	NAWCAD : Patuxent River, MD	0.000	0.000		0.000		0.500	Nov 2019	-		0.500	2.000	2.500	-
JSOW ER Project Management Support	C/CPFF	NAVAIR : Patuxent River, MD	0.000	0.000		0.000		0.200	Nov 2019	-		0.200	2.000	2.200	2.200
JSOW ER Travel	Various	NAVAIR : Patuxent River, MD	0.000	0.000		0.000		0.040	Nov 2019	-		0.040	0.500	0.540	-
Subtotal			25.504	0.000		0.000		0.740		-		0.740	4.500	30.744	N/A
Remarks															
Government Support, Project Management and Travel added in support of JSOW-ER.															
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			898.721	0.418		0.441		18.725		-		18.725	284.136	1,202.441	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Navy Date: March 2019

Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604727N / Joint Standoff Weapon Systems	Project (Number/Name) 2068 / Joint Standoff Weapon (JSOW)
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Joint Standoff Weapon	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Acquisition Milestones																												
Milestones																												
Systems Development																												
Software Development																												
Test and Evaluation																												
Test and Evaluation																												
Production Milestones																												
Contract Awards																												
Deliveries																												
Deliveries																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Navy			Date: March 2019
Appropriation/Budget Activity 1319 / 5	R-1 Program Element (Number/Name) PE 0604727N / <i>Joint Standoff Weapon Systems</i>	Project (Number/Name) 2068 / <i>Joint Standoff Weapon (JSOW)</i>	

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Joint Standoff Weapon</i>				
Systems Development: JSOW-ER System Design and Development	1	2020	4	2024
Systems Development: Software Development: JSOW C-1 Integration and Interoperability	1	2018	4	2024
Test and Evaluation: Test and Evaluation: AGM-154C-1 JSOW Operational Test Agency Follow-On Evaluation Report OT-IIIB Final Report	3	2018	3	2018
Test and Evaluation: Test and Evaluation: JSOW - ER Insensitive Munition Testing, Developmental Test and Operational Test	1	2021	4	2024
Production Milestones: Contract Awards: Production Shutdown Awards Phase 2 Raytheon (part 2)	4	2018	4	2018
Production Milestones: Contract Awards: JSOW ER Design and Development Award	2	2020	2	2020
Production Milestones: Contract Awards: Production Lot 1 Award	1	2022	1	2022
Production Milestones: Contract Awards: Production Lot 2 Award	1	2023	1	2023
Production Milestones: Contract Awards: Production Lot 3 Award	4	2024	4	2024
Deliveries: FRP-11 Deliveries- AGM-154C-1	1	2018	1	2018
Deliveries: JSOW-ER Lot 1 Deliveries	1	2023	4	2023
Deliveries: JSOW-ER Lot 2 Deliveries	1	2024	4	2024